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 DATA SCIENCE WITH MYSQL, SQLITE, POSTGRESQL, AND SQL SERVER USING PYTHON GUI
 FOUR PROJECTS: MYSQL AND PYTHON GUI FOR DATA ANALYSIS

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RICE JEFFERSON

ZERO TO MASTERY: THE COMPLETE GUIDE TO LEARNING SQLITE AND PYTHON GUI Springer

This book is for both specialist and generalist. For Information Technology (IT) and Educational Management (EM) researchers, it brings together the latest information and analysis of ITEM projects in eleven countries. But the issues raised by this collection of papers are so important for schools, school systems and the future of education that it is essential reading not only for researchers but also for teachers, administrators and all concerned with the planning and governance of our education systems. New technologies may improve our lives in two ways: by enabling us to do things better (accomplishing what we do already more efficiently) and by enabling us to do better things (accomplishing new things that we were not able to do before). Sometimes "doing things better" merges into "doing better things". Thus in the 19th century the coming of the railway enabled our forbears to accomplish their existing journeys in less

time and in greater comfort. But it also opened up the prospect of new journeys to more distant places, and led ultimately to far-reaching changes in lifestyles in new, commuter settlements far from the old city centres. So it is in the present day with Information Technology in Educational Management. Some of the papers in this volume focus on specialist tasks, for example how to develop a computer-based decision-support system to help those drawing up school timetables. Others address situations in which the power of the technology offers us the potential to change radically what we do.

LEARN FROM SCRATCH VISUAL BASIC .NET WITH MYSQL BALIGE PUBLISHING

In this project, we provide you with the SQLite version of The Oracle Database Sample Schemas that provides a common platform for examples in each release of the Oracle Database. The sample database is also a good database for practicing with SQL, especially SQLite. The detailed description of the database can be found on:

<http://luna-ext.di.fc.ul.pt/oracle11g/server.112/e10831/diagrams.htm#insertedID0>. The four schemas are a set of interlinked schemas. This set of schemas provides a layered approach to

complexity: A simple schema Human Resources (HR) is useful for introducing basic topics. An extension to this schema supports Oracle Internet Directory demos; A second schema, Order Entry (OE), is useful for dealing with matters of intermediate complexity. Many data types are available in this schema, including non-scalar data types; The Online Catalog (OC) subschema is a collection of object-relational database objects built inside the OE schema; The Product Media (PM) schema is dedicated to multimedia data types; The Sales History (SH) schema is designed to allow for demos with large amounts of data. An extension to this schema provides support for advanced analytic processing. The HR schema consists of seven tables: regions, countries, locations, departments, employees, jobs, and job_histories. This book only implements HR schema, since the other schemas will be implemented in the next books.

ANALYSIS AND PREDICTION PROJECTS USING MACHINE LEARNING AND DEEP LEARNING WITH PYTHON BALIGE PUBLISHING

PROJECT 1: GOLD PRICE ANALYSIS AND FORECASTING USING MACHINE LEARNING WITH PYTHON The challenge of this project is to accurately predict the future adjusted closing price of Gold ETF across a given period of time in the future. The problem is a regression problem, because the output value which is the adjusted closing price in this project is continuous value. Data for this study is collected from November 18th 2011 to January 1st 2019 from various sources. The data has 1718 rows in total and 80 columns in total. Data for attributes, such as Oil Price, Standard and Poor's (S&P) 500 index, Dow Jones Index US Bond rates (10 years), Euro USD exchange rates, prices of precious metals Silver and Platinum and other metals such as Palladium and Rhodium, prices of US Dollar Index, Eldorado Gold Corporation and Gold Miners ETF were gathered. The dataset has 1718 rows in total and 80 columns in total. Data for attributes, such as Oil Price, Standard and Poor's (S&P) 500 index, Dow Jones Index US Bond rates (10 years), Euro USD exchange rates, prices of precious metals Silver and Platinum and other metals such as Palladium and Rhodium, prices of US Dollar Index, Eldorado Gold Corporation and Gold Miners ETF were gathered. To perform forecasting based on regression adjusted closing price of gold, you will use: Linear Regression, Random Forest regression, Decision Tree regression, Support Vector Machine regression, Naïve Bayes regression, K-Nearest Neighbor regression, Adaboost regression, Gradient Boosting regression, Extreme Gradient Boosting regression, Light Gradient Boosting regression, Catboost regression, and MLP regression. The machine learning models used predict gold daily returns as target variable are K-Nearest Neighbor classifier, Random Forest classifier, Naive Bayes classifier, Logistic Regression classifier, Decision Tree classifier, Support Vector Machine classifier, LGBM classifier, Gradient Boosting classifier, XGB classifier, MLP classifier, and Extra Trees classifier. Finally, you will plot boundary decision, distribution of features, feature importance, predicted values versus true values, confusion matrix, learning curve, performance of the model, and scalability of the model.

PROJECT 2: WIND POWER ANALYSIS AND FORECASTING USING MACHINE LEARNING WITH PYTHON Renewable energy remains one of the most important topics for a sustainable future. Wind, being a perennial source of power, could be utilized to satisfy our power requirements. With the rise of wind farms, wind power forecasting would prove to be quite useful. It contains various weather, turbine and rotor features. Data has been recorded from January 2018 till March 2020. Readings have been recorded at a 10-minute interval. A longterm wind forecasting technique is thus required. The attributes in the dataset are as follows: ActivePower, AmbientTemperature, BearingShaftTemperature,

Blade1PitchAngle, Blade2PitchAngle, Blade3PitchAngle, ControlBoxTemperature, GearboxBearingTemperature, GearboxOilTemperature, GeneratorRP, GeneratorWinding1Temperature, GeneratorWinding2Temperature, HubTemperature, MainBoxTemperature, NacellePosition, ReactivePower, RotorRPM, TurbineStatus, WTG, WindDirection, and WindSpeed. To perform forecasting based on regression active power, you will use: Linear Regression, Random Forest regression, Decision Tree regression, Support Vector Machine regression, Naïve Bayes regression, K-Nearest Neighbor regression, Adaboost regression, Gradient Boosting regression, Extreme Gradient Boosting regression, Light Gradient Boosting regression, Catboost regression, and MLP regression. To perform clustering, you will use K-Means algorithm. The machine learning models used predict categorized active power as target variable are K-Nearest Neighbor classifier, Random Forest classifier, Naive Bayes classifier, Logistic Regression classifier, Decision Tree classifier, Support Vector Machine classifier, LGBM classifier, Gradient Boosting classifier, XGB classifier, and MLP classifier. Finally, you will plot boundary decision, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy.

PROJECT 3: MACHINE LEARNING FOR CONCRETE COMPRESSIVE STRENGTH ANALYSIS AND PREDICTION WITH PYTHON Concrete is the most important material in civil engineering. The concrete compressive strength is a highly nonlinear function of age and ingredients. These ingredients include cement, blast furnace slag, fly ash, water, superplasticizer, coarse aggregate, and fine aggregate. The actual concrete compressive strength (MPa) for a given mixture under a specific age (days) was determined from laboratory. This dataset is in raw form (not scaled). There are 1030 observations, 9 attributes, 8 quantitative input variables, and 1 quantitative output variable in dataset. The attributes in the dataset are as follows: Cement (component 1); Blast Furnace Slag (component 2); Fly Ash (component 3); Water (component 4); Superplasticizer (component 5); Coarse Aggregate; Fine Aggregate (component 7); Age; and Concrete compressive strength. To perform regression on concrete compressive strength, you will use: Linear Regression, Random Forest regression, Decision Tree regression, Support Vector Machine regression, Naïve Bayes regression, K-Nearest Neighbor regression, Adaboost regression, Gradient Boosting regression, Extreme Gradient Boosting regression, Light Gradient Boosting regression, Catboost regression, and MLP regression. To perform clustering, you will use K-Means algorithm. The machine learning models used predict clusters as target variable are K-Nearest Neighbor classifier, Random Forest classifier, Naive Bayes classifier, Logistic Regression classifier, Decision Tree classifier, Support Vector Machine classifier, LGBM classifier, Gradient Boosting classifier, XGB classifier, and MLP classifier. Finally, you will plot boundary decision, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy.

PROJECT 4: DATA SCIENCE FOR SALES ANALYSIS, FORECASTING, CLUSTERING, AND PREDICTION WITH PYTHON The dataset used in this project is from Walmart which is a renowned retail corporation that operates a chain of hypermarkets. Walmart has provided a data combining of 45 stores including store information and monthly sales. The data is provided on weekly basis. Walmart tries to find the impact of holidays on the sales of store. For which it has included four holidays' weeks into the dataset which are Christmas, Thanksgiving, Super bowl, Labor

Day. In this project, you are going to analyze, forecast weekly sales, perform clustering, and predict the resulting clusters. The dataset covers sales from 2010-02-05 to 2012-11-01. Following are the attributes in the dataset: Store - the store number; Date - the week of sales; Weekly_Sales - sales for the given store; Holiday_Flag - whether the week is a special holiday week 1 - Holiday week 0 - Non-holiday week; Temperature - Temperature on the day of sale; Fuel_Price - Cost of fuel in the region; CPI - Prevailing consumer price index; and Unemployment - Prevailing unemployment rate. To perform regression on weekly sales, you will use: Linear Regression, Random Forest regression, Decision Tree regression, Support Vector Machine regression, Naïve Bayes regression, K-Nearest Neighbor regression, Adaboost regression, Gradient Boosting regression, Extreme Gradient Boosting regression, Light Gradient Boosting regression, Catboost regression, and MLP regression. To perform clustering, you will use K-Means algorithm. The machine learning models used predict clusters as target variable are K-Nearest Neighbor classifier, Random Forest classifier, Naive Bayes classifier, Logistic Regression classifier, Decision Tree classifier, Support Vector Machine classifier, LGBM classifier, Gradient Boosting classifier, XGB classifier, and MLP classifier. Finally, you will plot boundary decision, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy.

