1. Modeling

Attributes number	37
Weight of each response record	40
Final model	naïve Bayes
Training data, Test data	Random pick $0.8, 0.2$ of dataset

2. Evaluation of models

2.1   Accuracy of E_in, E_out

E_in

Score	0.7648
weight	40
accuracy	0.7648
sensitivity	0.3271
specificity	0.7765
prevalence	0.2592
Response	2296
Test size	88572

E_out

Score	0.7592
weight	40
accuracy	0.7592
sensitivity	0.3322
specificity	0.7708
prevalence	0.2637
Response	584
Test size	22144

```
=======Ein=======
Accuracy: 0.764846678409
Sensitivity: 0.327090592334
Specificity: 0.776496360517
Prevalence: 0.0259224134038 Response: 2296 Testsize: 88572
Confusion Matrix:
[[66993 19283]
 [ 1545   751]]
########## Result ##########
Score 0.759212427746
Weight: 40 FeatureSize: 36 Sen: 0.5
=======Eout=======
Accuracy: 0.759212427746
Sensitivity: 0.332191780822
Specificity: 0.770779220779
Prevalence: 0.0263728323699 Response: 584 Testsize: 22144
Confusion Matrix:
[[16618  4942]
 [  390   194]]
```
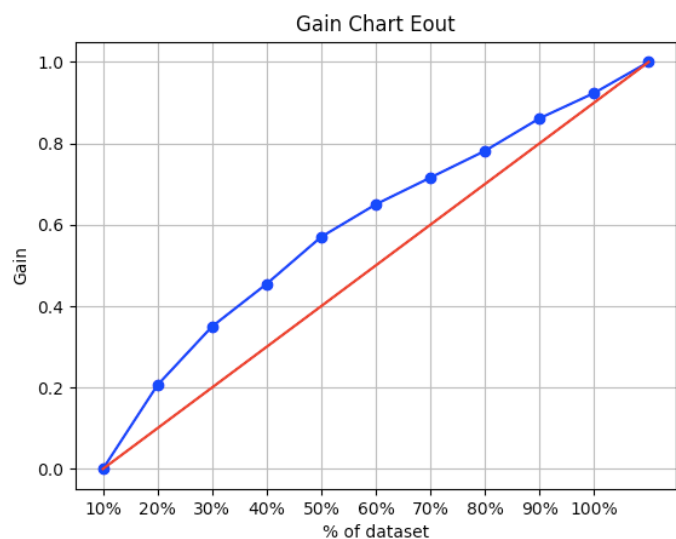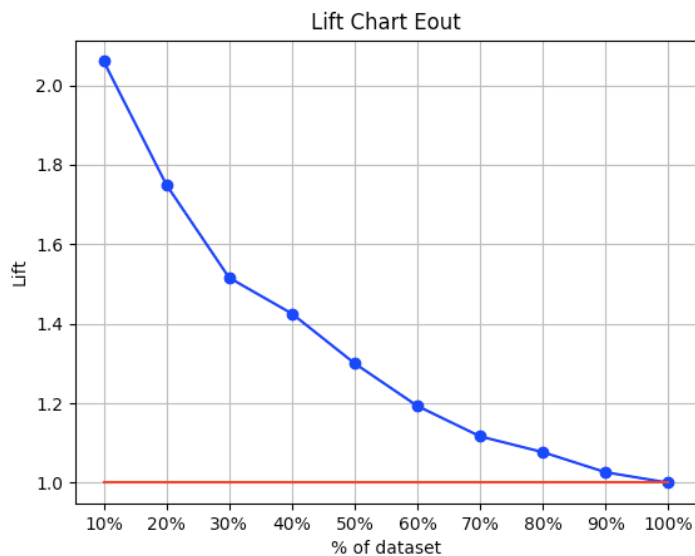
2.2   Confusion Matrix

Test data(E_out)

