Machine Learning
Assignment 2

Max.Marks:15

1	Consider an artificial example of building a decision tree classification model to classify bank loan applications by assigning applications to one of three risk classes given in the table below:	5

Owns home?	Married	Gender	Employed	Credit rating	Risk class
Yes	Yes	Male	Yes	A	B
No	No	Female	Yes	A	A
Yes	Yes	Female	Yes	B	C
Yes	No	Male	No	B	B
No	Yes	Female	Yes	B	C
No	No	Female	Yes	B	A
No	No	Male	No	B	B
Yes	No	Female	Yes	A	A
No	Yes	Female	Yes	A	C
Yes	Yes	Female	Yes	A	C

a. Compute the entropy of the training data with respect to the ***Risk Class.***
b. Compute the information gain of all attributes. Write all necessary expressions used in the computations and show all the steps neatly.
c. Draw the complete decision tree. Justify your answer.

2	A sample of 6 persons was selected the value of their age (x variable) and their weight is demonstrated in the following table. Find the regression equation and what the predicted weight is when age is 8.5 years.	5

Serial No.	Age (x)	Weight (y)
1	7	12
2	6	8
3	8	12
4	5	10
5	6	11
6	9	13

3	Explain about Support Vector Machine. Mention at least two advantages and two disadvantages of Support Vector Machines.	5