Hands-On Guide On Data Science and Machine Learning with Python GUI BALIGE PUBLISHING

In this project, you will write Python script to create every table and insert rows of data into each of them. You will develop GUI with PyQt5 to each table in the database. You will also create GUI to plot case distribution of film release year, film rating, rental duration, and categorize film length; plot rating variable against rental_duration variable in stacked bar plots; plot length variable against rental_duration variable in stacked bar plots; read payment table; plot case distribution of Year, Day, Month, Week, and Quarter of payment; plot which year, month, week, days of week, and quarter have most payment amount; read film list by joining five tables: category, film_category, film_actor, film, and actor; plot case distribution of top 10 and bottom 10 actors; plot which film title have least and most sales; plot which actor have least and most sales; plot which film category have least and most sales; plot case distribution of top 10 and bottom 10 overdue costumers; plot which customer have least and most overdue days; plot which store have most sales; plot average payment amount by month with mean and EWM; and plot payment amount over June 2005. This project uses the Sakila sample database which is a fictitious database designed to represent a DVD rental store. The tables of the database include film, film_category, actor, film_actor, customer, rental, payment and inventory among others. You can download the MySQL from <https://dev.mysql.com/doc/sakila/en/>.

MYSQL with Visual Basic and Visual C# BALIGE PUBLISHING

The dataset used in this project consists of student achievement in secondary education of two Portuguese schools. The data attributes include student grades, demographic, social and school-related features) and it was collected by using school reports and questionnaires. Two datasets are provided regarding the performance in two distinct subjects: Mathematics (mat) and Portuguese language (por). In the two datasets were modeled under binary/five-level classification and regression tasks. Important note: the target attribute G3 has a strong correlation with attributes G2 and G1. This occurs because G3 is the final year grade (issued at the 3rd period), while G1 and G2 correspond to the 1st and 2nd period grades. It is more difficult to

predict G3 without G2 and G1, but such prediction is much more useful. Attributes in the dataset are as follows: school - student's school (binary: 'GP' - Gabriel Pereira or 'MS' - Mousinho da Silveira); sex - student's sex (binary: 'F' - female or 'M' - male); age - student's age (numeric: from 15 to 22); address - student's home address type (binary: 'U' - urban or 'R' - rural); famsize - family size (binary: 'LE3' - less or equal to 3 or 'GT3' - greater than 3); Pstatus - parent's cohabitation status (binary: 'T' - living together or 'A' - apart); Medu - mother's education (numeric: 0 - none, 1 - primary education (4th grade), 2 - 5th to 9th grade, 3 - secondary education or 4 - higher education); Fedu - father's education (numeric: 0 - none, 1 - primary education (4th grade), 2 - 5th to 9th grade, 3 - secondary education or 4 - higher education); Mjob - mother's job (nominal: 'teacher', 'health' care related, civil 'services' (e.g. administrative or police), 'at_home' or 'other'); Fjob - father's job (nominal: 'teacher', 'health' care related, civil 'services' (e.g. administrative or police), 'at_home' or 'other'); reason - reason to choose this school (nominal: close to 'home', school 'reputation', 'course' preference or 'other'); guardian - student's guardian (nominal: 'mother', 'father' or 'other'); traveltime - home to school travel time (numeric: 1 - <15 min., 2 - 15 to 30 min., 3 - 30 min. to 1 hour, or 4 - >1 hour); studytime - weekly study time (numeric: 1 - <2 hours, 2 - 2 to 5 hours, 3 - 5 to 10 hours, or 4 - >10 hours); failures - number of past class failures (numeric: n if 1<=n<3, else 4); schoolsup - extra educational support (binary: yes or no); famsup - family educational support (binary: yes or no); paid - extra paid classes within the course subject (Math or Portuguese) (binary: yes or no); activities - extra-curricular activities (binary: yes or no); nursery - attended nursery school (binary: yes or no); higher - wants to take higher education (binary: yes or no); internet - Internet access at home (binary: yes or no); romantic - with a romantic relationship (binary: yes or no); famrel - quality of family relationships (numeric: from 1 - very bad to 5 - excellent); freetime - free time after school (numeric: from 1 - very low to 5 - very high); goout - going out with friends (numeric: from 1 - very low to 5 - very high); Dalc - workday alcohol consumption (numeric: from 1 - very low to 5 - very high); Walc - weekend alcohol consumption (numeric: from 1 - very low to 5 - very high); health - current health status (numeric: from 1 - very bad to 5 - very good); absences - number of school absences (numeric: from 0 to 93); G1 - first period grade (numeric: from 0 to 20); G2 - second period grade (numeric: from 0 to 20); and G3 - final grade (numeric: from 0 to 20, output target). The models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, Adaboost, LGBM classifier, Gradient Boosting, and XGB classifier. Three feature scaling used in machine learning are raw, minmax scaler, and standard scaler. Finally, you will develop a GUI using PyQt5 to plot cross validation score, predicted values versus true values, confusion matrix, learning curve, decision boundaries, performance of the model, scalability of the model, training loss, and training accuracy.

TRAVEL REVIEW RATING CLASSIFICATION AND PREDICTION USING MACHINE LEARNING WITH PYTHON GUI BALIGE PUBLISHING

Book 1: MYSQL AND DATA SCIENCE: QUERIES AND

VISUALIZATION WITH PYTHON GUI In this project, you will write Python script to create every table and insert rows of data into each of them. You will develop GUI with PyQt5 to each table in the database. You will also create GUI to plot case distribution of film release year, film rating, rental duration, and categorize film length; plot rating variable against rental_duration variable in stacked bar plots; plot length variable against rental_duration variable in stacked bar plots; read payment table; plot case distribution of Year, Day, Month, Week, and Quarter of payment;

plot which year, month, week, days of week, and quarter have most payment amount; read film list by joining five tables: category, film_category, film_actor, film, and actor; plot case distribution of top 10 and bottom 10 actors; plot which film title have least and most sales; plot which actor have least and most sales; plot which film category have least and most sales; plot case distribution of top 10 and bottom 10 overdue costumers; plot which customer have least and most overdue days; plot which store have most sales; plot average payment amount by month with mean and EWM; and plot payment amount over June 2005. This project uses the Sakila sample database which is a fictitious database designed to represent a DVD rental store. The tables of the database include film, film_category, actor, film_actor, customer, rental, payment and inventory among others. You can download the MySQL from <https://dev.mysql.com/doc/sakila/en/>. Book 2: **SQLITE FOR DATA ANALYST AND DATA SCIENTIST WITH PYTHON GUI** In this project, we will use the SQLite version of BikeStores database as a sample database to help you work with MySQL quickly and effectively. The stores table includes the store's information. Each store has a store name, contact information such as phone and email, and an address including street, city, state, and zip code. The staffs table stores the essential information of staffs including first name, last name. It also contains the communication information such as email and phone. A staff works at a store specified by the value in the store_id column. A store can have one or more staffs. A staff reports to a store manager specified by the value in the manager_id column. If the value in the manager_id is null, then the staff is the top manager. If a staff no longer works for any stores, the value in the active column is set to zero. The categories table stores the bike's categories such as children bicycles, comfort bicycles, and electric bikes. The products table stores the product's information such as name, brand, category, model year, and list price. Each product belongs to a brand specified by the brand_id column. Hence, a brand may have zero or many products. Each product also belongs a category specified by the category_id column. Also, each category may have zero or many products. The customers table stores customer's information including first name, last name, phone, email, street, city, state, zip code, and photo path. The orders table stores the sales order's header information including customer, order status, order date, required date, shipped date. It also stores the information on where the sales transaction was created (store) and who created it (staff). Each sales order has a row in the sales_orders table. A sales order has one or many line items stored in the order_items table. The order_items table stores the line items of a sales order. Each line item belongs to a sales order specified by the order_id column. A sales order line item includes product, order quantity, list price, and discount. The stocks table stores the inventory information i.e. the quantity of a particular product in a specific store. Book 3: **ZERO TO MASTERY: THE COMPLETE GUIDE TO LEARNING POSTGRESQL WITH PYTHON GUI** This book uses the PostgreSQL version of MySQL-based Northwind database. The Northwind database is a sample database that was originally created by Microsoft and used as the basis for their tutorials in a variety of database products for decades. The Northwind database contains the sales data for a fictitious company called "Northwind Traders," which imports and exports specialty foods from around the world. The Northwind database is an excellent tutorial schema for a small-business ERP, with customers, orders, inventory, purchasing, suppliers, shipping, employees, and single-entry accounting. The Northwind database has since been ported to a variety of non-Microsoft databases, including PostgreSQL. The Northwind dataset includes sample data for the

