Savitribai Phule Pune University

M.Sc.-II (Comp. Sci.) Sem-III Practical Examination -2024-25
Practical Paper (CS-605-MJP) Lab course on CS-602-MJ Machine Learning

Duration: 3 Hours **Maximum Marks: 35**

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1. Use Apriori algorithm on groceries dataset to find which items are brought together. Use minimum support =0.25 [15 M]

2. Write a Python program to prepare Scatter Plot for Iris Dataset. Convert Categorical values in numeric format for a dataset. [15 M]
3. Viva [5 M]

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Q.1. Write a python program to implement simple Linear Regression for predicting house price. First find all null values in a given dataset and remove them. [15 M]

Q.2. The data set refers to clients of a wholesale distributor. It includes the annual spending in monetary units on diverse product categories. Using data Wholesale customer dataset compute agglomerative clustering to find out annual spending clients in the same region. [15 M]

Q.3. Viva [5 M]

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Q.1. Write a python program to implement multiple Linear Regression for a house price dataset. Divide the dataset into training and testing data. [15 M]

Q.2. Use dataset crash.csv is an accident survivor's dataset portal for USA hosted by data.gov. The dataset contains passengers age and speed of vehicle (mph) at the time of impact and fate of passengers (1 for survived and 0 for not survived) after a crash. use logistic regression to decide if the age and speed can predict the survivability of the passengers. [15 M]

Q.3. Viva [5 M]

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Q.1. Write a python program to implement k-means algorithm on a mall_customers dataset. [15 M]

Q.2. Write a python program to Implement Simple Linear Regression for predicting house price. [15 M]

Q.3. Viva [5 M]

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Q.1. Write a python program to implement Multiple Linear Regression for Fuel Consumption dataset. [15 M]

Q.2. Write a python program to implement k-nearest Neighbors ML algorithm to build prediction model (Use iris Dataset) [15 M]

Q.3. Viva [5 M]

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Q.1. Write a python program to implement Polynomial Linear Regression for Boston Housing Dataset. [15 M]

Q.2. Use K-means clustering model and classify the employees into various income groups or clusters. Preprocess data if require (i.e. drop missing or null values). [15 M]

Q.3. Viva [5 M]

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Duration: 3 Hours **Maximum Marks: 35**

Q.1. Fit the simple linear regression model to Salary_positions.csv data. Predict the sa [15 M]
of level 11 and level 12 employees.

Q.2. Write a python program to implement Naive Bayes on weather forecast dataset. [15 M]

Q.3. Viva [5 M]

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Q.1. Write a python program to categorize the given news text into one of the available 20 categories of news groups, using multinomial Naïve Bayes machine learning model. [15 M]

Q.2. Write a python program to implement Decision Tree whether or not to play Tennis. [15 M]

Q.3. Viva [5 M]

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Q.1. Implement Ridge Regression and Lasso regression model using boston_houses.csv and take only 'RM' and 'Price' of the houses. Divide the data as training and testing data. Fit line using Ridge regression and to find price of a house if it contains 5 rooms and compare results. [15 M]

Q.2. Write a python program to implement Linear SVM using UniversalBank.csv [15 M]

Q.3. Viva [5 M]

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Q.1. Write a python program to transform data with Principal Component Analysis (PCA). Use iris dataset. [15 M]

Q.2. Write a Python program to prepare Scatter Plot for Iris Dataset. Convert Categorical values in to numeric. [15 M]

Q.3. Viva [5 M]

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Q.1. Write a python program to implement Polynomial Regression for Boston Housing Dataset. [15 M]

Q.2. Write a python program to Implement Decision Tree classifier model on Data which is extracted from images that were taken from genuine and forged banknote-like specimens.
(refer UCI dataset https://archive.ics.uci.edu/dataset/267/banknote+authentication)

[15 M]

Q. 3. Viva [5 M]

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Q.1. Write a python program to implement k-nearest Neighbors ML algorithm to build prediction model (Use iris Dataset). [15 M]

Q.2. Fit the simple linear regression and polynomial linear regression models to Salary_positions.csv data. Find which one is more accurately fitting to the given data. Also predict the salaries of level 11 and level 12 employees. [15 M]

Q.3. Viva [5 M]

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Duration: 3 Hours **Maximum Marks: 35**

Q.1. Create RNN model and analyze the Google stock price dataset. Find out increasing or decreasing trends of stock price for the next day. [15 M]

Q.2. Write a python program to implement simple Linear Regression for predicting house price. [15 M]

Q.3. Viva [5 M]

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Q.1. Create a CNN model and train it on mnist handwritten digit dataset. Using model find out the digit written by a hand in a given image.

