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**MACHINE
LANGUAGE
PROGRAMMING
COOKBOOK**

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Machine Language Programming Cookbook

**Vivian Siahaan, Rismon Hasiholan
Sianipar**



Machine Language Programming Cookbook:

Don Lancaster's Micro Cookbook Don Lancaster, **Kilobaud: Microcomputing** ,1982 **Classification and Prediction Projects with Machine Learning and Deep Learning** Vivian Siahaan,Rismon Hasiholan Sianipar,2022-02-06

PROJECT 1 DATA SCIENCE CRASH COURSE Drinking Water Potability Classification and Prediction Using Machine Learning and Deep Learning with Python Access to safe drinking water is essential to health a basic human right and a component of effective policy for health protection This is important as a health and development issue at a national regional and local level In some regions it has been shown that investments in water supply and sanitation can yield a net economic benefit since the reductions in adverse health effects and health care costs outweigh the costs of undertaking the interventions The drinkingwaterpotability csv file contains water quality metrics for 3276 different water bodies The columns in the file are as follows ph Hardness Solids Chloramines Sulfate Conductivity Organic_carbon Trihalomethanes Turbidity and Potability Contaminated water and poor sanitation are linked to the transmission of diseases such as cholera diarrhea dysentery hepatitis A typhoid and polio Absent inadequate or inappropriately managed water and sanitation services expose individuals to preventable health risks This is particularly the case in health care facilities where both patients and staff are placed at additional risk of infection and disease when water sanitation and hygiene services are lacking 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 DATA SCIENCE CRASH COURSE Skin Cancer Classification and Prediction Using Machine Learning and Deep Learning Skin cancer develops primarily on areas of sun exposed skin including the scalp face lips ears neck chest arms and hands and on the legs in women But it can also form on areas that rarely see the light of day your palms beneath your fingernails or toenails and your genital area Skin cancer affects people of all skin tones including those with darker complexions When melanoma occurs in people with dark skin tones it s more likely to occur in areas not normally exposed to the sun such as the palms of the hands and soles of the feet Dataset used in this project contains a balanced dataset of images of benign skin moles and malignant skin moles The data consists of two folders with each 1800 pictures 224x244 of the two types of moles 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 The deep learning models used are CNN and MobileNet [LEARN FROM SCRATCH MACHINE LEARNING WITH PYTHON GUI](#) Vivian Siahaan,Rismon Hasiholan Sianipar,2021-03-03 In this book you will learn how to use NumPy Pandas OpenCV Scikit Learn and other libraries to how to plot graph and to process digital image Then

you will learn how to classify features using Perceptron Adaline Logistic Regression LR Support Vector Machine SVM Decision Tree DT Random Forest RF and K Nearest Neighbor KNN models You will also learn how to extract features using Principal Component Analysis PCA Linear Discriminant Analysis LDA Kernel Principal Component Analysis KPCA algorithms and use them in machine learning In Chapter 1 you will learn Tutorial Steps To Create A Simple GUI Application Tutorial Steps to Use Radio Button Tutorial Steps to Group Radio Buttons Tutorial Steps to Use CheckBox Widget Tutorial Steps to Use Two CheckBox Groups Tutorial Steps to Understand Signals and Slots Tutorial Steps to Convert Data Types Tutorial Steps to Use Spin Box Widget Tutorial Steps to Use ScrollBar and Slider Tutorial Steps to Use List Widget Tutorial Steps to Select Multiple List Items in One List Widget and Display It in Another List Widget Tutorial Steps to Insert Item into List Widget Tutorial Steps to Use Operations on Widget List Tutorial Steps to Use Combo Box Tutorial Steps to Use Calendar Widget and Date Edit and Tutorial Steps to Use Table Widget In Chapter 2 you will learn Tutorial Steps To Create A Simple Line Graph Tutorial Steps To Create A Simple Line Graph in Python GUI Tutorial Steps To Create A Simple Line Graph in Python GUI Part 2 Tutorial Steps To Create Two or More Graphs in the Same Axis Tutorial Steps To Create Two Axes in One Canvas Tutorial Steps To Use Two Widgets Tutorial Steps To Use Two Widgets Each of Which Has Two Axes Tutorial Steps To Use Axes With Certain Opacity Levels Tutorial Steps To Choose Line Color From Combo Box Tutorial Steps To Calculate Fast Fourier Transform Tutorial Steps To Create GUI For FFT Tutorial Steps To Create GUI For FFT With Some Other Input Signals Tutorial Steps To Create GUI For Noisy Signal Tutorial Steps To Create GUI For Noisy Signal Filtering and Tutorial Steps To Create GUI For Wav Signal Filtering In Chapter 3 you will learn Tutorial Steps To Convert RGB Image Into Grayscale Tutorial Steps To Convert RGB Image Into YUV Image Tutorial Steps To Convert RGB Image Into HSV Image Tutorial Steps To Filter Image Tutorial Steps To Display Image Histogram Tutorial Steps To Display Filtered Image Histogram Tutorial Steps To Filter Image With CheckBoxes Tutorial Steps To Implement Image Thresholding and Tutorial Steps To Implement Adaptive Image Thresholding You will also learn Tutorial Steps To Generate And Display Noisy Image Tutorial Steps To Implement Edge Detection On Image Tutorial Steps To Implement Image Segmentation Using Multiple Thresholding and K Means Algorithm Tutorial Steps To Implement Image Denoising Tutorial Steps To Detect Face Eye and Mouth Using Haar Cascades Tutorial Steps To Detect Face Using Haar Cascades with PyQt Tutorial Steps To Detect Eye and Mouth Using Haar Cascades with PyQt Tutorial Steps To Extract Detected Objects Tutorial Steps To Detect Image Features Using Harris Corner Detection Tutorial Steps To Detect Image Features Using Shi Tomasi Corner Detection Tutorial Steps To Detect Features Using Scale Invariant Feature Transform SIFT and Tutorial Steps To Detect Features Using Features from Accelerated Segment Test FAST In Chapter 4 In this tutorial you will learn how to use Pandas NumPy and other libraries to perform simple classification using perceptron and Adaline adaptive linear neuron The dataset used is Iris dataset directly from the UCI Machine Learning Repository You will learn Tutorial Steps To Implement Perceptron Tutorial Steps To