following: Suppliers: Suppliers and vendors of Northwind; Customers: Customers who buy products from Northwind; Employees: Employee details of Northwind traders; Products: Product information; Shippers: The details of the shippers who ship the products from the traders to the end-customers; and Orders and Order_Details: Sales Order transactions taking place between the customers & the company. In this project, you will write Python script to create every table and insert rows of data into each of them. You will develop GUI with PyQt5 to each table in the database. You will also create GUI to plot: case distribution of order date by year, quarter, month, week, day, and hour; the distribution of amount by year, quarter, month, week, day, and hour; the distribution of bottom 10 sales by product, top 10 sales by product, bottom 10 sales by customer, top 10 sales by customer, bottom 10 sales by supplier, top 10 sales by supplier, bottom 10 sales by customer country, top 10 sales by customer country, bottom 10 sales by supplier country, top 10 sales by supplier country, average amount by month with mean and ewm, average amount by every month, amount feature over June 1997, amount feature over 1998, and all amount feature. Book 4: **ZERO TO MASTERY: THE COMPLETE GUIDE TO LEARNING SQL SERVER AND DATA SCIENCE WITH PYTHON GUI** In this project, we provide you with a SQL SERVER version of an Oracle sample database named OT which is based on a global fictitious company that sells computer hardware including storage, motherboard, RAM, video card, and CPU. The company maintains the product information such as name, description standard cost, list price, and product line. It also tracks the inventory information for all products including warehouses where products are available. Because the company operates globally, it has warehouses in various locations around the world. The company records all customer information including name, address, and website. Each customer has at least one contact person with detailed information including name, email, and phone. The company also places a credit limit on each customer to limit the amount that customer can owe. Whenever a customer issues a purchase order, a sales order is created in the database with the pending status. When the company ships the order, the order status becomes shipped. In case the customer cancels an order, the order status becomes canceled. In addition to the sales information, the employee data is recorded with some basic information such as name, email, phone, job title, manager, and hire date. In this project, you will write Python script to create every table and insert rows of data into each of them. You will develop GUI with PyQt5 to each table in the database. You will also create GUI to plot: case distribution of order date by year, quarter, month, week, and day; the distribution of amount by year, quarter, month, week, day, and hour; the distribution of bottom 10 sales by product, top 10 sales by product, bottom 10 sales by customer, top 10 sales by customer, bottom 10 sales by category, top 10 sales by category, bottom 10 sales by status, top 10 sales by status, bottom 10 sales by customer city, top 10 sales by customer city, bottom 10 sales by customer state, top 10 sales by customer state, average amount by month with mean and EWM, average amount by every month, amount feature over June 2016, amount feature over 2017, and amount payment in all years.

FIVE PROJECTS: POSTGRESQL AND PYTHON GUI FOR DATA ANALYSIS BALIGE PUBLISHING

The challenge of this project is to accurately predict the future adjusted closing price of Gold ETF across a given period of time in the future. The problem is a regression problem, because the output value which is the adjusted closing price in this project is continuous value. Data for this study is collected from November 18th 2011 to January 1st 2019 from various sources. The data has 1718 rows in total and 80 columns in total. Data for

attributes, such as Oil Price, Standard and Poor's (S&P) 500 index, Dow Jones Index US Bond rates (10 years), Euro USD exchange rates, prices of precious metals Silver and Platinum and other metals such as Palladium and Rhodium, prices of US Dollar Index, Eldorado Gold Corporation and Gold Miners ETF were gathered. The dataset has 1718 rows in total and 80 columns in total. Data for attributes, such as Oil Price, Standard and Poor's (S&P) 500 index, Dow Jones Index US Bond rates (10 years), Euro USD exchange rates, prices of precious metals Silver and Platinum and other metals such as Palladium and Rhodium, prices of US Dollar Index, Eldorado Gold Corporation and Gold Miners ETF were gathered. To perform forecasting based on regression adjusted closing price of gold, you will use: Linear Regression, Random Forest regression, Decision Tree regression, Support Vector Machine regression, Naïve Bayes regression, K-Nearest Neighbor regression, Adaboost regression, Gradient Boosting regression, Extreme Gradient Boosting regression, Light Gradient Boosting regression, Catboost regression, and MLP regression. The machine learning models used predict gold daily returns as target variable are K-Nearest Neighbor classifier, Random Forest classifier, Naive Bayes classifier, Logistic Regression classifier, Decision Tree classifier, Support Vector Machine classifier, LGBM classifier, Gradient Boosting classifier, XGB classifier, MLP classifier, and Extra Trees classifier. Finally, you will plot boundary decision, distribution of features, feature importance, predicted values versus true values, confusion matrix, learning curve, performance of the model, and scalability of the model.

REGRESSION, SEGMENTATION, CLUSTERING, AND PREDICTION PROJECTS WITH PYTHON Springer

PROJECT 1: FULL SOURCE CODE: SQL SERVER FOR STUDENTS AND DATA SCIENTISTS WITH PYTHON GUI In this project, we provide you with the SQL SERVER version of SQLite sample database named chinook. The chinook sample database is a good database for practicing with SQL, especially PostgreSQL. The detailed description of the database can be found on: <https://www.sqlitetutorial.net/sqlite-sample-database/>. The sample database consists of 11 tables: The employee table stores employees data such as employee id, last name, first name, etc. It also has a field named ReportsTo to specify who reports to whom; customers table stores customers data; invoices & invoice_items tables: these two tables store invoice data. The invoice table stores invoice header data and the invoice_items table stores the invoice line items data; The artist table stores artists data. It is a simple table that contains only the artist id and name; The album table stores data about a list of tracks. Each album belongs to one artist. However, one artist may have multiple albums; The media_type table stores media types such as MPEG audio and AAC audio files; genre table stores music types such as rock, jazz, metal, etc; The track table stores the data of songs. Each track belongs to one album; playlist & playlist_track tables: The playlist table store data about playlists. Each playlist contains a list of tracks. Each track may belong to multiple playlists. The relationship between the playlist table and track table is many-to-many. The playlist_track table is used to reflect this relationship. In this project, you will write Python script to create every table and insert rows of data into each of them. You will develop GUI with PyQt5 to each table in the database. You will also create GUI to plot: case distribution of order date by year, quarter, month, week, and day; the distribution of amount by year, quarter, month, week, day, and hour; the bottom/top 10 sales by employee, the bottom/top 10 sales by customer, the bottom/top 10 sales by customer, the bottom/top 10 sales by artist, the bottom/top 10 sales by genre, the bottom/top 10 sales by play list, the bottom/top 10 sales by

customer city, the bottom/top 10 sales by customer city, the bottom/top 10 sales by customer city, the payment amount by month with mean and EWM, the average payment amount by every month, and amount payment in all years. **PROJECT 2: FULL SOURCE CODE: SQL SERVER FOR DATA ANALYTICS AND VISUALIZATION WITH PYTHON GUI** This book uses SQL SERVER version of MySQL-based Sakila sample database. It is a fictitious database designed to represent a DVD rental store. The tables of the database include film, film_category, actor, customer, rental, payment and inventory among others. The Sakila sample database is intended to provide a standard schema that can be used for examples in books, tutorials, articles, samples, and so forth. Detailed information about the database can be found on website: <https://dev.mysql.com/doc/index-other.html>. In this project, you will develop GUI using PyQt5 to: read SQL SERVER database and every table in it; read every actor in actor table, read every film in films table; plot case distribution of film release year, film rating, rental duration, and categorize film length; plot rating variable against rental_duration variable in stacked bar plots; plot length variable against rental_duration variable in stacked bar plots; read payment table; plot case distribution of Year, Day, Month, Week, and Quarter of payment; plot which year, month, week, days of week, and quarter have most payment amount; read film list by joining five tables: category, film_category, film_actor, film, and actor; plot case distribution of top 10 and bottom 10 actors; plot which film title have least and most sales; plot which actor have least and most sales; plot which film category have least and most sales; plot case distribution of top 10 and bottom 10 overdue customers; plot which customer have least and most overdue days; plot which store have most sales; plot average payment amount by month with mean and EWM; and plot payment amount over June 2005. **PROJECT 3: ZERO TO MASTERY: THE COMPLETE GUIDE TO LEARNING SQL SERVER AND DATA SCIENCE WITH PYTHON GUI** In this project, we provide you with a SQL SERVER version of an Oracle sample database named OT which is based on a global fictitious company that sells computer hardware including storage, motherboard, RAM, video card, and CPU. The company maintains the product information such as name, description standard cost, list price, and product line. It also tracks the inventory information for all products including warehouses where products are available. Because the company operates globally, it has warehouses in various locations around the world. The company records all customer information including name, address, and website. Each customer has at least one contact person with detailed information including name, email, and phone. The company also places a credit limit on each customer to limit the amount that customer can owe. Whenever a customer issues a purchase order, a sales order is created in the database with the pending status. When the company ships the order, the order status becomes shipped. In case the customer cancels an order, the order status becomes canceled. In addition to the sales information, the employee data is recorded with some basic information such as name, email, phone, job title, manager, and hire date. In this project, you will write Python script to create every table and insert rows of data into each of them. You will develop GUI with PyQt5 to each table in the database. You will also create GUI to plot: case distribution of order date by year, quarter, month, week, and day; the distribution of amount by year, quarter, month, week, day, and hour; the distribution of bottom 10 sales by product, top 10 sales by product, bottom 10 sales by customer, top 10 sales by customer, bottom 10 sales by category, top 10 sales by category, bottom 10 sales by status, top 10 sales by status, bottom 10 sales by customer city, top 10 sales by customer city, bottom 10 sales by customer state, top

10 sales by customer state, average amount by month with mean and EWM, average amount by every month, amount feature over June 2016, amount feature over 2017, and amount payment in all years.

