Heart Attack Prediction Using Different ML Models

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- Methodology
- Data set
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Introduction

- What is it?
- Why does it matter?
- What are we going to do?

Methodology

Methodology

Import the Data

Explore the Data

Build a model

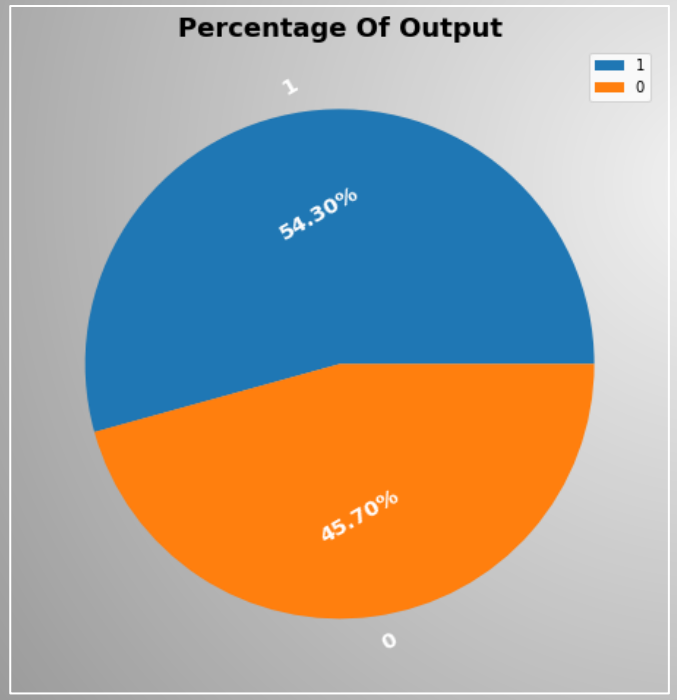
Data set

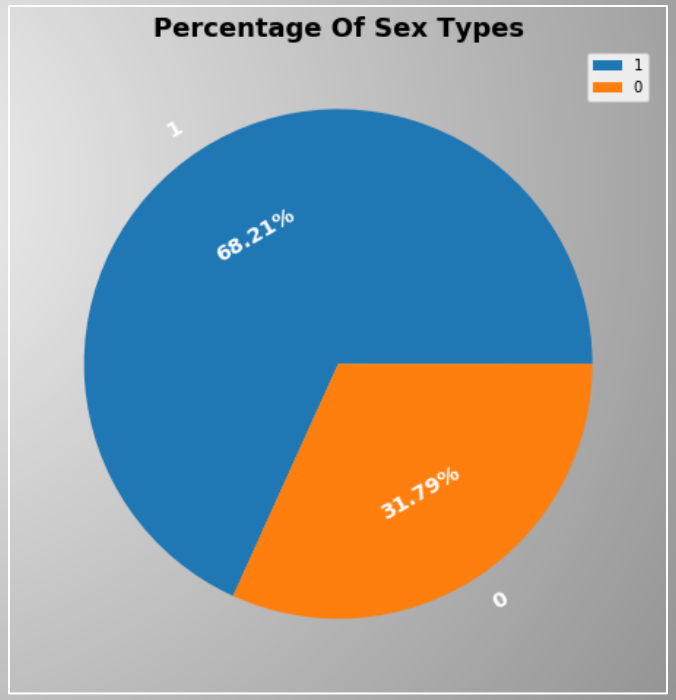
Heart.csv description

Data set

Variables	Discretion
age	Age of the patient
Sex	Sex of the patient (1 = male; 0 = female)
exang	exercise induced angina (1 = yes; 0 = no)
ca	number of major vessels (0-3)
cp	Chest Pain type chest pain type Value 1: typical angina Value 2: atypical angina Value 3: non-anginal pain Value 4: asymptomatic
trtbps	resting blood pressure (in mm Hg)
chol	cholesterol in mg/dl fetched via BMI sensor
fbs	fasting blood sugar > 120 mg/dl) (1 = true; 0 = false)
rest_ecg	resting electrocardiographic results Value 0: normal Value 1: having ST-T wave abnormality (T wave inversions and/or ST elevation or depression of > 0.05 mV) Value 2: showing probable or definite left ventricular hypertrophy by Estes' criteria
thalachh	maximum heart rate achieved
target	0= less chance of heart attack 1= more chance of heart attack

Explore the data (EDA)





