# AI LAB-10

Aim: Implementation of learning algorithms for an application.

**Problem Formulation:** Solving a dataset using machine learning algorithms.

**Problem Statement:** Using a dataset to predict if a person in susceptible to heart attacks or not by taking values like blood pressure, cholesterol levels, etc.

## Algorithm used (Problem Solving): Kernel SVM

The Support Vector Machine is a supervised learning algorithm mostly used for classification but it can be used also for regression. The main idea is that based on the labeled data (training data) the algorithm tries to find the optimal hyperplane which can be used to classify new data points. In two dimensions the hyperplane is a simple line. Kernel SVM deals with data having higher dimensions and non-linearity.

### Dataset:

1	age	sex	ср	trtbps	chol	fbs	restecg	thalachh	exng	oldpeak	slp	caa	thall	output
2	63			145	233			150		2.3				1
3				130	250			187		3.5				1
4	41			130	204					1.4				1
9	56			120	236			178		0.8				1
6				120	354			163		0.6				1
7				140	192			148		0.4				1
٤	56			140	294			153		1.3				1
g	44			120	263									1
16	52				199			162		0.5				1

The dataset has 304 rows, i.e. 304 data entries. Output 1 means that the patient has more chances of having a heart attack and 0 means less chance.

### Code:

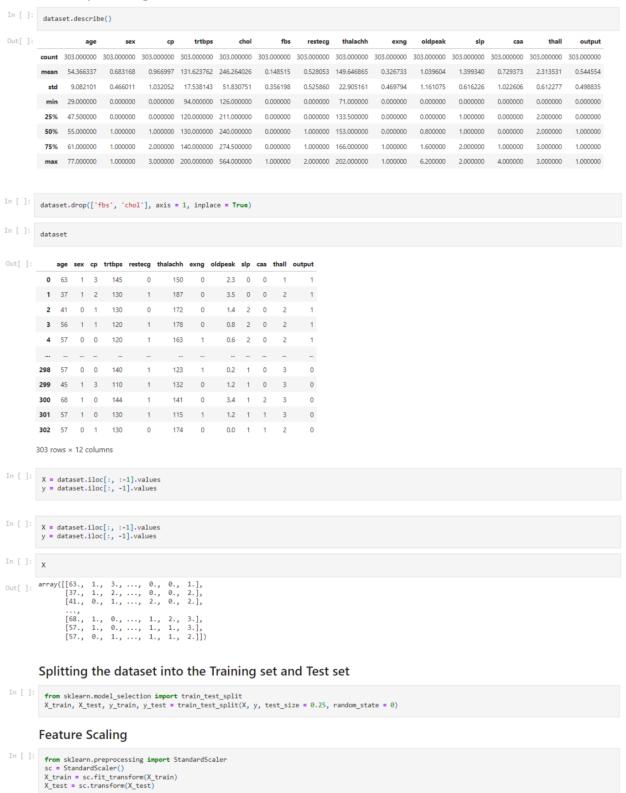
### Importing the libraries

```
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
import seaborn as sns
```

### Importing the dataset

```
In [ ]: dataset = pd.read_csv('heart.csv')
```

### **Data Preprocessing**



# Kernel SVM

# **Output:**