STOCK PRICE ANALYSIS, PREDICTION, AND FORECASTING USING MACHINE LEARNING AND DEEP LEARNING WITH PYTHON

Bloomsbury Publishing

In this project, you will use the Northwind database which is a sample database that was originally created by Microsoft and used as the basis for their tutorials in a variety of database products for decades. The Northwind database contains the sales data for a fictitious company called "Northwind Traders," which imports and exports specialty foods from around the world. The Northwind database is an excellent tutorial schema for a small-business ERP, with customers, orders, inventory, purchasing, suppliers, shipping, employees, and single-entry accounting. The Northwind dataset includes sample data for the following: Suppliers: Suppliers and vendors of Northwind; Customers: Customers who buy products from Northwind; Employees: Employee details of Northwind traders; Products: Product information; Shippers: The details of the shippers who ship the products from the traders to the end-customers; Orders and Order_Details: Sales Order transactions taking place between the customers & the company. The Northwind sample database includes 11 tables and the table relationships are showcased in the following entity relationship diagram. In this project, you will write Python script to create every table and insert rows of data into each of them. You will develop GUI with PyQt5 to each table in the database. You will also create GUI to plot: case distribution of order date by year, quarter, month, week, day, and hour; the distribution of amount by year, quarter, month, week, day, and hour; the distribution of bottom 10 sales by product, top 10 sales by product, bottom 10 sales by customer, top 10 sales by customer, bottom 10 sales by supplier, top 10 sales by supplier, bottom 10 sales by customer country, top 10 sales by customer country, bottom 10 sales by supplier country, top 10 sales by supplier country, average amount by month with mean and ewm, average amount by every month, amount feature over June 1997, amount feature over 1998, and all amount feature.

DATA ANALYSIS PROJECTS WITH MYSQL, SQLITE, POSTGRES, AND SQL SERVER USING PYTHON GUI BALIGE PUBLISHING

The dataset used in this project has been sourced from the Machine Learning Repository of University of California, Irvine (UC Irvine): Travel Review Ratings Data Set. This dataset is populated by capturing user ratings from Google reviews. Reviews on attractions from 24 categories across Europe are considered. Google user rating ranges from 1 to 5 and average user rating per category is calculated. The attributes in the dataset are as follows: Attribute 1 : Unique user id; Attribute 2 : Average ratings on churches; Attribute 3 : Average ratings on resorts; Attribute 4 : Average ratings on beaches; Attribute 5 : Average ratings on parks; Attribute 6 : Average ratings on theatres; Attribute 7 : Average ratings on museums; Attribute 8 : Average ratings on malls; Attribute 9 : Average ratings on zoo; Attribute 10 : Average ratings on restaurants; Attribute 11 : Average ratings on pubs/bars; Attribute 12 : Average ratings on local services; Attribute 13 : Average ratings on burger/pizza shops; Attribute 14 : Average ratings on hotels/other lodgings; Attribute 15 : Average ratings on juice bars; Attribute 16 : Average ratings on art galleries; Attribute 17 : Average ratings on dance clubs; Attribute 18 : Average ratings on swimming pools; Attribute 19 : Average ratings on gyms; Attribute 20 : Average ratings on bakeries; Attribute 21 : Average ratings on beauty & spas; Attribute 22 : Average ratings on cafes; Attribute 23 : Average ratings on view points; Attribute 24 : Average ratings on monuments; and

Attribute 25 : Average ratings on gardens. The models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, Adaboost, LGBM classifier, Gradient Boosting, XGB classifier, and MLP classifier. Three feature scaling used in machine learning are raw, minmax scaler, and standard scaler. Finally, you will develop a GUI using PyQt5 to plot cross validation score, predicted values versus true values, confusion matrix, learning curve, decision boundaries, performance of the model, scalability of the model, training loss, and training accuracy.

MARKETING ANALYSIS AND PREDICTION USING MACHINE LEARNING AND DEEP LEARNING WITH PYTHON BALIGE PUBLISHING

A comprehensive guide for business people, government administrators and specialists in management methodology, Methodological School of Management details the original and applied thinking, methods and approaches established by the school in the Soviet era and still operating successfully in modern Russia today. The Methodological School of Management is not an educational institution, but a range of management tools, which evolved as a part of the 'systems movement' during the second half of the twentieth century. The school was created by the pupils of Georgy Petrovich Shchedrovitsky (1929–1994) under whose leadership a body of knowledge – the 'starting capital' of the Methodological School of Management – took shape. The management tools developed by the school are used by its leaders in their current managerial practice. This practice extends to a number of fields: government administration, management of economic sectors, corporate governance and the management of individual corporations. Although the school is less well known to Western specialists in systems engineering methodology and management, this book aims to secure the school a place in the global systems engineering landscape. Its ideas have entered the tool kits of most major control systems and corporations in the world's leading economies, from NASA and Toyota to retail chains – a clear testimony to the value of Georgy Shchedrovitsky's research, ideas and the body of knowledge he left behind. Shortlisted for the CMI Management Book of the Year award, Methodological School of Management offers solutions for resolving tricky managerial situations and achieving organisational targets – essential reading for anyone learning how to manage people and issues alike.

GOLD PRICE ANALYSIS AND FORECASTING USING MACHINE LEARNING WITH PYTHON BALIGE PUBLISHING

PROJECT 1: FULL SOURCE CODE: MYSQL FOR STUDENTS AND PROGRAMMERS WITH PYTHON GUI In this project, we provide you with a MySQL version of an Oracle sample database named OT which is based on a global fictitious company that sells computer hardware including storage, motherboard, RAM, video card, and CPU. The company maintains the product information such as name, description standard cost, list price, and product line. It also tracks the inventory information for all products including warehouses where products are available. Because the company operates globally, it has warehouses in various locations around the world. The company records all customer information including name, address, and website. Each customer has at least one contact person with detailed information including name, email, and phone. The company also places a credit limit on each customer to limit the amount that customer can owe. Whenever a customer issues a purchase order, a sales order is created in the database with the pending status. When the company ships the order, the order status becomes shipped. In case the customer cancels an order, the order status becomes canceled. In addition to the sales information, the employee data is recorded with some basic information such as name, email,

phone, job title, manager, and hire date. In this project, you will write Python script to create every table and insert rows of data into each of them. You will develop GUI with PyQt5 to each table in the database. You will also create GUI to plot: case distribution of order date by year, quarter, month, week, and day; the distribution of amount by year, quarter, month, week, day, and hour; the distribution of bottom 10 sales by product, top 10 sales by product, bottom 10 sales by customer, top 10 sales by customer, bottom 10 sales by category, top 10 sales by category, bottom 10 sales by status, top 10 sales by status, bottom 10 sales by customer city, top 10 sales by customer city, bottom 10 sales by customer state, top 10 sales by customer state, average amount by month with mean and EWM, average amount by every month, amount feature over June 2016, amount feature over 2017, and amount payment in all years. PROJECT 2: MYSQL FOR DATA ANALYST AND DATA SCIENTIST WITH PYTHON GUI In this project, we will use the BikeStores database as a MySQL sample database to help you work with MySQL quickly and effectively. The stores table includes the store's information. Each store has a store name, contact information such as phone and email, and an address including street, city, state, and zip code. The staffs table stores the essential information of staffs including first name, last name. It also contains the communication information such as email and phone. A staff works at a store specified by the value in the store_id column. A store can have one or more staffs. A staff reports to a store manager specified by the value in the manager_id column. If the value in the manager_id is null, then the staff is the top manager. If a staff no longer works for any stores, the value in the active column is set to zero. The categories table stores the bike's categories such as children bicycles, comfort bicycles, and electric bikes. The products table stores the product's information such as name, brand, category, model year, and list price. Each product belongs to a brand specified by the brand_id column. Hence, a brand may have zero or many products. Each product also belongs a category specified by the category_id column. Also, each category may have zero or many products. The customers table stores customer's information including first name, last name, phone, email, street, city, state, zip code, and photo path. The orders table stores the sales order's header information including customer, order status, order date, required date, shipped date. It also stores the information on where the sales transaction was created (store) and who created it (staff). Each sales order has a row in the sales_orders table. A sales order has one or many line items stored in the order_items table. The order_items table stores the line items of a sales order. Each line item belongs to a sales order specified by the order_id column. A sales order line item includes product, order quantity, list price, and discount. The stocks table stores the inventory information i.e. the quantity of a particular product in a specific store. In this project, you will write Python script to create every table and insert rows of data into each of them. You will develop GUI with PyQt5 to each table in the database. You will also create GUI to plot: case distribution of order date by year, quarter, month, week, day, and hour; the distribution of amount by year, quarter, month, week, day, and hour; the distribution of bottom 10 sales by product, top 10 sales by product, bottom 10 sales by customer, top 10 sales by customer, bottom 10 sales by category, top 10 sales by category, bottom 10 sales by brand, top 10 sales by brand, bottom 10 sales by customer city, top 10 sales by customer city, bottom 10 sales by customer state, top 10 sales by customer state, average amount by month with mean and EWM, average amount by every month, amount feature over June 2017, amount feature over 2018, and all amount feature. PROJECT 3: MYSQL FOR DATA ANALYSIS AND VISUALIZATION WITH PYTHON GUI In this project,