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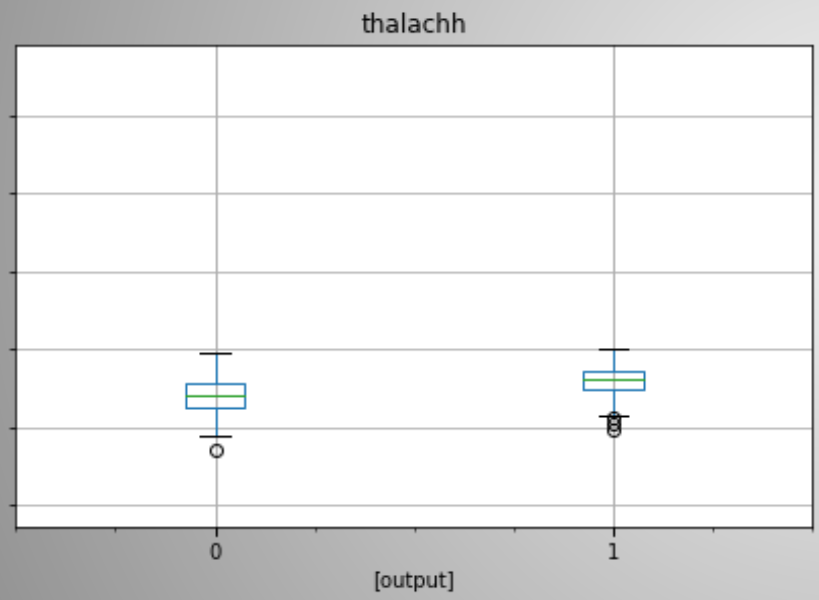
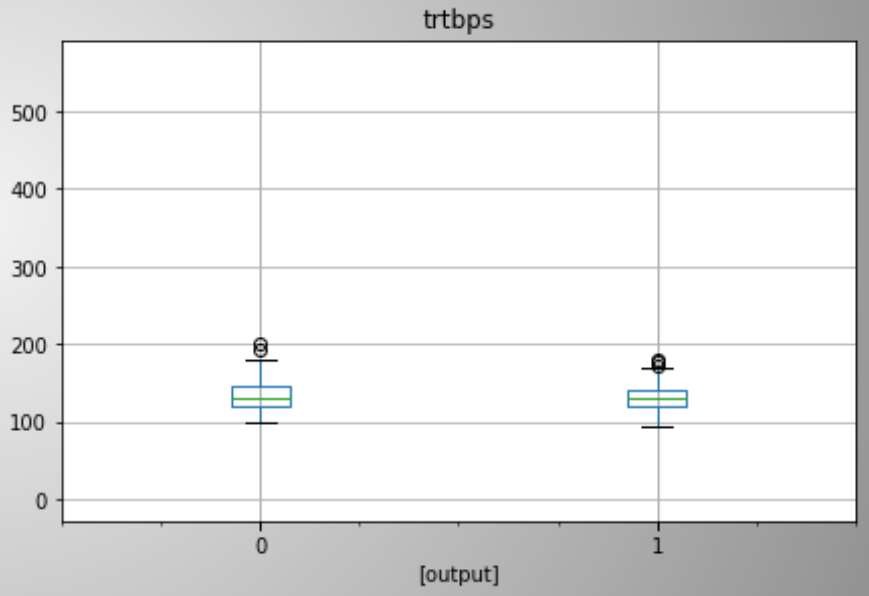
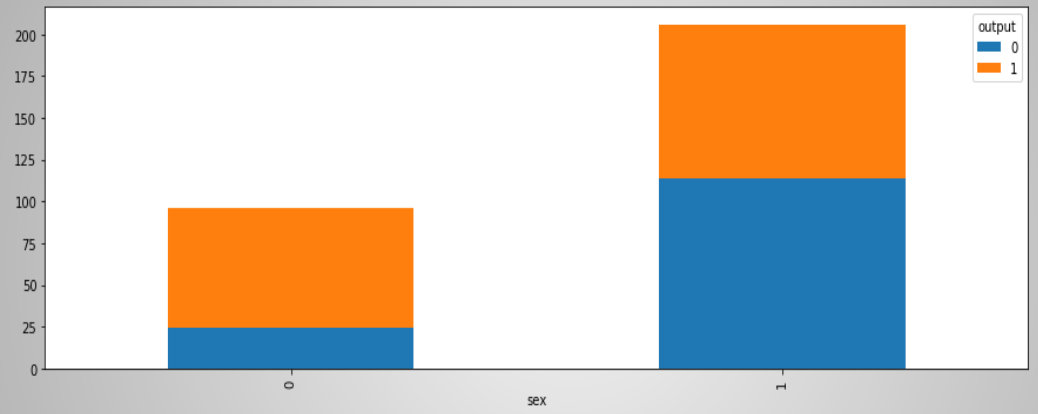


