Assignment # 1

Due Date: 31/110/2025
Maximum Points: 75
Note: Plagiarism will result in zero marks for all assignments. Submit a hard copy in class. Apply all mathematical approaches for each algorithm discussed in class.

Q1: Train the given dataset using a Naïve Bayes classifier, and test it on the provided sample to predict the sale condition of house prices. Perform all the mathematical steps discussed and proven in the lecture.

Exposure	GarageType	Mass	Type1	SaleCondition
No	Attchd	BrkFace	G	Partial
Gd	Attchd	Stone	A	Normal
Gd	Attchd	BrkFace	G	Normal
No	Detchd	Stone	A	Abnorml
Av	Attchd	BrkFace	G	Normal
Av	BuiltIn	Tile	G	Partial
Av	Attchd	Stone	G	Normal
Gd	Attchd	Stone	A	Normal
No	BuiltIn	BrkFace	A	Abnorml
No	Attchd	BrkFace	G	Normal
No	Detchd	Tile	G	Normal
No	BuiltIn	BrkFace	G	Partial
No	Detchd	Tile	G	Normal
Av	Attchd	Stone	A	Partial

Test Set:

Exposure	GarageType	Mass	Type1	SaleCondition
Gd	Detchd	Tile	A	?

☺ HAPPY LEARNING ☺

Q2: Train the given dataset using a Gaussian Naïve Bayes classifier and test it on the provided sample to predict the diagnosis. Perform all the mathematical steps as discussed and demonstrated in the lecture.

Diagnosis	Radius Mean	Texture Mean	Perimeter Mean
M	17.99	10.38	122.8
M	20.57	17.77	132.9
M	19.69	21.25	130
M	11.42	20.38	77.58
M	20.29	14.34	135.1
B	13.54	14.36	87.46
B	13.08	15.71	85.63
B	9.504	12.44	60.34
B	13.49	22.3	86.91
B	11.76	21.6	74.72

Test Set:

Diagnosis	Radius Mean	Texture Mean	Perimeter Mean
?	15	11	110

Q3: Apply Linear Regression to the given Training data and predict medical insurance charges on the provided Testing data

TRAININGDATA	
BMI	MI CHARGES
27.9	16884.92
33.77	1725.552
33	4449.462
22.705	21984.47
28.88	3866.855
25.74	3756.622
33.44	8240.59
27.74	7281.506
29.83	6406.411
25.84	28923.14
26.22	2721.321

TESTING SAMPLES	
BMI	MI CHARGES
26.29	?
34.4	?
39.82	?
24.6	?
30.78	?

☺ HAPPY LEARNING ☺