you will use the Northwind database which is a sample database that was originally created by Microsoft and used as the basis for their tutorials in a variety of database products for decades. The Northwind database contains the sales data for a fictitious company called "Northwind Traders," which imports and exports specialty foods from around the world. The Northwind database is an excellent tutorial schema for a small-business ERP, with customers, orders, inventory, purchasing, suppliers, shipping, employees, and single-entry accounting. The Northwind dataset includes sample data for the following: Suppliers: Suppliers and vendors of Northwind; Customers: Customers who buy products from Northwind; Employees: Employee details of Northwind traders; Products: Product information; Shippers: The details of the shippers who ship the products from the traders to the end-customers; Orders and Order_Details: Sales Order transactions taking place between the customers & the company. The Northwind sample database includes 11 tables and the table relationships are showcased in the following entity relationship diagram. In this project, you will write Python script to create every table and insert rows of data into each of them. You will develop GUI with PyQt5 to each table in the database. You will also create GUI to plot: case distribution of order date by year, quarter, month, week, day, and hour; the distribution of amount by year, quarter, month, week, day, and hour; the distribution of bottom 10 sales by product, top 10 sales by product, bottom 10 sales by customer, top 10 sales by customer, bottom 10 sales by supplier, top 10 sales by supplier, bottom 10 sales by customer country, top 10 sales by customer country, bottom 10 sales by supplier country, top 10 sales by supplier country, average amount by month with mean and ewm, average amount by every month, amount feature over june 1997, amount feature over 1998, and all amount feature. PROJECT 4: MYSQL AND DATA SCIENCE: QUERIES AND VISUALIZATION WITH PYTHON GUI In this project, you will write Python script to create every table and insert rows of data into each of them. You will develop GUI with PyQt5 to each table in the database. You will also create GUI to plot case distribution of film release year, film rating, rental duration, and categorize film length; plot rating variable against rental_duration variable in stacked bar plots; plot length variable against rental_duration variable in stacked bar plots; read payment table; plot case distribution of Year, Day, Month, Week, and Quarter of payment; plot which year, month, week, days of week, and quarter have most payment amount; read film list by joining five tables: category, film_category, film_actor, film, and actor; plot case distribution of top 10 and bottom 10 actors; plot which film title have least and most sales; plot which actor have least and most sales; plot which film category have least and most sales; plot case distribution of top 10 and bottom 10 overdue costumers; plot which customer have least and most overdue days; plot which store have most sales; plot average payment amount by month with mean and EWM; and plot payment amount over June 2005. This project uses the Sakila sample database which is a fictitious database designed to represent a DVD rental store. The tables of the database include film, film_category, actor, film_actor, customer, rental, payment and inventory among others. You can download the MySQL from <https://dev.mysql.com/doc/sakila/en/>.

SUPERMARKET SALES ANALYSIS AND PREDICTION USING MACHINE LEARNING WITH PYTHON GUI BALIGE PUBLISHING Educational institutions in which administrators, managers and teachers will be working in the late 1990's will be far different from those of today. Schools, which until recently were lagging behind in the implementation of information technology (IT) in their administration and management, are now attempting to close the gap. A massive and rapid computerization process in

schools, school districts and throughout the other levels of the educational system, including universities, has made computers an integral part of the educational management scene. A computer on the desk of every educational management staff might become a reality in the near future. The term "IT" includes three main components: hardware, software - mainly management information systems (MIS)/decision support systems (DSS) and human factors. Presently, successful implementation depends on adequate software and on human factors. MIS/DSSs are being implemented with the aim of providing meaningful support for school employees in their daily activities, and to improve their performance, effectiveness and efficiency. Much like at universities, usable and accessible school databases are being established, encompassing data on students, teachers, employees, classrooms, grade levels, courses, student achievements and behavior, school space, curriculum, finance, inventory, transportation, etc.

Two Books In One: LEARN FROM SCRATCH VISUAL BASIC .NET WITH MYSQL BALIGE PUBLISHING

This book will teach you with step-by-step approach to develop from scratch a MySQL-driven desktop application that readers can develop for their own purposes to implement school database project using Visual Basic .NET. In Tutorial 1, you will perform the steps necessary to add 8 tables using phpMyAdmin into School database that you will create. You will build each table and add the associated fields as needed. In this tutorial, you will also build login form and main form. In Tutorial 2, you will build such a form for Parent table. This table has thirteen fields: ParentID, FirstName, LastName, BirthDate, Status, Ethnicity, Nationality, Mobile, Phone, Religion, Gender, PhotoFile, and FingerFile). You need fourteen label controls, two picture boxes, six text boxes, four comboboxes, one check box, one date time picker, one openfiledialog, and one printpreviewdialog. You also need four buttons for navigation, six buttons for other utilities, one button for searching member's name, one button to upload parent's photo, and button to upload parent's finger. Place these controls on the form. In Tutorial 3, you will build such a form for Student table. This table has fifteen fields: StudentID, ParentID, FirstName, LastName, BirthDate, YearEntry, Status, Ethnicity, Nationality, Mobile, Phone, Religion, Gender, PhotoFile, and FingerFile). You need sixteen label controls, two picture boxes, six text boxes, five comboboxes, one check box, two date time pickers, one openfiledialog, and one printpreviewdialog. You also need four buttons for navigation, seven buttons for controlling editing features, one button for searching parent's name, one button to open parent form, one button to upload student's photo, and one button to upload student's finger. In Tutorial 4, you will build a form for Teacher table. This table has fifteen fields: TeacherID, RegNumber, FirstName, LastName, BirthDate, Rank, Status, Ethnicity, Nationality, Mobile, Phone, Religion, Gender, PhotoFile, and FingerFile). You need an input form so that user can edit existing records, delete records, or add new records. The form will also have the capability of navigating from one record to another. You need sixteen label controls, one picture box, seven text boxes, five comboboxes, one check box, one date time picker, one openfiledialog, and one printpreviewdialog. You also need four buttons for navigation, six buttons for controlling editing features, one button for searching teacher's name, and one button to upload teacher's photo. In Tutorial 5, you will build a form for Subject table. This table has only three fields: SubjectID, Name, and Description. You need four label controls, four text boxes, one openfiledialog, and one printpreviewdialog. You also need four buttons for navigation, seven buttons for utilities, and one button for searching subject name. Place these controls on the form. You will also build a form

for Grade table. This table has seven fields: GradeID, Name, SubjectID, TeacherID, SchoolYear, TimeStart, and TimeFinish. You need to add seven label controls, one text box, four comboboxes, and two date time pickers. You also need four buttons for navigation, seven buttons for controlling editing features, one button to open subject form, and one button to open teacher form. In Tutorial 6, you will build a form for Grade_Student table. This table has only three fields: Grade_StudentID, GradeID, and StudentID. You need an input form so that user can edit existing records, delete records, or add new records. The form will also have the capability of navigating from one record to another. You need two label controls and two comboboxes. You also need four buttons for navigation, seven buttons for controlling editing features, one button to open grade form, and one button to open student form.

LEARN FROM SCRATCH MACHINE LEARNING WITH PYTHON GUI BALIGE PUBLISHING

WORKSHOP 1: In this workshop, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to implement deep learning on recognizing traffic signs using GTSRB dataset, detecting brain tumor using Brain Image MRI dataset, classifying gender, and recognizing facial expression using FER2013 dataset. In Chapter 1, you will learn to create GUI applications to display line graph using PyQt. You will also learn how to display image and its histogram. In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, Pandas, NumPy and other libraries to perform prediction on handwritten digits using MNIST dataset with PyQt. You will build a GUI application for this purpose. In Chapter 3, you will learn how to perform recognizing traffic signs using GTSRB dataset from Kaggle. There are several different types of traffic signs like speed limits, no entry, traffic signals, turn left or right, children crossing, no passing of heavy vehicles, etc. Traffic signs classification is the process of identifying which class a traffic sign belongs to. In this Python project, you will build a deep neural network model that can classify traffic signs in image into different categories. With this model, you will be able to read and understand traffic signs which are a very important task for all autonomous vehicles. You will build a GUI application for this purpose. In Chapter 4, you will learn how to perform detecting brain tumor using Brain Image MRI dataset provided by Kaggle (<https://www.kaggle.com/navoneel/brain-mri-images-for-brain-tumor-detection>) using CNN model. You will build a GUI application for this purpose. In Chapter 5, you will learn how to perform classifying gender using dataset provided by Kaggle (<https://www.kaggle.com/cashutosh/gender-classification-dataset>) using MobileNetV2 and CNN models. You will build a GUI application for this purpose. In Chapter 6, you will learn how to perform recognizing facial expression using FER2013 dataset provided by Kaggle (<https://www.kaggle.com/nicolejyt/facialexpressionrecognition>) using CNN model. You will also build a GUI application for this purpose. **WORKSHOP 2:** In this workshop, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to implement deep learning on classifying fruits, classifying cats/dogs, detecting furnitures, and classifying fashion. In Chapter 1, you will learn to create GUI applications to display line graph using PyQt. You will also learn how to display image and its histogram. Then, you will learn how to use OpenCV, NumPy, and other libraries to perform feature extraction with Python GUI (PyQt). The feature detection techniques used in this chapter are Harris Corner Detection, Shi-Tomasi Corner Detector, and Scale-Invariant Feature Transform (SIFT). In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform classifying fruits

using Fruits 360 dataset provided by Kaggle (<https://www.kaggle.com/moltean/fruits/code>) using Transfer Learning and CNN models. You will build a GUI application for this purpose. In Chapter 3, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform classifying cats/dogs using dataset provided by Kaggle (<https://www.kaggle.com/chetankv/dogs-cats-images>) using CNN with Data Generator. You will build a GUI application for this purpose. In Chapter 4, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform detecting furnitures using Furniture Detector dataset provided by Kaggle (<https://www.kaggle.com/akkithetechie/furniture-detector>) using VGG16 model. You will build a GUI application for this purpose. In Chapter 5, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform classifying fashion using Fashion MNIST dataset provided by Kaggle (<https://www.kaggle.com/zalando-research/fashionmnist/code>) using CNN model. You will build a GUI application for this purpose. WORKSHOP 3: In this workshop, you will implement deep learning on detecting vehicle license plates, recognizing sign language, and detecting surface crack using TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries. In Chapter 1, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform detecting vehicle license plates using Car License Plate Detection dataset provided by Kaggle (<https://www.kaggle.com/andrewmvd/car-plate-detection/download>). In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform sign language recognition using Sign Language Digits Dataset provided by Kaggle (<https://www.kaggle.com/ardamavi/sign-language-digits-dataset/download>). In Chapter 3, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform detecting surface crack using Surface Crack Detection provided by Kaggle (<https://www.kaggle.com/arunrk7/surface-crack-detection/download>). WORKSHOP 4: In this workshop, implement deep learning-based image classification on detecting face mask, classifying weather, and recognizing flower using TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries. In Chapter 1, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform detecting face mask using Face Mask Detection Dataset provided by Kaggle (<https://www.kaggle.com/omkargurav/face-mask-dataset/download>). In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform how to classify weather using Multi-class Weather Dataset provided by Kaggle (<https://www.kaggle.com/pratik2901/multiclass-weather-dataset/download>). WORKSHOP 5: In this workshop, implement deep learning-based image classification on classifying monkey species, recognizing rock, paper, and scissor, and classify airplane, car, and ship using TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries. In Chapter 1, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform how to classify monkey species using 10 Monkey Species dataset provided by Kaggle (<https://www.kaggle.com/slothkong/10-monkey-species/download>). In Chapter 2, you will learn how to use TensorFlow, Keras, Scikit-Learn, OpenCV, Pandas, NumPy and other libraries to perform how to recognize rock, paper, and scissor using 10

