

## MACHINE LEARNING CLASSIFICATION:

We need to develop a model to classify whether ad is purchased or not when age, gender and estimated\_salary are given as input parameters.

### DATASET INFORMATION:

**Total no of rows:** 400

**Total no of columns:** 5

**Input variable:** age, gender, estimated\_salary

**Output:** purchased

### RANDOM FOREST:

#### CLASSIFICATION REPORT

Below table shows the questions raised on the classification report

S.no	Question	Value
1	What is the accuracy of the model in test data set?	0.90
2	What is the percentage of correct classification of both not purchased and purchased to the total input of test data set?	
3	What is the overall performance of the model (not purchased + purchased) in test data set?	
4	What is the recall value of not purchased in test data set?	0.92
5	What is the percentage of correctly classified of not purchased to the total input of not purchased in Test data set?	
6	What is the recall value of purchased in Test data set	0.88
7	What is the percentage of correctly classified of purchased to the total input of purchased in Test data set?	
8	What is the precision value of not purchased in Test data set?	0.93
9	What is the percentage of correctly classified of not purchased to the sum of correctly classified of not purchased and wrongly classified of not purchased in test data set?	
10	What is the precision value of purchased in Test data set?	0.86
11	What is the percentage of correctly classified of purchased to the sum of correctly classified of purchased and wrongly classified of purchased in test data set?	
12	What is the f1-score of not purchased in test data set?	0.92
13	What is the overall performance of not purchased in test data set?	
14	What is the f1-score of purchased in test data set?	0.87
15	What is the overall performance of purchased in test data set?	
16	What is the average performance of precision in test data set?	0.89
17	What is the average performance of recall in test data set?	0.90
18	What is the average performance of f1 score in test data set?	0.90
19	What is the sum of product of proportion rate of precision of each class in test data?	0.90
20	What is the sum of product of proportion rate of recall of each class in test data?	0.90
21	What is the sum of product of proportion rate of f1 score of each class in test data?	0.90

## DECISION TREE:

### CLASSIFICATION REPORT

Below table shows the questions raised on the classification report

S.no	Question	Value
1	What is the accuracy of the model in test data set?	0.87
2	What is the percentage of correct classification of both not purchased and purchased to the total input of test data set?	
3	What is the overall performance of the model (not purchased + purchased) in test data set?	
4	What is the recall value of not purchased in test data set?	0.89
5	What is the percentage of correctly classified of not purchased to the total input of not purchased in Test data set?	
6	What is the recall value of purchased in Test data set	
7	What is the percentage of correctly classified of purchased to the total input of purchased in Test data set?	0.84
8	What is the precision value of not purchased in Test data set?	0.90
9	What is the percentage of correctly classified of not purchased to the sum of correctly classified of not purchased and wrongly classified of not purchased in test data set?	
10	What is the precision value of purchased in Test data set?	
11	What is the percentage of correctly classified of purchased to the sum of correctly classified of purchased and wrongly classified of purchased in test data set?	0.82
12	What is the f1-score of not purchased in test data set?	0.90
13	What is the overall performance of not purchased in test data set?	
14	What is the f1-score of purchased in test data set?	
15	What is the overall performance of purchased in test data set?	0.83
16	What is the average performance of precision in test data set?	0.86
17	What is the average performance of recall in test data set?	0.87
18	What is the average performance of f1 score in test data set?	0.86
19	What is the sum of product of proportion rate of precision of each class in test data?	0.87
20	What is the sum of product of proportion rate of recall of each class in test data?	0.87
21	What is the sum of product of proportion rate of f1 score of each class in test data?	0.87

## SUPPORT VECTOR MACHINE (SVM):

### CLASSIFICATION REPORT

Below table shows the questions raised on the classification report

S.no	Question	Value
1	What is the accuracy of the model in test data set?	0.80
2	What is the percentage of correct classification of both not purchased and purchased to the total input of test data set?	
3	What is the overall performance of the model (not purchased +purchased) in test data set?	
4	What is the recall value of not purchased in test data set?	0.96
5	What is the percentage of correctly classified of not purchased to the total input of not purchased in Test data set?	
6	What is the recall value of purchased in Test data set	0.51
7	What is the percentage of correctly classified of purchased to the total input of purchased in Test data set?	
8	What is the precision value of not purchased in Test data set?	0.77
9	What is the percentage of correctly classified of not purchased to the sum of correctly classified of not purchased and wrongly classified of not purchased in test data set?	
10	What is the precision value of purchased in Test data set?	0.89
11	What is the percentage of correctly classified of purchased to the sum of correctly classified of purchased and wrongly classified of purchased in test data set?	
12	What is the f1-score of not purchased in test data set?	0.86
13	What is the overall performance of not purchased in test data set?	
14	What is the f1-score of purchased in test data set?	0.65
15	What is the overall performance of purchased in test data set?	
16	What is the average performance of precision in test data set?	0.83
17	What is the average performance of recall in test data set?	0.74
18	What is the average performance of f1 score in test data set?	0.75
19	What is the sum of product of proportion rate of precision of each class in test data?	0.82
20	What is the sum of product of proportion rate of recall of each class in test data?	0.80
21	What is the sum of product of proportion rate of f1 score of each class in test data?	0.78