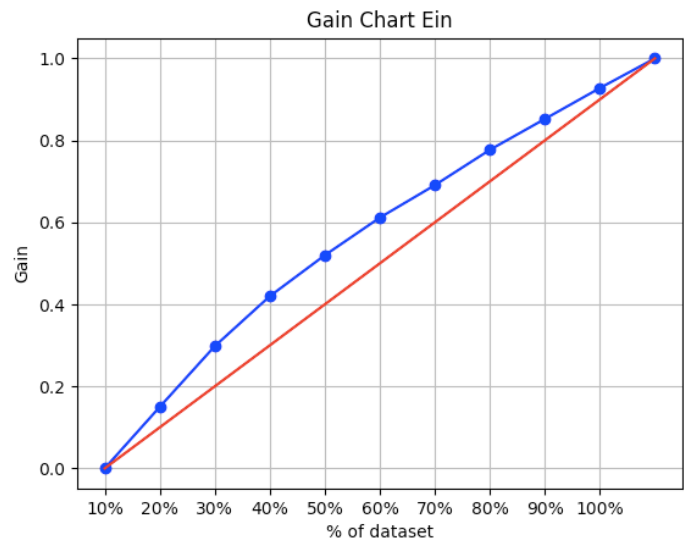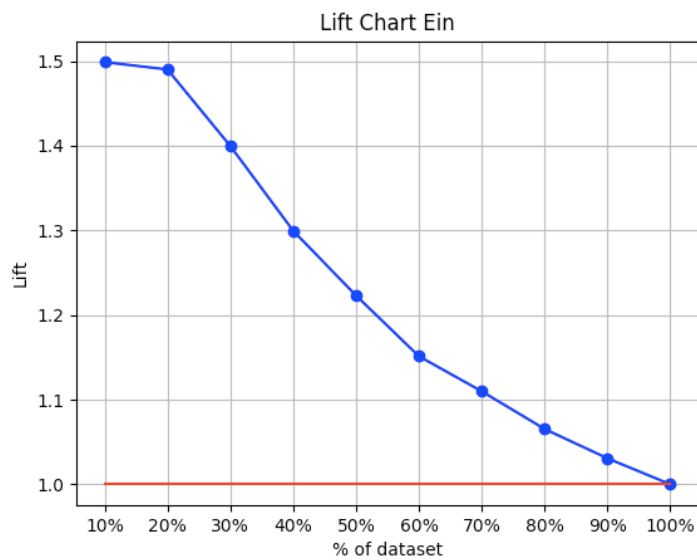| weight=40, attributes=37	positive(predict)	negative(predict)	
positive(actual)	true possitive: 194	false positive: 390	test outcome positive: 584
negative(actual)	false negative: 4942	true negative: 16618	test outcome negative: 21560
	5136	17008	

Train data(E_in)

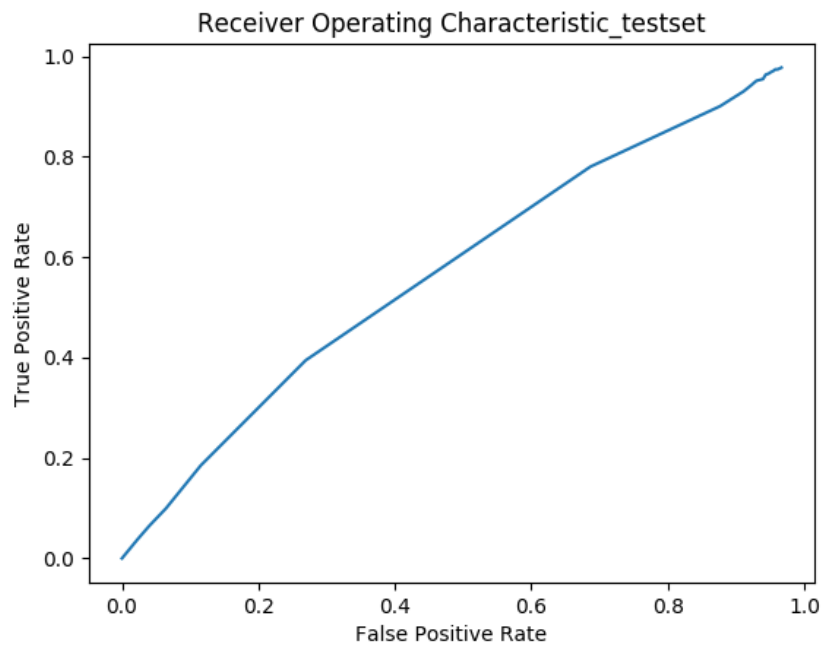| weight=40, attributes=37	positive(predict)	negative(predict)	
positive(actual)	true possitive: 751	false positive: 1545	test outcome positive: 2296
negative(actual)	false negative: 19283	false positive: 66993	test outcome negative: 86276
	20034	false positive: 68538	

2.3Gain chart, Lift chart
2.3.1 Test set

2.3.2 Train set

Lift Chart Ein

Gain Chart Ein

2.3.3 ROC chart
Test set

Receiver Operating Characteristic_testset

Train set

Receiver Operating Characteristic