Monkey Species dataset provided by Kaggle (<https://www.kaggle.com/sanikamal/rock-paper-scissors-dataset/download>). WORKSHOP 6: In this workshop, you will implement two data science projects using Scikit-Learn, Scipy, and other libraries with Python GUI. In Chapter 1, you will learn how to use Scikit-Learn, Scipy, and other libraries to perform how to predict traffic (number of vehicles) in four different junctions using Traffic Prediction Dataset provided by Kaggle (<https://www.kaggle.com/fedesoriano/traffic-prediction-dataset/download>). This dataset contains 48.1k (48120) observations of the number of vehicles each hour in four different junctions: 1) DateTime; 2) Junction; 3) Vehicles; and 4) ID. In Chapter 2, you will learn how to use Scikit-Learn, NumPy, Pandas, and other libraries to perform how to analyze and predict heart attack using Heart Attack Analysis & Prediction Dataset provided by Kaggle (<https://www.kaggle.com/rashikrahmanpritom/heart-attack-analysis-prediction-dataset/download>). WORKSHOP 7: In this workshop, you will implement two data science projects using Scikit-Learn, Scipy, and other libraries with Python GUI. In Project 1, you will learn how to use Scikit-Learn, NumPy, Pandas, Seaborn, and other libraries to perform how to predict early stage diabetes using Early Stage Diabetes Risk Prediction Dataset provided by Kaggle (<https://www.kaggle.com/ishandutta/early-stage-diabetes-risk-prediction-dataset/download>). This dataset contains the sign and symptom data of newly diabetic or would be diabetic patient. This has been collected using direct questionnaires from the patients of Sylhet Diabetes Hospital in Sylhet, Bangladesh and approved by a doctor. You will develop a GUI using PyQt5 to plot distribution of features, feature importance, cross validation score, and predicted values versus true values. The machine learning models used in this project are Adaboost, Random Forest, Gradient Boosting, Logistic Regression, and Support Vector Machine. In Project 2, you will learn how to use Scikit-Learn, NumPy, Pandas, and other libraries to perform how to analyze and predict breast cancer using Breast Cancer Prediction Dataset provided by Kaggle (<https://www.kaggle.com/merishnasuwal/breast-cancer-prediction-dataset/download>). Worldwide, breast cancer is the most common type of cancer in women and the second highest in terms of mortality rates. Diagnosis of breast cancer is performed when an abnormal lump is found (from self-examination or x-ray) or a tiny speck of calcium is seen (on an x-ray). After a suspicious lump is found, the doctor will conduct a diagnosis to determine whether it is cancerous and, if so, whether it has spread to other parts of the body. This breast cancer dataset was obtained from the University of Wisconsin Hospitals, Madison from Dr. William H. Wolberg. You will develop a GUI using PyQt5 to plot distribution of features, pairwise relationship, test scores, predicted values versus true values, confusion matrix, and decision boundary. The machine learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, and Support Vector Machine. WORKSHOP 8: In this workshop, you will learn how to use Scikit-Learn, TensorFlow, Keras, NumPy, Pandas, Seaborn, and other libraries to implement brain tumor classification and detection with machine learning using Brain Tumor dataset provided by Kaggle. This dataset contains five first order features: Mean (the contribution of individual pixel intensity for the entire image), Variance (used to find how each pixel varies from the neighboring pixel 0, Standard Deviation (the deviation of measured Values or the data from its mean), Skewness (measures of symmetry), and Kurtosis (describes the peak of e.g. a frequency distribution). It also contains eight second order features: Contrast, Energy, ASM (Angular second moment), Entropy, Homogeneity, Dissimilarity,

Correlation, and Coarseness. The machine learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, and Support Vector Machine. The deep learning models used in this project are MobileNet and ResNet50. In this project, you will develop a GUI using PyQt5 to plot boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, training loss, and training accuracy. **WORKSHOP 9:** In this workshop, you will learn how to use Scikit-Learn, Keras, TensorFlow, NumPy, Pandas, Seaborn, and other libraries to perform COVID-19 Epitope Prediction using COVID-19/SARS B-cell Epitope Prediction dataset provided in Kaggle. All of three datasets consists of information of protein and peptide: parent_protein_id : parent protein ID; protein_seq : parent protein sequence; start_position : start position of peptide; end_position : end position of peptide; peptide_seq : peptide sequence; chou_fasman : peptide feature; emini : peptide feature, relative surface accessibility; kolaskar_tongaonkar : peptide feature, antigenicity; parker : peptide feature, hydrophobicity; isoelectric_point : protein feature; aromacity: protein feature; hydrophobicity : protein feature; stability : protein feature; and target : antibody valence (target value). The machine learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, Adaboost, Gradient Boosting, XGB classifier, and MLP classifier. Then, you will learn how to use sequential CNN and VGG16 models to detect and predict Covid-19 X-RAY using COVID-19 Xray Dataset (Train & Test Sets) provided in Kaggle. The folder itself consists of two subfolders: test and train. Finally, you will develop a GUI using PyQt5 to plot boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, training loss, and training accuracy. **WORKSHOP 10:** In this workshop, you will learn how to use Scikit-Learn, Keras, TensorFlow, NumPy, Pandas, Seaborn, and other libraries to perform analyzing and predicting stroke using dataset provided in Kaggle. The dataset consists of attribute information: id: unique identifier; gender: "Male", "Female" or "Other"; age: age of the patient; hypertension: 0 if the patient doesn't have hypertension, 1 if the patient has hypertension; heart_disease: 0 if the patient doesn't have any heart diseases, 1 if the patient has a heart disease; ever_married: "No" or "Yes"; work_type: "children", "Govt_jov", "Never_worked", "Private" or "Self-employed"; Residence_type: "Rural" or "Urban"; avg_glucose_level: average glucose level in blood; bmi: body mass index; smoking_status: "formerly smoked", "never smoked", "smokes" or "Unknown"; and stroke: 1 if the patient had a stroke or 0 if not. The models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, Adaboost, LGBM classifier, Gradient Boosting, XGB classifier, MLP classifier, and CNN 1D. Finally, you will develop a GUI using PyQt5 to plot boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy. **WORKSHOP 11:** In this workshop, you will learn how to use Scikit-Learn, Keras, TensorFlow, NumPy, Pandas, Seaborn, and other libraries to perform classifying and predicting Hepatitis C using dataset provided by UCI Machine Learning Repository. All attributes in dataset except Category and Sex are numerical. Attributes 1 to 4 refer to the data of the patient: X (Patient ID/No.), Category (diagnosis) (values: '0=Blood Donor', '0s=suspect Blood Donor', '1=Hepatitis', '2=Fibrosis', '3=Cirrhosis'), Age (in years), Sex (f,m), ALB, ALP, ALT, AST, BIL,

CHE, CHOL, CREA, GGT, and PROT. The target attribute for classification is Category (2): blood donors vs. Hepatitis C patients (including its progress ('just' Hepatitis C, Fibrosis, Cirrhosis)). The models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, Adaboost, LGBM classifier, Gradient Boosting, XGB classifier, MLP classifier, and ANN 1D. Finally, you will develop a GUI using PyQt5 to plot boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy.

Classification and Prediction Projects with Machine Learning and Deep Learning BALIGE PUBLISHING

PROJECT 1: DEFAULT LOAN PREDICTION BASED ON CUSTOMER BEHAVIOR Using Machine Learning and Deep Learning with Python In finance, default is failure to meet the legal obligations (or conditions) of a loan, for example when a home buyer fails to make a mortgage payment, or when a corporation or government fails to pay a bond which has reached maturity. A national or sovereign default is the failure or refusal of a government to repay its national debt. The dataset used in this project belongs to a Hackathon organized by "Univ.AI". All values were provided at the time of the loan application. Following are the features in the dataset: Income, Age, Experience, Married/Single, House_Ownership, Car_Ownership, Profession, CITY, STATE, CURRENT_JOB_YRS, CURRENT_HOUSE_YRS, and Risk_Flag. The Risk_Flag indicates whether there has been a default in the past or not. The machine learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, Adaboost, LGBM classifier, Gradient Boosting, XGB classifier, MLP classifier, and CNN 1D. Finally, you will plot boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy. **PROJECT 2: AIRLINE PASSENGER SATISFACTION** Analysis and Prediction Using Machine Learning and Deep Learning with Python The dataset used in this project contains an airline passenger satisfaction survey. In this case, you will determine what factors are highly correlated to a satisfied (or dissatisfied) passenger and predict passenger satisfaction. Below are the features in the dataset: Gender: Gender of the passengers (Female, Male); Customer Type: The customer type (Loyal customer, disloyal customer); Age: The actual age of the passengers; Type of Travel: Purpose of the flight of the passengers (Personal Travel, Business Travel); Class: Travel class in the plane of the passengers (Business, Eco, Eco Plus); Flight distance: The flight distance of this journey; Inflight wifi service: Satisfaction level of the inflight wifi service (0:Not Applicable;1-5); Departure/Arrival time convenient: Satisfaction level of Departure/Arrival time convenient; Ease of Online booking: Satisfaction level of online booking; Gate location: Satisfaction level of Gate location; Food and drink: Satisfaction level of Food and drink; Online boarding: Satisfaction level of online boarding; Seat comfort: Satisfaction level of Seat comfort; Inflight entertainment: Satisfaction level of inflight entertainment; On-board service: Satisfaction level of On-board service; Leg room service: Satisfaction level of Leg room service; Baggage handling: Satisfaction level of baggage handling; Check-in service: Satisfaction level of Check-in service; Inflight service: Satisfaction level of inflight service; Cleanliness: Satisfaction level of Cleanliness; Departure Delay in Minutes: Minutes delayed when departure; Arrival Delay in Minutes: Minutes delayed when