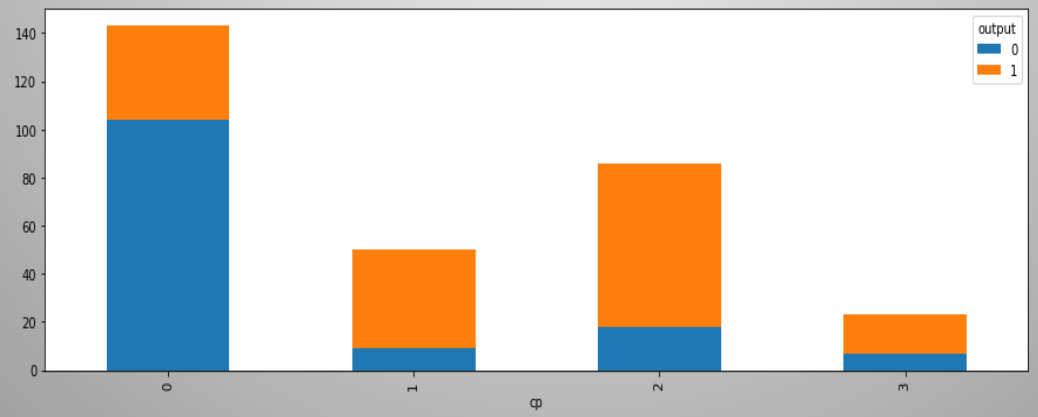


High heart beat rate

lower the resting blood pressure

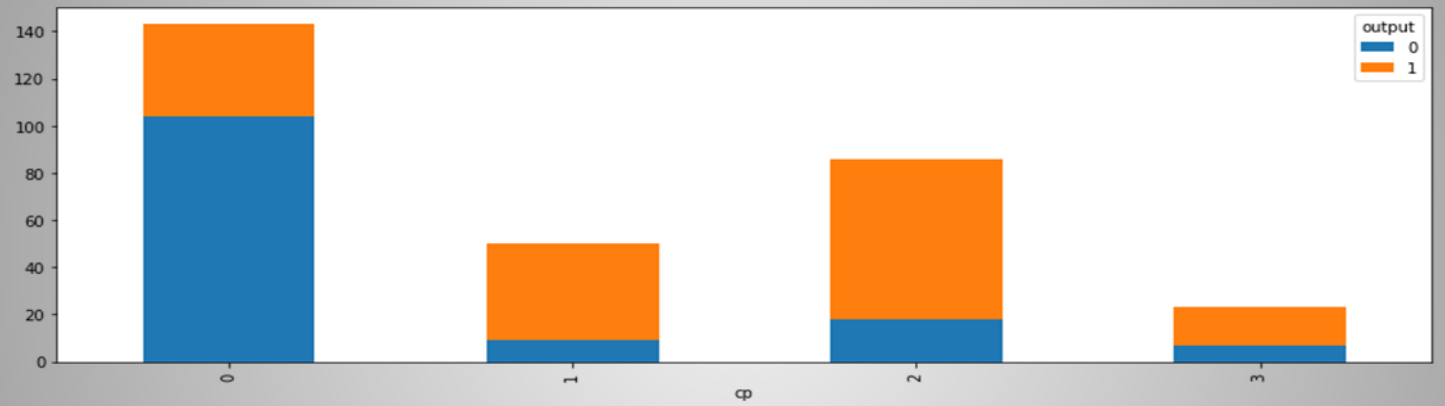
Explore the data (EDA)

