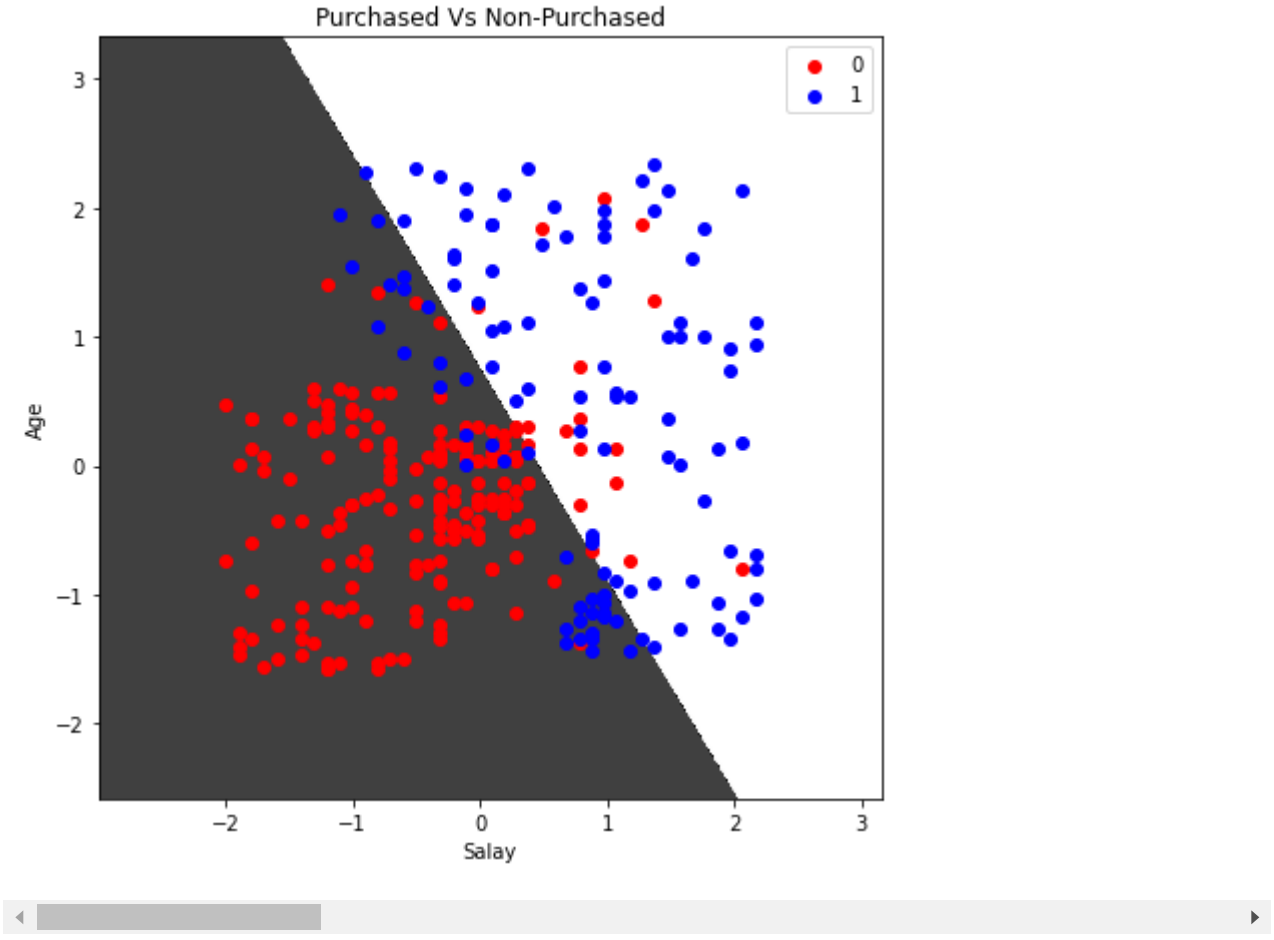
```
import matplotlib.pyplot as plt
import pandas as pd
import seaborn as sns


dataset = pd.read_csv('https://hands-on.cloud/wp-content/uploads/2022/01/customer_purchases.c

# split the data into inputs and outputs
X = dataset.iloc[:, [0,1]].values
y = dataset.iloc[:, 2].values


print(dataset.Purchased)

     0      0
     1      0
     2      0
     3      0
     4      0
           ..