Implement Perceptron with PyQt Tutorial Steps To Implement Adaline ADAptive LNear NEuron and Tutorial Steps To Implement Adaline with PyQt In Chapter 5 you will learn how to use the scikit learn machine learning library which provides a wide variety of machine learning algorithms via a user friendly Python API and to perform classification using perceptron Adaline adaptive linear neuron and other models The dataset used is Iris dataset directly from the UCI Machine Learning Repository You will learn Tutorial Steps To Implement Perceptron Using Scikit Learn Tutorial Steps To Implement Perceptron Using Scikit Learn with PyQt Tutorial Steps To Implement Logistic Regression Model Tutorial Steps To Implement Logistic Regression Model with PyQt Tutorial Steps To Implement Logistic Regression Model Using Scikit Learn with PyQt Tutorial Steps To Implement Support Vector Machine SVM Using Scikit Learn Tutorial Steps To Implement Decision Tree DT Using Scikit Learn Tutorial Steps To Implement Random Forest RF Using Scikit Learn and Tutorial Steps To Implement K Nearest Neighbor KNN Using Scikit Learn In Chapter 6 you will learn how to use Pandas NumPy Scikit Learn and other libraries to implement different approaches for reducing the dimensionality of a dataset using different feature selection techniques You will learn about three fundamental techniques that will help us to summarize the information content of a dataset by transforming it onto a new feature subspace of lower dimensionality than the original one Data compression is an important topic in machine learning and it helps us to store and analyze the increasing amounts of data that are produced and collected in the modern age of technology You will learn the following topics Principal Component Analysis PCA for unsupervised data compression Linear Discriminant Analysis LDA as a supervised dimensionality reduction technique for maximizing class separability Nonlinear dimensionality reduction via Kernel Principal Component Analysis KPCA You will learn 6 1 Tutorial Steps To Implement Principal Component Analysis PCA Tutorial Steps To Implement Principal Component Analysis PCA Using Scikit Learn Tutorial Steps To Implement Principal Component Analysis PCA Using Scikit Learn with PyQt Tutorial Steps To Implement Linear Discriminant Analysis LDA Tutorial Steps To Implement Linear Discriminant Analysis LDA with Scikit Learn Tutorial Steps To Implement Linear Discriminant Analysis LDA Using Scikit Learn with PyQt Tutorial Steps To Implement Kernel Principal Component Analysis KPCA Using Scikit Learn and Tutorial Steps To Implement Kernel Principal Component Analysis KPCA Using Scikit Learn with PyQt In Chapter 7 you will learn how to use Keras Scikit Learn Pandas NumPy and other libraries to perform prediction on handwritten digits using MNIST dataset You will learn Tutorial Steps To Load MNIST Dataset Tutorial Steps To Load MNIST Dataset with PyQt Tutorial Steps To Implement Perceptron With PCA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Perceptron With LDA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Perceptron With KPCA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Logistic Regression LR Model With PCA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Logistic Regression LR Model With LDA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Logistic Regression LR Model With KPCA

Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Support Vector Machine SVM Model With LDA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Support Vector Machine SVM Model With KPCA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Decision Tree DT Model With PCA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Decision Tree DT Model With LDA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Decision Tree DT Model With KPCA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Random Forest RF Model With PCA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Random Forest RF Model With LDA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement Random Forest RF Model With KPCA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement K Nearest Neighbor KNN Model With PCA Feature Extractor on MNIST Dataset Using PyQt Tutorial Steps To Implement K Nearest Neighbor KNN Model With LDA Feature Extractor on MNIST Dataset Using PyQt and Tutorial Steps To Implement K Nearest Neighbor KNN Model With KPCA Feature Extractor on MNIST Dataset Using PyQt

Hands-On Guide On Data Science and Machine Learning with Python GUI Vivian Siahaan, 2021-07-08 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/fedoriano/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

SIX BOOKS IN ONE: Classification, Prediction, and Sentiment Analysis Using Machine Learning and Deep Learning with Python GUI Vivian Siahaan, Rismon Hasiholan Sianipar, 2022-04-11 Book 1 BANK LOAN STATUS CLASSIFICATION AND PREDICTION USING MACHINE LEARNING WITH PYTHON GUI The dataset used in this project consists of more than 100 000 customers mentioning their loan status current loan amount monthly debt etc There are 19 features in the dataset The dataset attributes are as follows Loan ID Customer ID Loan Status Current Loan Amount Term Credit Score Annual Income Years in current job Home Ownership Purpose Monthly Debt Years of Credit History Months since last delinquent Number of Open Accounts Number of Credit Problems Current Credit Balance

Maximum Open Credit Bankruptcies and Tax Liens 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

Book 2 OPINION MINING AND PREDICTION USING MACHINE LEARNING AND DEEP LEARNING WITH PYTHON GUI Opinion mining sometimes known as sentiment analysis or emotion AI refers to the use of natural language processing text analysis computational linguistics and biometrics to systematically identify extract quantify and study affective states and subjective information This dataset was created for the Paper From Group to Individual Labels using Deep Features Kotzias et al KDD 2015 It contains sentences labelled with a positive or negative sentiment Score is either 1 for positive or 0 for negative The sentences come from three different websites fields imdb com amazon com and yelp com For each website there exist 500 positive and 500 negative sentences Those were selected randomly for larger datasets of reviews Amazon contains reviews and scores for products sold on amazon com in the cell phones and accessories category and is part of the dataset collected by McAuley and Leskovec Scores are on an integer scale from 1 to 5 Reviews considered with a score of 4 and 5 to be positive and scores of 1 and 2 to be negative The data is randomly partitioned into two halves of 50% one for training and one for testing with 35 000 documents in each set IMDB refers to the IMDB movie review sentiment dataset originally introduced by Maas et al as a benchmark for sentiment analysis This dataset contains a total of 100 000 movie reviews posted on imdb com There are 50 000 unlabeled reviews and the remaining 50 000 are divided into a set of 25 000 reviews for training and 25 000 reviews for testing Each of the labeled reviews has a binary sentiment label either positive or negative Yelp refers to the dataset from the Yelp dataset challenge from which we extracted the restaurant reviews Scores are on an integer scale from 1 to 5 Reviews considered with scores 4 and 5 to be positive and 1 and 2 to be negative The data is randomly generated a 50 50 training and testing split which led to approximately 300 000 documents for each set Sentences for each of the datasets above labels are extracted and manually 1000 sentences are manually labeled from the test set with 50% positive sentiment and 50% negative sentiment These sentences are only used to evaluate our instance level classifier for each dataset³ They are not used for model training to maintain consistency with our overall goal of learning at a group level and predicting at the instance level 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

Book 3 EMOTION PREDICTION FROM

TEXT USING MACHINE LEARNING AND DEEP LEARNING WITH PYTHON GUI In the dataset used in this project there are two columns Text and Emotion Quite self explanatory The Emotion column has various categories ranging from happiness to sadness to love and fear You will build and implement machine learning and deep learning models which can identify what words denote what emotion 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