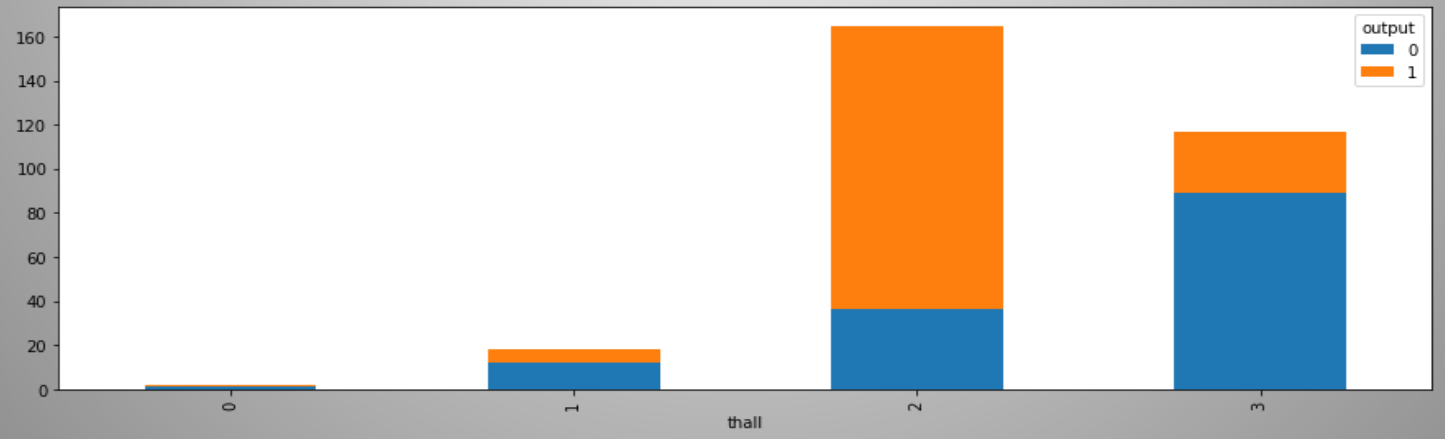




chestpain

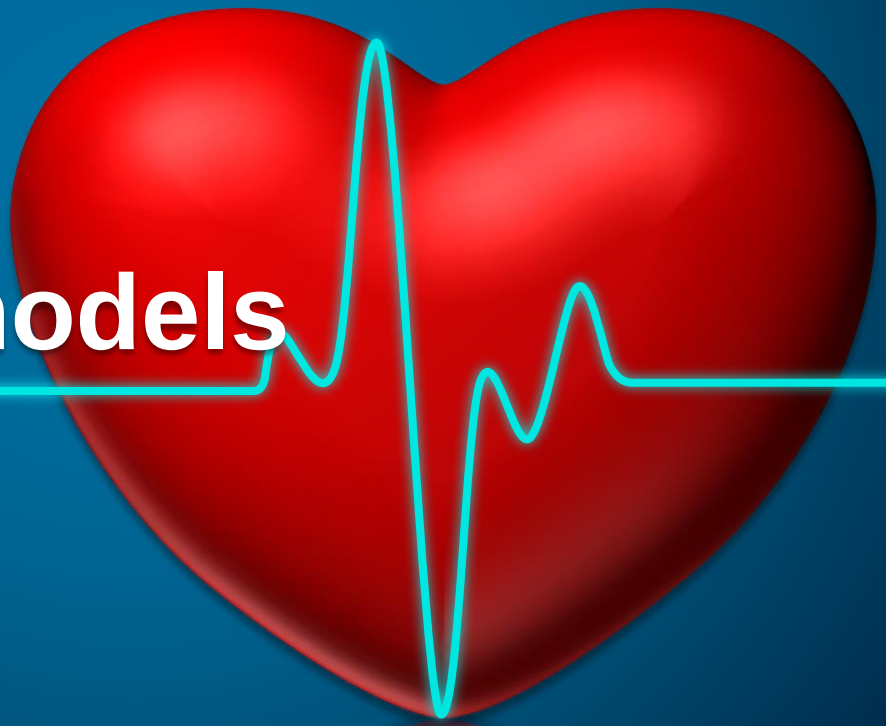
Explore the data (EDA)