Import mnist dataset from tensorflow.keras.datasets. [15 M]

Q.2. Write a python program to find all null values in a given dataset and remove them. Create your own dataset. [15 M]

Q.3. Viva [5 M]

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Duration: 3 Hours **Maximum Marks: 35**

Q.1. Create an ANN and train it on house price dataset classify the house price is above average or below average. [15 M]

Q.2. Write a python program to implement multiple Linear Regression for a house price dataset. [15 M]

Q.3. Viva [5 M]

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Q.1. Create a two layered neural network with relu and sigmoid activation function. [15 M]

Q.2. Write a python program to implement Simple Linear Regression for Boston housing dataset. [15 M]

Q.3. Viva [5 M]

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Q.1. Implement Ensemble ML algorithm on Pima Indians Diabetes Database with bagging (random forest), boosting, voting and Stacking methods and display analysis accordingly. Compare result. [15 M]

Q.2. Write a python program to implement Multiple Linear Regression for a house price dataset. [15 M]

Q.3. Viva [5 M]

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Q.1. Write a python program to implement k-means algorithm on a Diabetes dataset. [15 M]

Q.2. Write a python program to implement Polynomial Linear Regression for salary_positions dataset. [15 M]

Q.3. Viva [5 M]

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Q.1. Fit the simple linear regression and polynomial linear regression models to Salary_positions.csv data. Find which one is more accurately fitting to the given data. Also predict the salaries of level 11 and level 12 employees. [15 M]

Q.2. Write a python program to implement Naive Bayes on weather forecast dataset. [15 M]

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Q.1. Implement Ridge Regression, Lasso regression model using boston_houses.csv and take only 'RM' and 'Price' of the houses. divide the data as training and testing data. Fit line using Ridge regression and to find price of a house if it contains 5 rooms. and compare results. [15 M]

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Duration: 3 Hours **Maximum Marks: 35**

Q.1. Create a multiple linear regression model for house price dataset divide dataset into train and test data while giving it to model and predict prices of house. [15 M]

Q.2. Write a python program to implement Linear SVM using UniversalBank.csv. [15 M]

Q.3. Viva [5 M]

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Q.1. Write a python program to implement simple Linear Regression for predicting house price. [15 M]

Q.2. Use Apriori algorithm on groceries dataset to find which items are brought together. Use minimum support =0.25 [15 M]

Q.3. Viva [5 M]

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Q.2. Write a python program to find all null values from a dataset and remove them. [15 M]

Q.3. Viva [5 M]

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Duration: 3 Hours **Maximum Marks: 35**

Q.1. Write a python program to Implement Decision Tree classifier model on Data which is extracted from images that were taken from genuine and forged banknote-like specimens.
(refer UCI dataset https://archive.ics.uci.edu/dataset/267/banknote+authentication)
[15 M]

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Q.1. Write a python program to implement Polynomial Regression for house price dataset. [15 M]

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Q.1. Create KNN model on Indian diabetes patient's database and predict whether a new patient is diabetic (1) or not (0). Find optimal value of K. [15 M]

Q.2. Use Apriori algorithm on groceries dataset to find which items are brought together. Use minimum support =0.25 [15 M]

Q.3. Viva [5 M]

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Q.2. Fit the simple linear regression and polynomial linear regression models to Salary_positions.csv data. Find which one is more accurately fitting to the given data. Also predict the salaries of level 11 and level 12 employees. [15 M]

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Q.1. Write a python program to categorize the given news text into one of the available 20 categories of news groups, using multinomial Naïve Bayes machine learning model. [15 M]

Q.2. Classify the iris flowers dataset using SVM and find out the flower type depending on the given input data like sepal length, sepal width, petal length and petal width. Find accuracy of all SVM kernels. [15 M]

Q.3. Viva [5 M]

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Q.1. Take iris flower dataset and reduce 4D data to 2D data using PCA. Then train the model and predict new flower with given measurements. [15 M]

Q.2. Use K-means clustering model and classify the employees into various income groups or clusters. Preprocess data if require (i.e. drop missing or null values). Use elbow method and Silhouette Score to find value of k. [15 M]

Q.3. Viva [5 M]