Book 4 HATE SPEECH DETECTION AND SENTIMENT ANALYSIS USING MACHINE LEARNING AND DEEP LEARNING WITH PYTHON GUI The objective of this task is to detect hate speech in tweets For the sake of simplicity a tweet contains hate speech if it has a racist or sexist sentiment associated with it So the task is to classify racist or sexist tweets from other tweets Formally given a training sample of tweets and labels where label 1 denotes the tweet is racist sexist and label 0 denotes the tweet is not racist sexist the objective is to predict the labels on the test dataset 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 LSTM and CNN 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

Book 5 TRAVEL REVIEW RATING CLASSIFICATION AND PREDICTION USING MACHINE LEARNING WITH PYTHON GUI 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 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

Book 6 ONLINE RETAIL CLUSTERING AND PREDICTION USING MACHINE LEARNING WITH PYTHON GUI The dataset used in this project is a transnational dataset which contains all the transactions occurring between 01 12 2010 and 09 12 2011 for a UK based and registered non store online retail The company mainly sells unique all occasion gifts Many customers of the company are wholesalers You will be using the online retail transnational dataset to build a RFM clustering and choose the best set of customers which the company should target In this project you will perform Cohort analysis and RFM analysis You will also perform clustering using K Means to get 5 clusters The machine learning models used in this project 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

McGraw-Hill Personal Computer Programming Encyclopedia William J. Birnes, 1989

STUDENT ACADEMIC PERFORMANCE ANALYSIS AND PREDICTION USING MACHINE LEARNING WITH PYTHON Vivian Siahaan, Rismon Hasiholan Sianipar, 2022-03-20 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 1 hour studytime weekly study time numeric 1 10 hours failures number of past class failures numeric n if 1

[DATA SCIENCE CRASH COURSE: Skin Cancer Classification and Prediction Using Machine Learning and Deep Learning](#) Vivian Siahaan,Rismon Hasiholan Sianipar,2022-02-01 Skin cancer develops primarily on areas of sun exposed skin including the scalp face lips ears neck chest arms and hands and on the legs in women But it can also form on areas that rarely see the light of day your palms beneath your fingernails or toenails and your genital area Skin cancer affects people of all skin tones including those with darker complexions When melanoma occurs in people with dark skin tones it s more likely to occur in areas not normally exposed to the sun such as the palms of the hands and soles of the feet Dataset used in this project contains a balanced dataset of images of benign skin moles and malignant skin moles The data consists of two folders with each 1800 pictures 224x244 of the two types of moles 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 The deep learning models used are CNN and MobileNet

THREE DATA SCIENCE PROJECTS FOR RFM ANALYSIS, K-MEANS CLUSTERING, AND MACHINE LEARNING BASED PREDICTION WITH PYTHON GUI Vivian Siahaan,Rismon Hasiholan Sianipar,2022-05-11

PROJECT 1 RFM ANALYSIS AND K MEANS CLUSTERING A CASE STUDY ANALYSIS CLUSTERING AND PREDICTION ON RETAIL STORE TRANSACTIONS WITH PYTHON GUI The dataset used in this project is the detailed data on sales of consumer goods obtained by scanning the bar codes for individual products at electronic points of sale in a retail store The dataset provides detailed information about quantities characteristics and values of goods sold as well as their prices The anonymized dataset includes 64 682 transactions of 5 242 SKU s sold to 22 625 customers during one year Dataset Attributes are as follows Date of Sales Transaction Customer ID Transaction ID SKU Category ID SKU ID Quantity Sold and Sales Amount Unit price times quantity For unit price please divide Sales Amount by Quantity This dataset can be analyzed with RFM analysis and can be clustered using K Means algorithm The machine learning models used in this project 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 2 DATA SCIENCE FOR GROCERIES MARKET ANALYSIS CLUSTERING AND PREDICTION WITH PYTHON GUI RFM analysis used in this project can be used as a marketing technique used to quantitatively rank and group customers based on the recency frequency and monetary total of their recent transactions to identify the best customers and perform targeted marketing campaigns The

