Birla Institute of Technology & Science, Pilani
Regression - Assignment 1

Course No. : BMC-AIML_June_2023_PCAMBZC211
Course Title : PG Program in AI & Machine Learning
Total Marks**:** 12
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1. The following questions are to enhance your understanding of basic concepts and definitions. It will be good if you answer these questions on your own without referring to the internet. (4 Marks)

   a) Classify the following use cases into regression or classification algorithms with proper explanations: For each use case mention the independent and dependent variable with respect to your explanation. (0.5*4 = 2 M)

   i. Predicting the annual revenue of a company
   ii. Wind speed prediction
   iii. Credit Card Fraud Prediction
   iv. Amazon product review.

   b) Elaborate the error function for linear regression with suitable example (2 M)

2 a) Solve the following matrix using simultaneous equations in python. (2.5 M)

$6x+2y-5z=13$
$3x+3y-2z=13$
$7x+5y-3z=26$

b) Find the Rank of the following matrix using python. (1.5 M)

X 2 -3
1 Y 6
4 5 Z

Note: For X,Y,Z values, Mandatorily use the last three digits of your BITS ID Roll number in the below form 20******XYZ 20******536 – [X= 5, Y = 3, Z =6]

3. Dataset:https://drive.google.com/file/d/1Bt82HnWZxMP4ifliZWBKtHXXww7B8Xy/view?usp=share_link

Using linear regression, find the model parameters. (Intercept and coefficient value)
Predict the target variable and find the error term.
How would you convey (interpret) these results in a business context?

(4 M)

Submissions Instructions:

- Solutions or answers to all questions (excepting programming problems) should be submitted in a word document named 'Roll_No.doc' (Roll_No is your identity numberof this programme).
- Organize your code in separate sections for each task. Add comments to make the code readable.
- Only two files should be uploaded in canvas without zipping them.
  - IPYNB file
  - Word document.(Q1a &Q1b)