



WHAT CAUSES HEART DISEASE

Heart disease is a term covering any disorder of the heart.



cause




- ▶ Excess weight, especially around the stomach area, increases a woman's risk of developing cardiovascular disease and lack of physical activity makes it worse.
- ▶ Diabetes causes damage to blood vessels so diabetes is a major factor in developing cardiovascular disease.
- ▶ Unhealthy foods, lack of exercise, lead to heart disease. So can high blood pressure, infections, and birth defects.
- ▶ Smoking is one of the biggest causes of cardiovascular disease.
- ▶ Just a few cigarettes a day can damage the blood vessels and reduce the amount of oxygen available in our blood.
- ▶ But other things might surprise you.




Symptoms



- ▶ Chest pain, chest tightness, chest pressure and chest discomfort (angina)
- ▶ Shortness of breath
- ▶ Pain, numbness, weakness or coldness in your legs or arms if the blood vessels in those parts of your body are narrowed
- ▶ Pain in the neck, jaw, throat, upper abdomen or back.
- ▶ Heart failure is also an outcome of heart disease, and breathlessness can occur when the heart becomes too weak to circulate blood.
- ▶ Some heart conditions occur with no symptoms at all, especially in older adults and individuals with diabetes.

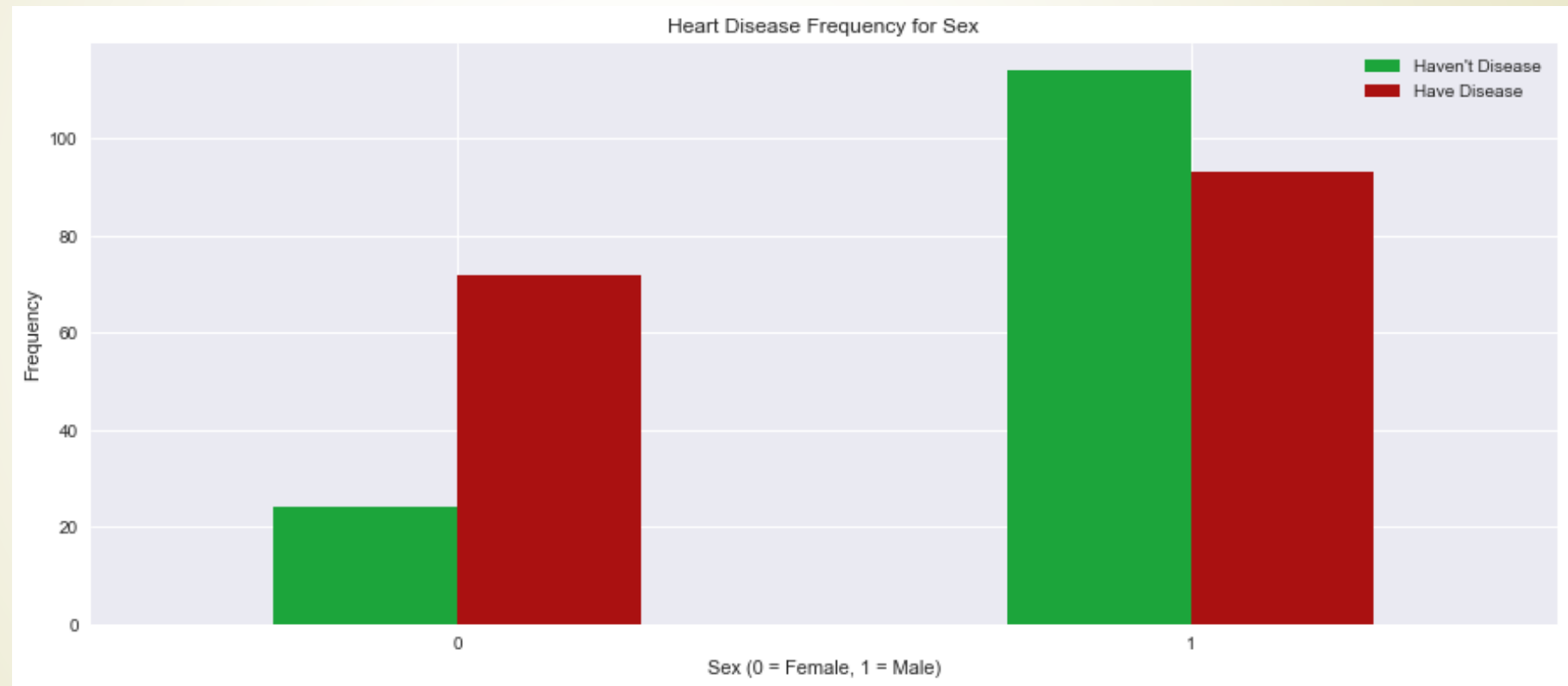


Women are 4 times more likely to die from heart disease than breast cancer

- ▶ Cardiovascular disease is the leading cause of death in women in Australia with 90% of women having one risk factor.
 - ▶ The causes including high blood pressure, high cholesterol, smoking, diabetes, weight and family history are discussed.
 - ▶ A woman's risk also goes up if she's had a miscarriage or had her ovaries or uterus removed.
 - ▶ Women's hearts are affected by stress and depression more than men's. Depression makes it difficult to maintain a healthy lifestyle.
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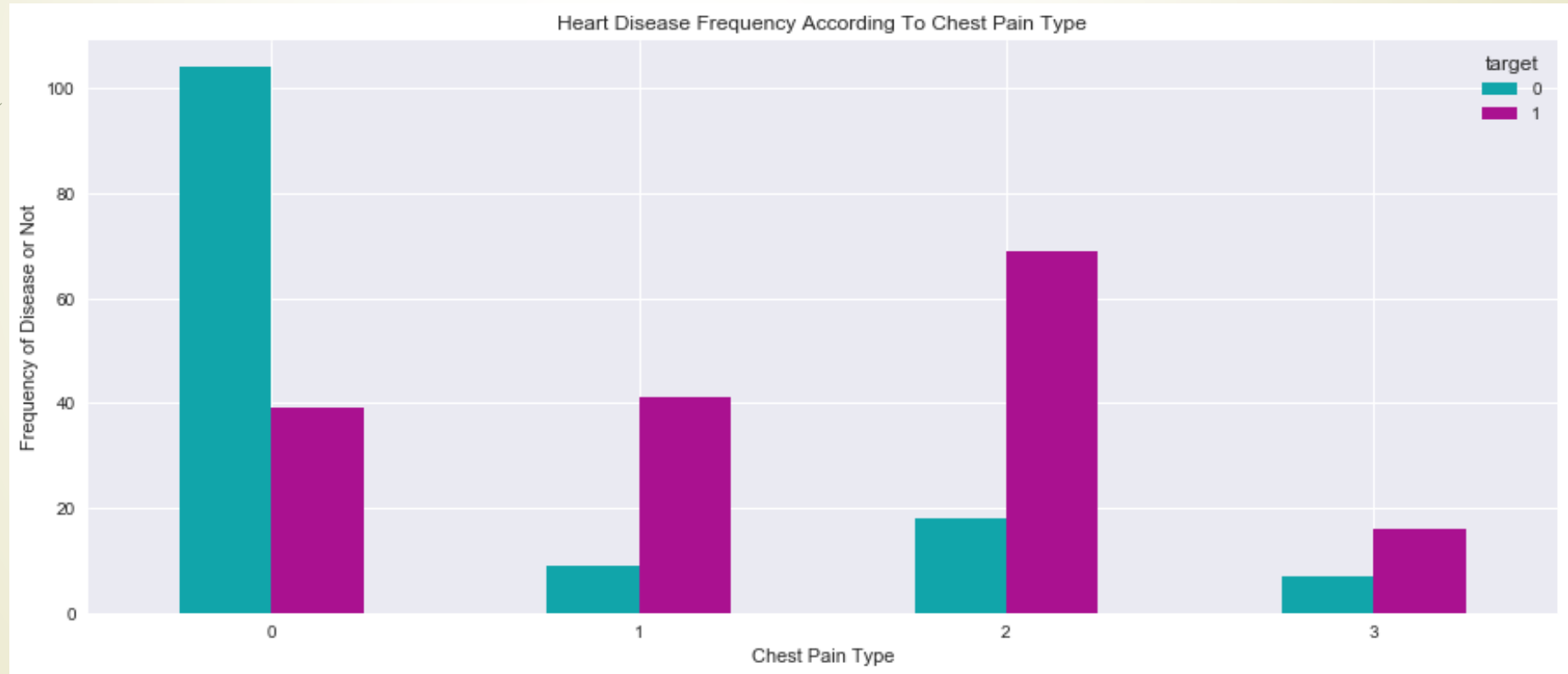
A database from Kaggle have the collection of different attributes of symptoms of Heart Disease.

When we visualize the database we find this plot which display the rate of heart disease in female(almost 73%) have more than male(47%).