Arrival; and Satisfaction: Airline satisfaction level (Satisfaction, neutral or dissatisfaction) The machine learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, LGBM classifier, Gradient Boosting, XGB classifier, MLP classifier, and CNN 1D. Finally, you will plot boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy. PROJECT 3: CREDIT CARD CHURNING CUSTOMER ANALYSIS AND PREDICTION USING MACHINE LEARNING AND DEEP LEARNING WITH PYTHON The dataset used in this project consists of more than 10,000 customers mentioning their age, salary, marital_status, credit card limit, credit card category, etc. There are 20 features in the dataset. In the dataset, there are only 16.07% of customers who have churned. Thus, it's a bit difficult to train our model to predict churning customers. Following are the features in the dataset: 'Attrition_Flag', 'Customer_Age', 'Gender', 'Dependent_count', 'Education_Level', 'Marital_Status', 'Income_Category', 'Card_Category', 'Months_on_book', 'Total_Relationship_Count', 'Months_Inactive_12_mon', 'Contacts_Count_12_mon', 'Credit_Limit', 'Total_Revolving_Bal', 'Avg_Open_To_Buy', 'Total_Amt_Chng_Q4_Q1', 'Total_Trans_Amt', 'Total_Trans_Ct', 'Total_Ct_Chng_Q4_Q1', and 'Avg_Utilization_Ratio'. The target variable is 'Attrition_Flag'. The machine learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, LGBM classifier, Gradient Boosting, XGB classifier, MLP classifier, and CNN 1D. Finally, you will plot boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy. PROJECT 4: MARKETING ANALYSIS AND PREDICTION USING MACHINE LEARNING AND DEEP LEARNING WITH PYTHON This data set was provided to students for their final project in order to test their statistical analysis skills as part of a MSc. in Business Analytics. It can be utilized for EDA, Statistical Analysis, and Visualizations. Following are the features in the dataset: ID = Customer's unique identifier; Year_Birth = Customer's birth year; Education = Customer's education level; Marital_Status = Customer's marital status; Income = Customer's yearly household income; Kidhome = Number of children in customer's household; Teenhome = Number of teenagers in customer's household; Dt_Customer = Date of customer's enrollment with the company; Recency = Number of days since customer's last purchase; MntWines = Amount spent on wine in the last 2 years; MntFruits = Amount spent on fruits in the last 2 years; MntMeatProducts = Amount spent on meat in the last 2 years; MntFishProducts = Amount spent on fish in the last 2 years; MntSweetProducts = Amount spent on sweets in the last 2 years; MntGoldProds = Amount spent on gold in the last 2 years; NumDealsPurchases = Number of purchases made with a discount; NumWebPurchases = Number of purchases made through the company's web site; NumCatalogPurchases = Number of purchases made using a catalogue; NumStorePurchases = Number of purchases made directly in stores; NumWebVisitsMonth = Number of visits to company's web site in the last month; AcceptedCmp3 = 1 if customer accepted the offer in the 3rd campaign, 0 otherwise; AcceptedCmp4 = 1 if customer accepted the offer in the 4th campaign, 0 otherwise; AcceptedCmp5 = 1 if customer accepted the offer in the 5th campaign, 0 otherwise; AcceptedCmp1 = 1 if customer accepted the offer in the 1st campaign, 0 otherwise; AcceptedCmp2 = 1 if customer accepted the offer in the 2nd

campaign, 0 otherwise; Response = 1 if customer accepted the offer in the last campaign, 0 otherwise; Complain = 1 if customer complained in the last 2 years, 0 otherwise; and Country = Customer's location. The machine and deep learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, LGBM classifier, Gradient Boosting, XGB classifier, MLP classifier, and CNN 1D. Finally, you will plot boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy. PROJECT 5: METEOROLOGICAL DATA ANALYSIS AND PREDICTION USING MACHINE LEARNING WITH PYTHON Meteorological phenomena are described and quantified by the variables of Earth's atmosphere: temperature, air pressure, water vapour, mass flow, and the variations and interactions of these variables, and how they change over time. Different spatial scales are used to describe and predict weather on local, regional, and global levels. The dataset used in this project consists of meteorological data with 96453 total number of data points and with 11 attributes/columns. Following are the columns in the dataset: Formatted Date; Summary; Precip Type; Temperature (C); Apparent Temperature (C); Humidity; Wind Speed (km/h); Wind Bearing (degrees); Visibility (km); Pressure (millibars); and Daily Summary. The machine learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, LGBM classifier, Gradient Boosting, XGB classifier, and MLP classifier. Finally, you will plot boundary decision, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy.

FULL SOURCE CODE: POSTGRESQL FOR DATA ANALYTICS AND VISUALIZATION WITH PYTHON GUI BALIGE PUBLISHING
Book 1: Practical Data Science Programming for Medical Datasets Analysis and Prediction with Python GUI In this book, you will implement two data science projects using Scikit-Learn, Scipy, and other libraries with Python GUI. In Project 1, you will learn how to use Scikit-Learn, NumPy, Pandas, Seaborn, and other libraries to perform how to predict early stage diabetes using Early Stage Diabetes Risk Prediction Dataset provided by Kaggle. This dataset contains the sign and symptom data of newly diabetic or would be diabetic patient. This has been collected using direct questionnaires from the patients of Sylhet Diabetes Hospital in Sylhet, Bangladesh and approved by a doctor. You will develop a GUI using PyQt5 to plot distribution of features, feature importance, cross validation score, and predicted values versus true values. The machine learning models used in this project are Adaboost, Random Forest, Gradient Boosting, Logistic Regression, and Support Vector Machine. In Project 2, you will learn how to use Scikit-Learn, NumPy, Pandas, and other libraries to perform how to analyze and predict breast cancer using Breast Cancer Prediction Dataset provided by Kaggle. Worldwide, breast cancer is the most common type of cancer in women and the second highest in terms of mortality rates. Diagnosis of breast cancer is performed when an abnormal lump is found (from self-examination or x-ray) or a tiny speck of calcium is seen (on an x-ray). After a suspicious lump is found, the doctor will conduct a diagnosis to determine whether it is cancerous and, if so, whether it has spread to other parts of the body. This breast cancer dataset was obtained from the University of Wisconsin Hospitals, Madison from Dr. William H. Wolberg. You will develop a GUI using PyQt5 to plot distribution of features, pairwise relationship,

test scores, predicted values versus true values, confusion matrix, and decision boundary. The machine learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, and Support Vector Machine. Book 2: Step by Step Tutorials For Data Science With Python GUI: Traffic And Heart Attack Analysis And Prediction In this book, you will implement two data science projects using Scikit-Learn, Scipy, and other libraries with Python GUI. In Chapter 1, you will learn how to use Scikit-Learn, Scipy, and other libraries to perform how to predict traffic (number of vehicles) in four different junctions using Traffic Prediction Dataset provided by Kaggle. This dataset contains 48.1k (48120) observations of the number of vehicles each hour in four different junctions: 1) DateTime; 2) Junction; 3) Vehicles; and 4) ID. In Chapter 2, you will learn how to use Scikit-Learn, NumPy, Pandas, and other libraries to perform how to analyze and predict heart attack using Heart Attack Analysis & Prediction Dataset provided by Kaggle. Book 3: BRAIN TUMOR: Analysis, Classification, and Detection Using Machine Learning and Deep Learning with Python GUI In this project, you will learn how to use Scikit-Learn, TensorFlow, Keras, NumPy, Pandas, Seaborn, and other libraries to implement brain tumor classification and detection with machine learning using Brain Tumor dataset provided by Kaggle. This dataset contains five first order features: Mean (the contribution of individual pixel intensity for the entire image), Variance (used to find how each pixel varies from the neighboring pixel), Standard Deviation (the deviation of measured Values or the data from its mean), Skewness (measures of symmetry), and Kurtosis (describes the peak of e.g. a frequency distribution). It also contains eight second order features: Contrast, Energy, ASM (Angular second moment), Entropy, Homogeneity, Dissimilarity, Correlation, and Coarseness. The machine learning models used in this project are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, and Support Vector Machine. The deep learning models used in this project are MobileNet and ResNet50. In this project, you will develop a GUI using PyQt5 to plot boundary decision, ROC, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, training loss, and training accuracy.