Classification models

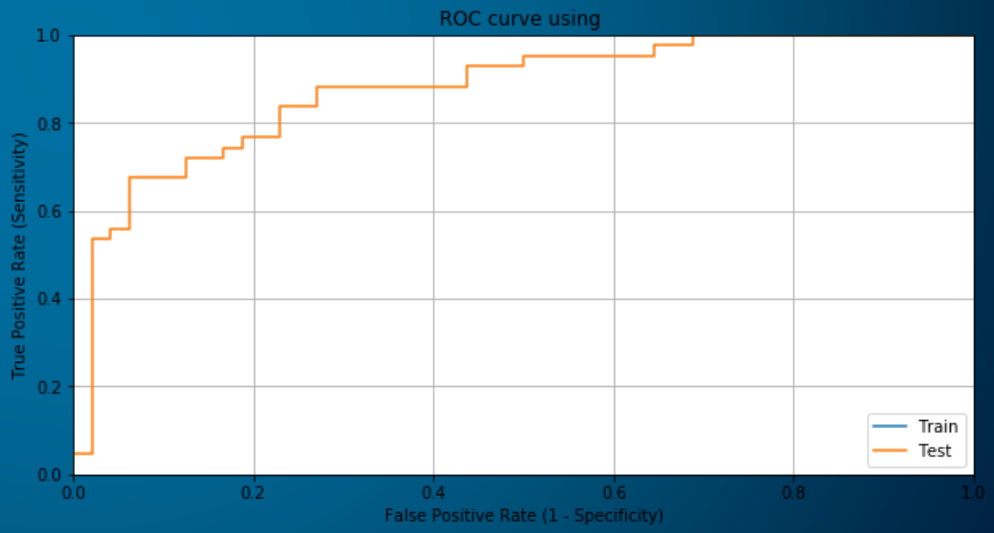
- Logistic Regression
- Gradient Boost
- Random Forest



Classification models

1. **GBM (Gradient Boosting)**

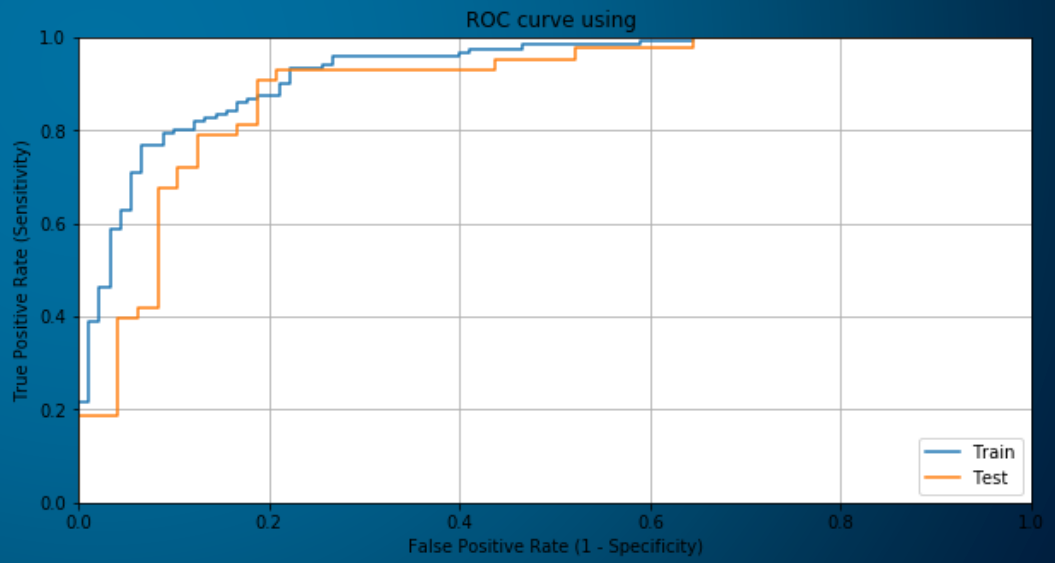
Classification report				
	precision	recall	f1-score	Accuracy
0	0.83	0.73	0.78	
1	0.73	0.84	0.78	
				0.78