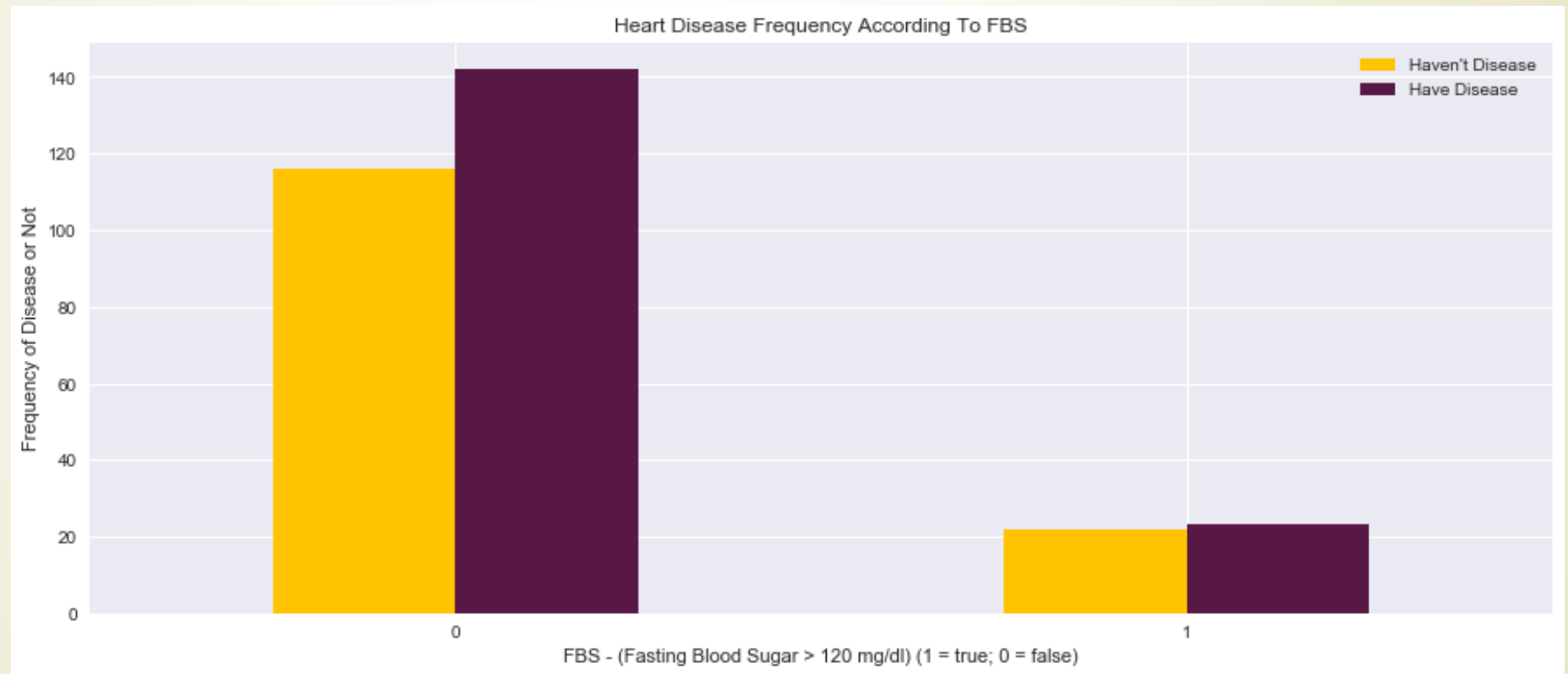
Visually analysing the symptom chest pain.


cp: The chest pain experienced (Value 1: typical angina, Value 2: atypical angina, Value 3: non-anginal pain, Value 4: asymptomatic)



Visualy analyzing the fasting blood sugar.

fbs: The person's fasting blood sugar (> 120 mg/dl, 1 = true; 0 = false)

