Program: BS(AI)

Spring 2023 Midterm (Theory)
Machine Learning Fundamentals (AIC-354)

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Time: 90 minutes
Total Marks: (50)

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Question # 1 [10 Marks] [CLO-1(SO(1))]
Imagine that you are developing a machine learning based project. What are the main steps you will go through?

Question # 2 [10 Marks] [CLO-1(SO(1))]
What are the performance measures used to evaluate a Regression and Classification models?

Question # 3 [15 Marks] [CLO-2(SO(2,4))]
Apply the Naïve Bayes m-probability estimate classification technique. What is the Predicted class for a testing sample: [Red, SUV, Domestic]. The training data is given below:

Example No.	Color	Type	Origin	Stolen?
1	Red	Sports	Domestic	Yes
2	Red	Sports	Domestic	No
3	Red	Sports	Domestic	Yes
4	Yellow	Sports	Domestic	No
5	Yellow	Sports	Imported	Yes
6	Yellow	SUV	Imported	No

Question # 4 [15 Marks] [CLO-2(SO(2,4))]
Apply the linear regression technique using Closed form solution. What is the Hypothesis, and Predicted values for the testing data. The data is given below:

Training Data			Testing Data		
x1	x2	y (output)	x1	x2	y (output)
1	2	0.1	3	1	?
4	5	0.2	4	3	?
1	4	0.4			