Classification models

2. Logistic Regression Model

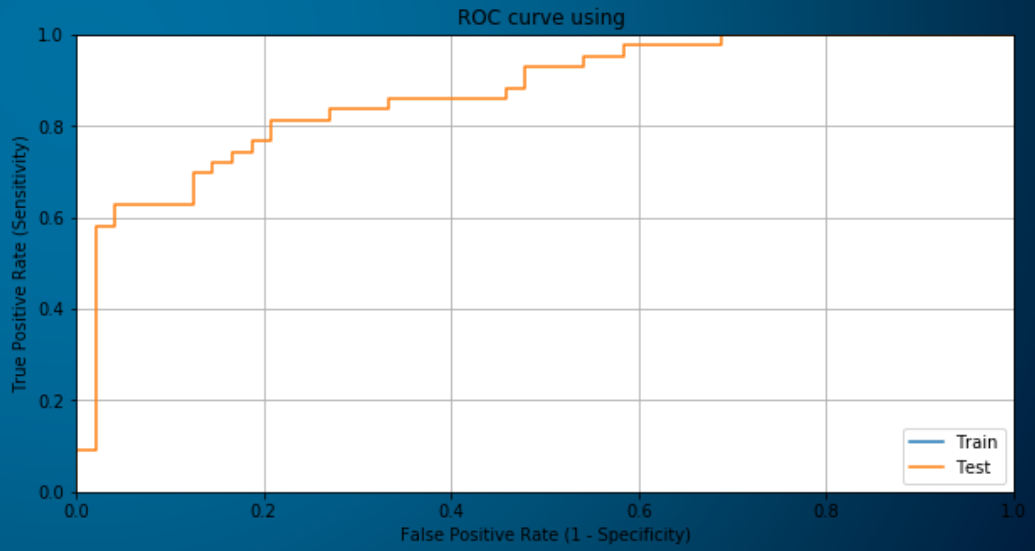
Classification report				
	precision	recall	f1-score	Accuracy
0	0.93	0.79	0.85	
1	0.80	0.93	0.86	
				0.86



Classification models

3. Random Forest Classifier

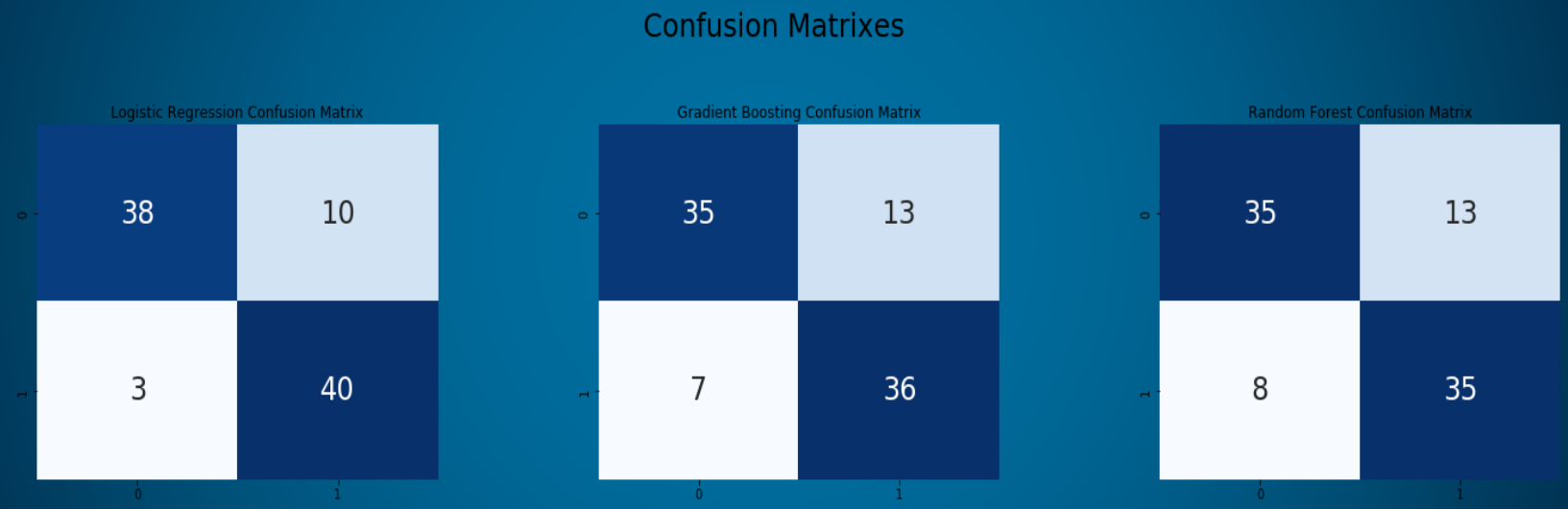
Classification report				
	precision	recall	f1-score	Accuracy
0	0.81	0.73	0.77	
1	0.73	0.81	0.77	
				0.77



Models evaluation

Confusion Matrix

Classification models



	Model	Accuracy
0	Logistic Regression	78.021978
1	Random Forest	78.021978
2	Gradient Boost	85.714286

conclusion

Conclusion

- The best model preformed well in our data is Gradient Boost with 85.71% .
- Experiment on more data and test our model.

Thank you….