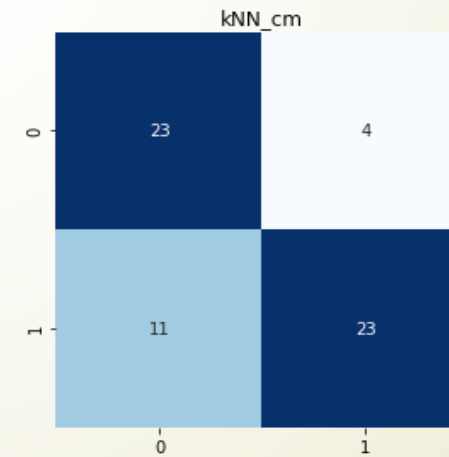
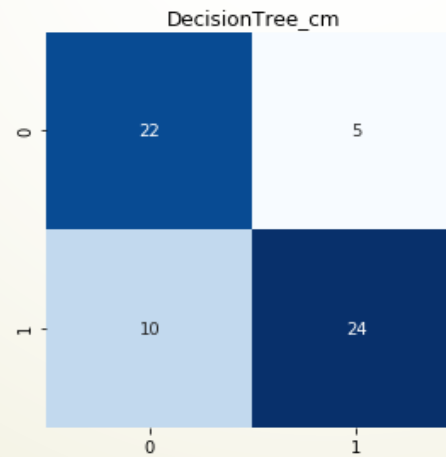
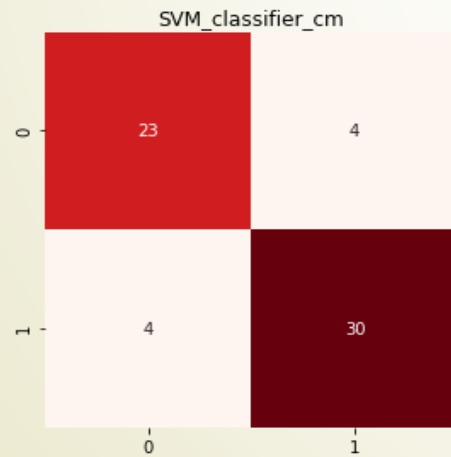
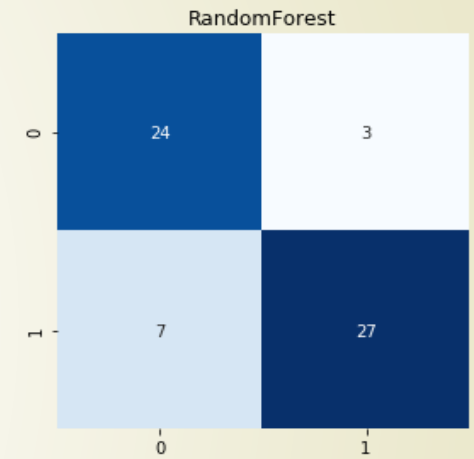
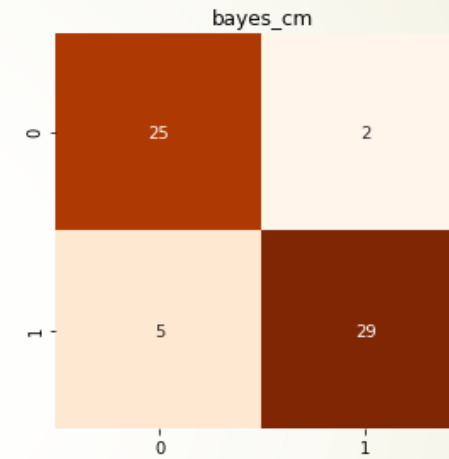
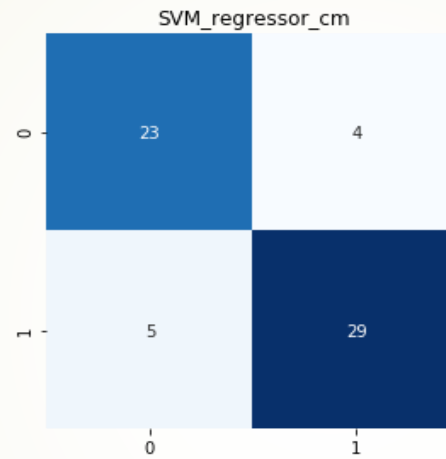
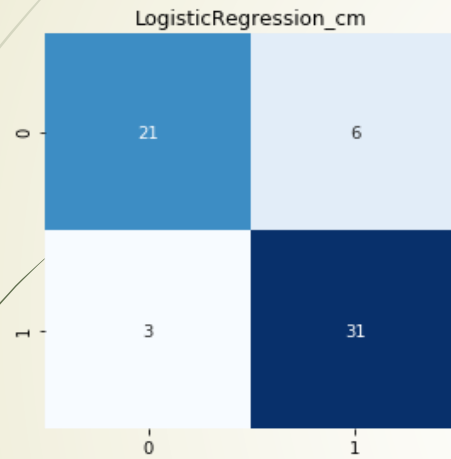




Used sklearn to build different machine learning model and predicts the cause of heart disease


- Analysed what factors causes the heart disease.
- The rate of heart disease in females have more in comparision to male.
- The maximum problem in case with chest pain type 2.
- Person's fasting blood sugar ($\text{FBS} < 120 \text{ mg/dl}$) have more likely to hear disease
- There was a high correlation between chest pain and target.

Models Confusion matrix





Accuracy of the models



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LogisticRegression_accuracy:    0.8524590163934426
SVM_regressor_accuracy:         0.8688524590163934
RandomForest_accuracy:         0.8360655737704918
DecisionTree_accuracy:          0.7540983606557377
KNN_accuracy:                   0.7540983606557377
SVM_classifier_accuracy:        0.8524590163934426
Bayes_accuracy:                 0.8852459016393442
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Prevention



- Quit smoking.
- Control other health conditions, such as high blood pressure, high cholesterol and diabetes.
- Exercise at least 30 minutes a day on most days of the week.
- Eat a diet that's low in salt and saturated fat.
- Maintain a healthy weight.
- Reduce and manage stress.
- Practice good hygiene.



Refrence:

<https://www.kaggle.com/rajeshjnv/heart-disease-ml-prediction-8852>



THANKS