Roll No……

GL BAJAJ Institute of Management & Research Greater Noida
FIND YOUR SPARK

Plot No. 2, Knowledge Park-III, Greater Noida (U.P.) –201306

POST GRADUATE DIPLOMA IN MANAGEMENT (2024-26)
END TERM EXAMINATION (TERM -III)

Subject Name: Machine Learning for Business Management — Time: **02.00 hrs**
Sub. Code: PGIT 31 — Max Marks: **40**

Note: Attempt any all questions. You will get MLBM dataset excel file which contains question-wise data sheets.
Attempt each question in separate python file or jupyter notebook.
Put all file in a folder, right click on the folder and compress it to zip file. Rename this zip file in format name_ rollNo.

Kindly write the all the course outcomes as per your TLEP in the box given below:

CO-1: Describe the business needs ML in order to create competitive advantages and add real business value in solving business problems. (L3)
CO-2: Demonstrate the ML techniques and their application in business context. (L3)
CO-3: Apply and compare interesting and useful patterns from the explosive Volume of data by application of supervised and unsupervised techniques. (L3, L4, L5)
CO-4: Develop an appreciation for what is involved in learning from data and explain Integration of theory & application in various functional areas through interdisciplinary approach. (L4)

SECTION - A

Attempt any FOUR questions. All questions are compulsory. 10×**4 = 40 Marks**

Questions	CO	Bloom's Level
Q1a. You are analyzing customer churn for a telecom company. You are given a dataset with features like call minutes, internet usage, and customer service calls. Build a classification model using Logistic Regression to predict customer churn. Evaluate model accuracy.	CO1	L4
or		
Q1b . You are given a dataset about sales data from multiple regions and product categories. Use Linear Regression to predict future sales based on past performance and analyze the result		
Q2a. A bank wants to identify different types of credit card users based on their transaction data. Use K-Means clustering to segment the customers. Visualize the clusters and explain insights of the cluster formed.	CO2	L4
Or		
Q2b. Using the following weather data in sheet Q2b, predict whether to Play Golf or not for the conditions: Outlook = Sunny, Temperature = Cool, Humidity = High, Windy = True Apply the Naive Bayes classifier assuming all attributes are categorical and using the given dataset.		

Q3a. Use a PCA approach to reduce the dimensionality of a retail dataset having features like purchase amount, visit frequency, and items per transaction. Explain how dimensionality reduction affects model performance. Or Q3b. Train a Support Vector Machine (SVM) model using an RBF (Radial Basis Function) kernel from sklearn.svm.SVC.Predict and print the class for a new point: (4, 4).	CO3	L4
Q4a. Use a Decision Tree classifier on HR data to predict employee attrition based on job role, monthly income, and working hours. Visualize the tree and explain the results. **Or** Q4b. Build a Random Forest classifier to predict loan approval status using features like income, credit score, loan amount, and employment status. Evaluate model using confusion matrix and ROC curve.	CO4	L4

Kindly fill the total marks allocated to each CO's in the table below:

COs	Question No.	Marks Allocated
CO1	Q1	10
CO2	Q2	10
CO3	Q3	10
CO4	Q4	10
CO5		
CO6		

(Please ensure the conformity of the CO wise marks allocation as per your TLEP.)

Blooms Taxonomy Levels given below for your ready reference:

L1= Remembering
L2= Understanding
L3= Apply
L4= Analyze
L5= Evaluate
L6= Create