JAIPURIA INSTITUTE OF MANAGEMENT, NOIDA

PGDM / PGDM (M) / PGDM (SM)

III TRIMESTER (Batch 2022-24)

END TERM EXAMINATION, APRIL 2023

SET - 1

Course Name	Analytical Techniques for Business (ATB)	Course Code	**20821**
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 pdf file
e. Upload both the files on Moodle.
f. Label the files as ATB_roll no (for example: ATB_23)
g. This is an open book exam. Students may refer to the codes available on Moodle.

Read the case below and answer the questions given by analyzing the data using <u>Python</u>.

Case Study: Spending Amounts At HyTex

The file Catalog Marketing.xlsx contains data on 1000 customers who purchased mail-order products from HyTex Company in the current year. HyTex is a direct marketer of stereo equipment, personal computers, and other electronic products. HyTex advertises entirely by mailing catalogs to its customers, and all of its orders are taken over the telephone. The company spends a great deal of money on its catalog mailings, and it wants to be sure that this is paying off in sales. For each customer there are data on the following variables:

The Company hired you as a data scientist to extract insight by analyzing the data using descriptive analytics.

Variable	Description
Age:	age of the customer at the end of the current year
Gender:	coded as 'M' for males and 'F' for females
Own Home:	coded as Yes if customer owns a home, No otherwise

Married:	coded as 'M' if customer is currently married, 'S' if single
Close:	'Yes' if customer lives reasonably close to a shopping area that sells similar merchandise, 'No' otherwise
Salary:	combined annual salary (in rupees) of customer and spouse (if any)
Previous Customer:	coded as 1 if customer purchased from HyTex during the previous year, 0 otherwise
PreviousSpent:	total amount of purchases made from Hytex during the previous year
Catalogs:	number of catelogs sent to a customer this year
AmountSpent:	total amount of purchases made from HyTex this year
AssocHyTex:	Total association (in years) with HyTex

Analyze the data and create a managerial report by writing answers to the following questions:

1. Import the data file   **(2 marks)**
2. What is the dimension of the imported data   **(2 marks)**
3. Identify the numeric and categorical variables.   **(2 marks)**
4. Develop the graphical summary of numerical and categorical variables.   **(10 marks)**
5. Does there exist association amongst the numeric variables. Analyze and comment upon the degree of association.   **(10 marks)**
6. Determine the highest and lowest Amount Spent.   **(2 marks)**
7. Estimate the average salary of a married customer?   **(2 marks)**
8. Analyze the variable "AmountSpent". Does there exist outlier? If yes, then list all the outlier values.   **(5 marks)**
9. 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.

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