STUDENT ACADEMIC PERFORMANCE ANALYSIS AND PREDICTION USING MACHINE LEARNING WITH PYTHON BALIGE PUBLISHING

In this project, we provide you with a PostgreSQL version of an Oracle sample database named OT which is based on a global fictitious company that sells computer hardware including storage, motherboard, RAM, video card, and CPU. The company maintains the product information such as name, description standard cost, list price, and product line. It also tracks the inventory information for all products including warehouses where products are available. Because the company operates globally, it has warehouses in various locations around the world. The company records all customer information including name, address, and website. Each customer has at least one contact person with detailed information including name, email, and phone. The company also places a credit limit on each customer to limit the amount that customer can owe. Whenever a customer issues a purchase order, a sales order is created in the database with the pending status. When the company ships the order, the order status becomes shipped. In case the customer cancels an order, the order status becomes canceled. In addition to the sales information, the employee data is recorded with some basic information such as name, email, phone, job title, manager, and hire date. In this project, you will write Python script to create every table and insert rows of data into each of them. You will develop GUI with PyQt5 to each table in the database. You will

also create GUI to plot: case distribution of order date by year, quarter, month, week, and day; the distribution of amount by year, quarter, month, week, day, and hour; the distribution of bottom 10 sales by product, top 10 sales by product, bottom 10 sales by customer, top 10 sales by customer, bottom 10 sales by category, top 10 sales by category, bottom 10 sales by status, top 10 sales by status, bottom 10 sales by customer city, top 10 sales by customer city, bottom 10 sales by customer state, top 10 sales by customer state, average amount by month with mean and EWM, average amount by every month, amount feature over June 2016, amount feature over 2017, and amount payment in all years.

HOUSEHOLD ELECTRIC POWER CONSUMPTION: ANALYSIS, CLUSTERING, AND PREDICTION WITH PYTHON BALIGE PUBLISHING

PROJECT 1: TIME-SERIES WEATHER: FORECASTING AND PREDICTION WITH PYTHON Weather data are described and quantified by the variables of Earth's atmosphere: temperature, air pressure, humidity, and the variations and interactions of these variables, and how they change over time. Different spatial scales are used to describe and predict weather on local, regional, and global levels. The dataset used in this project contains weather data for New Delhi, India. This data was taken out from wunderground. It contains various features such as temperature, pressure, humidity, rain, precipitation, etc. The main target is to develop a prediction model accurate enough for forecasting temperature and predicting target variable (condition). Time-series weather forecasting will be done using ARIMA models. The machine learning models used in this project to predict target variable (condition) are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, LGBM classifier, Gradient Boosting, XGB classifier, and MLP classifier. Finally, you will plot boundary decision, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy. PROJECT 2: HOUSE PRICE: ANALYSIS AND PREDICTION USING MACHINE LEARNING WITH PYTHON The dataset used in this project is taken from the second chapter of Aurélien Géron's recent book 'Hands-On Machine learning with Scikit-Learn and TensorFlow'. It serves as an excellent introduction to implementing machine learning algorithms because it requires rudimentary data cleaning, has an easily understandable list of variables and sits at an optimal size between being too toyish and too cumbersome. The data contains information from the 1990 California census. Although it may not help you with predicting current housing prices like the Zillow Zestimate dataset, it does provide an accessible introductory dataset for teaching people about the basics of machine learning. The data pertains to the houses found in a given California district and some summary stats about them based on the 1990 census data. Be warned the data aren't cleaned so there are some preprocessing steps required! The columns are as follows: longitude, latitude, housing_median_age, total_rooms, total_bedrooms, population, households, median_income, median_house_value, and ocean_proximity. The machine learning models used in this project used to perform regression on median_house_value and to predict it as target variable are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, LGBM classifier, Gradient Boosting, XGB classifier, and MLP classifier. Finally, you will plot boundary decision, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model,

scalability of the model, training loss, and training accuracy.

PROJECT 3: CUSTOMER PERSONALITY ANALYSIS AND PREDICTION USING MACHINE LEARNING WITH PYTHON Customer Personality Analysis is a detailed analysis of a company's ideal customers. It helps a business to better understand its customers and makes it easier for them to modify products according to the specific needs, behaviors and concerns of different types of customers. Customer personality analysis helps a business to modify its product based on its target customers from different types of customer segments. For example, instead of spending money to market a new product to every customer in the company's database, a company can analyze which customer segment is most likely to buy the product and then market the product only on that particular segment. Following are the features in the dataset: ID = Customer's unique identifier; Year_Birth = Customer's birth year; Education = Customer's education level; Marital_Status = Customer's marital status; Income = Customer's yearly household income; Kidhome = Number of children in customer's household; Teenhome = Number of teenagers in customer's household; Dt_Customer = Date of customer's enrollment with the company; Recency = Number of days since customer's last purchase; MntWines = Amount spent on wine in the last 2 years; MntFruits = Amount spent on fruits in the last 2 years; MntMeatProducts = Amount spent on meat in the last 2 years; MntFishProducts = Amount spent on fish in the last 2 years; MntSweetProducts = Amount spent on sweets in the last 2 years; MntGoldProds = Amount spent on gold in the last 2 years; NumDealsPurchases = Number of purchases made with a discount; NumWebPurchases = Number of purchases made through the company's web site; NumCatalogPurchases = Number of purchases made using a catalogue; NumStorePurchases = Number of purchases made directly in stores; NumWebVisitsMonth = Number of visits to company's web site in the last month; AcceptedCmp3 = 1 if customer accepted the offer in the 3rd campaign, 0 otherwise; AcceptedCmp4 = 1 if customer accepted the offer in the 4th campaign, 0 otherwise; AcceptedCmp5 = 1 if customer accepted the offer in the 5th campaign, 0 otherwise; AcceptedCmp1 = 1 if customer accepted the offer in the 1st campaign, 0 otherwise; AcceptedCmp2 = 1 if customer accepted the offer in the 2nd campaign, 0 otherwise; Response = 1 if customer accepted the offer in the last campaign, 0 otherwise; and Complain = 1 if customer complained in the last 2 years, 0 otherwise. The target in this project is to perform clustering and predicting to summarize customer segments. In this project, you will perform clustering using KMeans to get 4 clusters. The machine learning models used in this project to perform regression on total number of purchase and to predict clusters as target variable are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, LGBM, Gradient Boosting, XGB, and MLP. Finally, you will plot boundary decision, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy.

PROJECT 4: CUSTOMER SEGMENTATION, CLUSTERING, AND PREDICTION WITH PYTHON In this project, you will develop a customer segmentation, clustering, and prediction to define marketing strategy. The sample dataset summarizes the usage behavior of about 9000 active credit card holders during the last 6 months. The file is at a customer level with 18 behavioral variables. Following is the Data Dictionary for Credit Card

dataset: CUSTID: Identification of Credit Card holder (Categorical); BALANCE: Balance amount left in their account to make purchases; BALANCEFREQUENCY: How frequently the Balance is updated, score between 0 and 1 (1 = frequently updated, 0 = not frequently updated); PURCHASES: Amount of purchases made from account; ONEOFFPURCHASES: Maximum purchase amount done in one-go; INSTALLMENTSPURCHASES: Amount of purchase done in installment; CASHADVANCE: Cash in advance given by the user; PURCHASESFREQUENCY: How frequently the Purchases are being made, score between 0 and 1 (1 = frequently purchased, 0 = not frequently purchased); ONEOFFPURCHASESFREQUENCY: How frequently Purchases are happening in one-go (1 = frequently purchased, 0 = not frequently purchased); PURCHASESINSTALLMENTSFREQUENCY: How frequently purchases in installments are being done (1 = frequently done, 0 = not frequently done); CASHADVANCEFREQUENCY: How frequently the cash in advance being paid; CASHADVANCECTR: Number of Transactions made with "Cash in Advanced"; PURCHASESTRX: Number of purchase transactions made; CREDITLIMIT: Limit of Credit Card for user; PAYMENTS: Amount of Payment done by user; MINIMUM_PAYMENTS: Minimum amount of payments made by user; PRCFULLPAYMENT: Percent of full payment paid by user; and TENURE: Tenure of credit card service for user. In this project, you will perform clustering using KMeans to get 5 clusters. The machine learning models used in this project to perform regression on total number of purchase and to predict clusters as target variable are K-Nearest Neighbor, Random Forest, Naive Bayes, Logistic Regression, Decision Tree, Support Vector Machine, LGBM, Gradient Boosting, XGB, and MLP. Finally, you will plot boundary decision, distribution of features, feature importance, cross validation score, and predicted values versus true values, confusion matrix, learning curve, performance of the model, scalability of the model, training loss, and training accuracy.

THREE PROJECTS: SQL SERVER AND PYTHON GUI FOR DATA ANALYSIS BALIGE PUBLISHING

In this book, you will implement two data science projects using Scikit-Learn, Scipy, and other libraries with Python GUI. In Chapter 1, you will learn how to use Scikit-Learn, Scipy, and other libraries to perform how to predict traffic (number of vehicles) in four different junctions using Traffic Prediction Dataset provided by Kaggle (<https://www.kaggle.com/fedesoriano/traffic-prediction-dataset/download>). This dataset contains 48.1k (48120) observations of the number of vehicles each hour in four different junctions: 1) DateTime; 2) Junction; 3) Vehicles; and 4) ID. In Chapter 2, you will learn how to use Scikit-Learn, NumPy, Pandas, and other libraries to perform how to analyze and predict heart attack using Heart Attack Analysis & Prediction Dataset provided by Kaggle (<https://www.kaggle.com/rashikrahmanpritom/heart-attack-analysis-prediction-dataset/download>). In Chapter 3, you will learn how to use Scikit-Learn, SVM, NumPy, Pandas, and other libraries to perform how to predict early stage diabetes using Early Stage Diabetes Risk Prediction Dataset provided by Kaggle (<https://www.kaggle.com/ishandutta/early-stage-diabetes-risk-prediction-dataset/download>). This dataset contains the sign and symptom data of newly diabetic or would be diabetic patient. This has been collected using direct questionnaires from the patients of Sylhet Diabetes Hospital in Sylhet, Bangladesh and approved by a doctor.