

PPSASMAJ304
APPLICATIONS OF IT - BASICS OF PYTHON

Time: 2 hours
Total Marks: 60

Note:

- 1. The candidate has the option to either question 3A or question 3B. Rest all questions are mandatory.**
- 2. Numbers to the right indicate full marks.**
- 3. The candidates will be provided with the formula sheet and graphs (if required) for the examination.**
- 4. Use of approved scientific calculators is allowed.**

Q1. Attempt All questions.

15 Marks

A.

5 Marks

Given a number as an input, find the following smallest palindrome number. For simplicity, consider the upper limit of your search to be 1 million

Input: 123

Output: 131

B.

5 Marks

Write a program which prompts the user to input principal, input rate, calculate the final amount (after 20 years). Plot the amount over 10 years on a bar chart

The formula is: $CI = P(1+R/100)^T$

C.

5 Marks

Shift all zeroes to the end of an array while maintaining the order of all items

Input: [4, 0, 5, 0, -3, 7, 0, 8]

Output: [4, 5, -3, 7, 8, 0, 0, 0]

Q2 Answer the following**15 Marks**

Answer the following question, based on the excel file eventdata.xlsx

The file has two sheets event and user respectively.

- a) Read the excel file, store event sheet in df1 and user sheet in df2, merge them based on user id. (5)
- b) Find the number of Apple product users and the number of total users with a device and group the counts by language. Assume Apple products are only MacBook-Pro, iPhone 5s, and iPad-air (5)
- c) Create a bar chart using seaborn to represent active duration of each device, active duration is calculated from occurred date and created at. Highlight the apple users with a red color bar. (5)

Q3. Attempt question 3A or question 3B.**30 Marks****A.**

Load the credit card acceptance dataset. The dataset contains information about the credit card eligibility and other eligibility factors. Predict the acceptance with all other factors given in the dataset using logistic regression

- a) Read the dataset and split the data in X and Y.
 - a. Identify independent variables consider it X (3)
 - b. Identify dependent variables consider it Y (3)
- b) Perform feature engineering, fill all missing values and Perform label encoding or One hot encoding whenever required. (6)
- c) Perform train-test split with test ratio 30% (3)
- d) Perform Logistic Regression on train dataset. (6)
- e) Predict the values on the Test dataset. (6)
- f) Provide the value for Accuracy score. (3)

OR

B.

Load the Gold Price Prediction dataset. The dataset contains information. Gold prices and the factors that affect it. Predict the Price today using Linear Regression.

- a. Read the dataset and split the data in X and Y.
 - i. Identify independent variables consider it X (3)
 - ii. Identify dependent variables consider it Y (3)
- b. Perform feature engineering, fill all missing values and Perform label encoding or One hot encoding whenever required. (6)
- c. Create a train-test split with a 10% test ratio. (3)
- d. Run the Linear Regression model. (6)
- e. Predict values for test dataset. (6)
- f. Provide the RMSE & R square value (3)