idea is to segment customers based on when their last purchase was how often they've purchased in the past and how much they've spent overall Clustering in this case K Means algorithm used in this project can be used to place similar customers into mutually exclusive groups these groups are known as segments while the act of grouping is known as segmentation Segmentation allows businesses to identify the different types and preferences of customers markets they serve This is crucial information to have to develop highly effective marketing product and business strategies The dataset in this project has 38765 rows of the purchase orders of people from the grocery stores These orders can be analyzed with RFM analysis and can be clustered using K Means algorithm The machine learning models used in this project 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 3 ONLINE RETAIL CLUSTERING AND PREDICTION USING MACHINE LEARNING WITH PYTHON GUI The dataset used in this project is a transnational dataset which contains all the transactions occurring between 01 12 2010 and 09 12 2011 for a UK based and registered non store online retail The company mainly sells unique all occasion gifts Many customers of the company are wholesalers You will be using the online retail transnational dataset to build a RFM clustering and choose the best set of customers which the company should target In this project you will perform Cohort analysis and RFM analysis You will also perform clustering using K Means to get 5 clusters The machine learning models used in this project 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: Sentiment Analysis and Prediction Using Machine Learning and Deep Learning with Python GUI Vivian Siahaan, Rismon Hasiholan Sianipar, 2022-03-21 **PROJECT 1 TEXT PROCESSING AND SENTIMENT ANALYSIS USING MACHINE LEARNING AND DEEP LEARNING WITH PYTHON GUI** Twitter data used in this project was scraped from February of 2015 and contributors were asked to first classify positive negative and neutral tweets followed by categorizing negative reasons such as late flight or rude service This data was originally posted by Crowdfunder last February and includes tweets about 6 major US airlines Additionally Crowdfunder had their workers extract the sentiment from the tweet as well as what the passenger was disappointed about if the tweet was negative The information of main attributes for this project are as follows airline_sentiment Sentiment classification positive neutral and negative negativereason Reason selected for the negative opinion airline Name of 6 US Airlines Delta United Southwest US Airways Virgin America American and text Customer's opinion 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 and LSTM Three vectorizers used in machine learning are Hashing Vectorizer Count Vectorizer and TFID Vectorizer Finally you will develop a GUI using PyQt5 to plot cross validation score predicted values versus true values confusion matrix learning curve performance of the model scalability of the model training loss and training accuracy

PROJECT 2 HOTEL REVIEW SENTIMENT ANALYSIS USING MACHINE LEARNING AND DEEP LEARNING WITH PYTHON GUI

The data used in this project is the data published by Anurag Sharma about hotel reviews that were given by costumers The data is given in two files a train and test The train csv is the training data containing unique User_ID for each entry with the review entered by a costumer and the browser and device used The target variable is Is_Response a variable that states whether the costumers was happy or not happy while staying in the hotel This type of variable makes the project to a classification problem The test csv is the testing data contains similar headings as the train data without the target variable 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 and LSTM Three vectorizers used in machine learning are Hashing Vectorizer Count Vectorizer and TFID Vectorizer Finally you will develop a GUI using PyQt5 to plot cross validation score predicted values versus true values confusion matrix learning curve performance of the model scalability of the model training loss and training accuracy

PROJECT 3 STUDENT ACADEMIC PERFORMANCE ANALYSIS AND PREDICTION USING MACHINE LEARNING WITH PYTHON GUI

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 1 hour studytime weekly study time numeric 1 10 hours failures number of past class failures numeric n if 1

GOLD PRICE ANALYSIS AND FORECASTING USING MACHINE LEARNING WITH PYTHON Vivian Siahaan,Rismon Hasiholan Sianipar,2022-05-23 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 Na ve 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

Microcomputing ,1983

STOCK PRICE ANALYSIS, PREDICTION, AND FORECASTING USING MACHINE LEARNING AND DEEP LEARNING WITH PYTHON Vivian Siahaan,Rismon Hasiholan Sianipar,2022-05-27 This dataset is a playground for fundamental and technical analysis It is said that 30% of traffic on stocks is already generated by machines can trading be fully automated If not there is still a lot to learn from historical data The dataset consists of data spans from 2010 to the end 2016 for companies new on stock market date range is shorter 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 Na ve Bayes regression K Nearest Neighbor regression Adaboost regression Gradient Boosting regression Extreme Gradient Boosting regression Light Gradient Boosting regression Catboost regression MLP regression and LSTM Long Short Term Memory 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 Gaussian Mixture Model 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 *The Reader's Guide to Microcomputer Books* Michael Nicita, Ronald Petrusha, 1984 *Assembly Language Programming for the IBM Personal Computer* David J. Bradley, 1984 Teaches assembly language programs for the IBM pc as well as the principles of computer operations also covers the intel 8088 word processor use of line editor **Personal Computing**, 1983 **Electronic Design**, 1983 *The Microprocessor Handbook* Elmer Poe, 1983 Common characteristics of microprocessors The 8080 The 8085 The Z 80 The 6800 The 6802 The 6809 The 6502 A brief introduction to 16 bit processors The 8086 and 8088 The Z8000 The 68000 Parallel I O chips Serial I O chips Common memory chips Computer Decisions, 1983

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