     395    1
     396    1
     397    1
     398    0
     399    1
     Name: Purchased, Length: 400, dtype: int64


from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test =train_test_split(X, y, test_size=0.25, random_state=0)


from sklearn.preprocessing import StandardScaler

# scalling the input data
sc_X = StandardScaler()
X_train = sc_X.fit_transform(X_train)
X_test = sc_X.fit_transform(X_test)


from sklearn.svm import SVC

classifier = SVC(kernel='linear')
classifier.fit(X_train, y_train)

     SVC(kernel='linear')


y_pred = classifier.predict(X_test)


from matplotlib.colors import ListedColormap
import numpy as np
```

```
# plotting the fgiure
plt.figure(figsize = (7,7))

# assigning the input values
X_set, y_set = X_train, y_train

# ploting the linear graph
X1, X2 = np.meshgrid(np.arange(start = X_set[:, 0].min() - 1, stop = X_set[:, 0].max() + 1, s
plt.contourf(X1, X2, classifier.predict(np.array([X1.ravel(), X2.ravel()]).T).reshape(X1.shap
plt.xlim(X1.min(), X1.max())
plt.ylim(X2.min(), X2.max())

# ploting scattered graph for the values
for i, j in enumerate(np.unique(y_set)):
    plt.scatter(X_set[y_set == j, 0], X_set[y_set == j, 1], c = ListedColormap(('red', 'blue'

# labeling the graph
plt.title('Purchased Vs Non-Purchased')
plt.xlabel('Salay')
plt.ylabel('Age')
plt.legend()
plt.show()
```

```
WARNING:matplotlib.axes._axes:*c* argument looks like a single numeric RGB or RGBA
WARNING:matplotlib.axes._axes:*c* argument looks like a single numeric RGB or RGBA
```

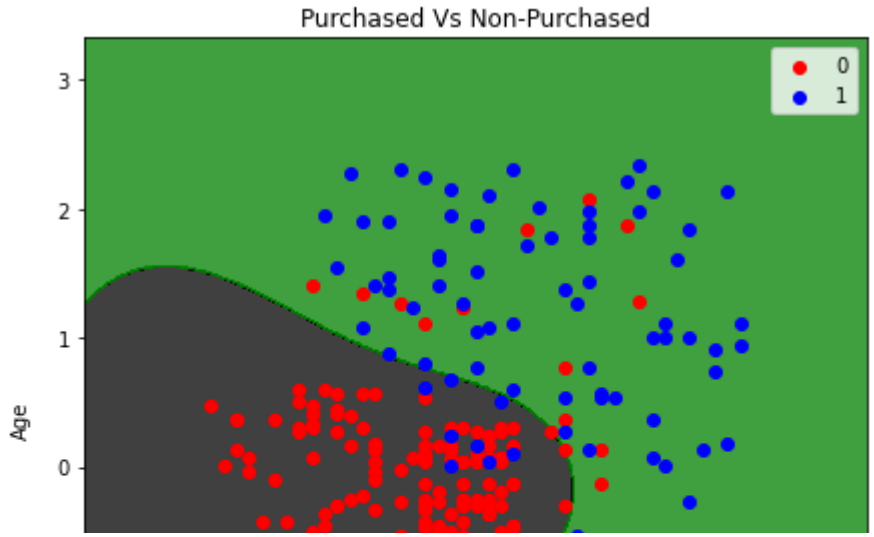


```
classifier1 = SVC(kernel='rbf')

# traininf the model
classifier1.fit(X_train, y_train)

# testing the model
y_pred = classifier1.predict(X_test)

# importing accuracy score
from sklearn.metrics import accuracy_score

# printing the accuracy of the model
print(accuracy_score(y_test, y_pred))
```

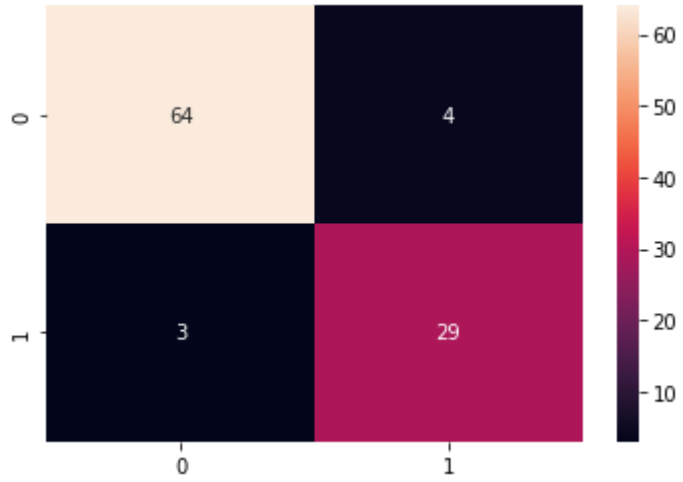
```
0.93
```

```
plt.figure(figsize = (7,7))

# assigning the input values
X_set, y_set = X_train, y_train

# ploting the linear graph
X1, X2 = np.meshgrid(np.arange(start = X_set[:, 0].min() - 1, stop = X_set[:, 0].max() + 1, s
plt.contourf(X1, X2, classifier1.predict(np.array([X1.ravel(), X2.ravel()]).T).reshape(X1.sha
plt.xlim(X1.min(), X1.max())
plt.ylim(X2.min(), X2.max())

# ploting scattered graph for the values
for i, j in enumerate(np.unique(y_set)):
    plt.scatter(X_set[y_set == j, 0], X_set[y_set == j, 1], c = ListedColormap(('red', 'blue'

# labeling the graph
plt.title('Purchased Vs Non-Purchased')
plt.xlabel('Salay')
plt.ylabel('Age')
plt.legend()
plt.show()
```

```
WARNING:matplotlib.axes._axes:*c* argument looks like a single numeric RGB or RGBA
WARNING:matplotlib.axes._axes:*c* argument looks like a single numeric RGB or RGBA
```




```
from sklearn.metrics import confusion_matrix

# passing actual and predicted values
cm = confusion_matrix(y_test, y_pred, labels=classifier.classes_)

# true Write data values in each cell of the matrix
sns.heatmap(cm, annot=True)
plt.savefig('confusion.png')
```




```
from sklearn.metrics import classification_report

# printing the report
print(classification_report(y_test, y_pred))
```

```
              precision    recall  f1-score   support

           0       0.96      0.94      0.95        68
           1       0.88      0.91      0.89        32

    accuracy                           0.93       100
```

```
           macro avg       0.92      0.92      0.92       100
        weighted avg       0.93      0.93      0.93       100
```