JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA

PGDM / PGDM (M) / PGDM (SM)

THIRD TRIMESTER (Batch 2024-26)

END TERM EXAMINATIONS, APRIL 2025

MAIN EXAM -SET B

| Course Name | Python for Business Analytics(PBA) | Course Code | 20822 |
|---|---|---|---|
| Max. Time | 2 hours | Max. Marks | 40 MM |

INSTRUCTIONS:

a. Attempt all the questions on a single Jupyter Notebook
b. The data for the case is available on Moodle.
c. Write down your Roll no., course name and course code on top of Jupyter Notebook
d. Save your Jupyter notebook with .ipynb extension and as a html file
e. Upload both the files on Moodle.
f. Label the files as PBA_roll no (for example: PBA_23)
g. This is an open code exam. Students may refer to the codes uploaded on moodle.

**Read the case below and answer the questions given by analyzing the data using Python.**

**DosaAnna**, a popular south Indian food chain, has grown steadily over the years, serving a wide range of south Indian food items across multiple locations. Known for its tasty delicacies and customer-first service, **DosaAnna** now aims to strengthen its competitive position by embracing business analytics to better understand customer preferences and purchasing behaviour.
To support this transition, **DosaAnna** data science team has compiled a rich dataset of customer transactions over the past year. The data has been recorded on the following variables

| Variable name | Description |
|---|---|
| Transaction Id | A unique identifier for each transaction |
| Food item | The name of the item purchased |
| Units | The quantity of the item purchased. |
| Price per unit | The price of a single unit of the item |
| Total bill value | The total amount spent on the transaction. |
| Payment Method | The method of payment used. |
| Location | The location where the transaction occurred. |
| Transaction date | The date of the transaction |

While the dataset presents a valuable opportunity, the management team is looking to extract meaningful insights from this raw information. The aim is to analyze trends in sales volume, high-performing menu items, peak days, preferred payment modes, and location-wise performance. These insights will help **DosaAnna** craft data-driven strategies to optimize inventory, enhance customer experience, and boost overall revenue across its café network.

**Analyze the data and write the answers of the following questions:**

1. Import the data file. What is the dimension of the imported data? **(2 marks)**
2. Identify the numeric and categorical variables **(2 marks)**

3. Identify the variables with the missing values in the data. Apply the appropriate measures to deal with the missing values in different variables in the data. (**10 marks**)
4. Which location is preferred by customers? How does the average amount spent vary based on the location? (**3 marks**)
5. Analyse the monthly trend of total bill value? (**4 marks**)
6. Do customers who opt for UPI tend to spend higher than those who choose other options? (**3 marks**)
7. Calculate the average bill value of different food items? (**3 marks**)
8. Does there exist any outliers in the total bill value? If yes, find out those outliers. (**4 marks**)
9. Analyze the distribution of prices item wise. (**4 marks**)
10. Suggest two more findings which are not covered in the above questions. (**5 marks**)

**Note:** Interpretation of all the outputs should be written by putting comments on the Jupyter notebook.