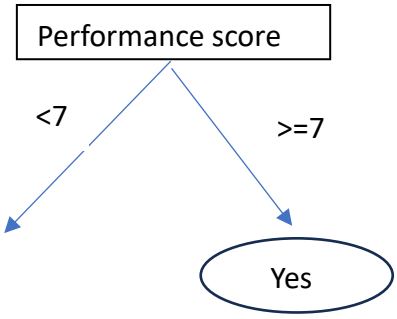
CSE 427 Assignment 1
Submission deadline: First class after Eid holiday

1.

Performance Score	Department	Years at Company	Promotion Recommendation
8	Sales	Senior	Yes
4	Marketing	Junior	No
7	Engineering	Mid-level	Yes
5	Sales	Junior	No
9	Marketing	Senior	Yes
6	Engineering	Mid-level	No
3	Sales	Junior	No
10	Marketing	Senior	Yes
5	Engineering	Junior	No
8	Marketing	Mid-level	Yes

Complete the partial tree given in the figure using decision tree construction procedure. Use the dataset given in the table above

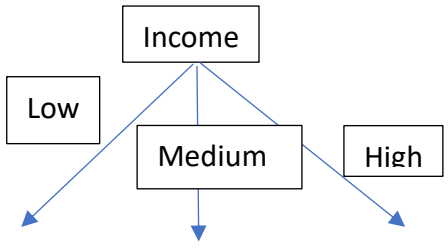


CSE 427 Assignment 1
Submission deadline: First class after Eid holiday

2. Find whether a customer having Age = 30, Income = Medium, Location = Rural and Gender = Male will purchase or not using Naïve Bayesian classifier

Age	**Income**	**Location**	**Gender**	**Purchase**
22	Low	Urban	Male	No
29	Medium	Urban	Female	Yes
35	High	Rural	Male	Yes
42	Medium	Rural	Female	No
27	Low	Urban	Male	No
31	High	Urban	Female	Yes
40	Medium	Urban	Male	Yes
34	Low	Rural	Female	No
28	Medium	Rural	Male	Yes
45	High	Rural	Female	No

3. Use the data in the table of Question # 2. Using the following stump of Adaboost, calculate the revised weight of the examples, generate 10 random numbers between 0 and 1 and generate a new training set using bootstrap sampling method



CSE 427 Assignment 1
Submission deadline: First class after Eid holiday

4. From the following data find the root of a regression tree.

Dosage	Gender	Drug Effectiveness
4	M	0
6	M	2
10	F	3
15	F	100
20	M	100
25	M	100
30	F	20
35	F	10
40	M	0

5.

Find the revised value of a, b and c to fit the following dataset using the linear equation $z = ax + by + c$. Use gradient descent for the revision and use 0.2 as the learning rate. The initial value of a, b and c are 1, 2 and 3 respectively.

X	y	Z
0	0	5
1	1	10
1	2	13

6. The initial z score of an OR gate is $z = 0.5x1 + 0.5x2 - 0.75$. Find the updated equation after one complete iteration of the input examples using logistic regression approach

CSE 427 Assignment 1
Submission deadline: First class after Eid holiday