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In [1]: import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
from sklearn import metrics
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In [2]: dataset = pd.read_csv('Social_Network_Ads.csv')
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In [3]: dataset.head()
```

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Out[3]:
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| | User ID | Gender | Age | EstimatedSalary | Purchased |
|---|----------|--------|-----|-----------------|-----------|
| 0 | 15624510 | Male | 19 | 19000 | 0 |
| 1 | 15810944 | Male | 35 | 20000 | 0 |
| 2 | 15668575 | Female | 26 | 43000 | 0 |
| 3 | 15603246 | Female | 27 | 57000 | 0 |
| 4 | 15804002 | Male | 19 | 76000 | 0 |

```
In [4]: X = dataset.iloc[:, [2, 3]].values
y = dataset.iloc[:, 4].values
```

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In [5]: 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)
```

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In [6]: from sklearn.preprocessing import StandardScaler
sc = StandardScaler()
X_train = sc.fit_transform(X_train)
X_test = sc.transform(X_test)
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In [7]: from sklearn.svm import SVC
classifier = SVC(kernel = 'rbf', random_state = 0)
classifier.fit(X_train, y_train)
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Out[7]: SVC(random_state=0)
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In [8]: y_pred = classifier.predict(X_test)
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In [9]: from sklearn.metrics import confusion_matrix, accuracy_score
from sklearn.metrics import classification_report
accuracy_score(y_test, y_pred)
print("Confusion Matrix: ", confusion_matrix(y_test, y_pred))
print("Accuracy : ", accuracy_score(y_test, y_pred)*100)
print("Report : ", classification_report(y_test, y_pred))
```

Confusion Matrix: $\begin{bmatrix} 64 & 4 \\ 3 & 29 \end{bmatrix}$

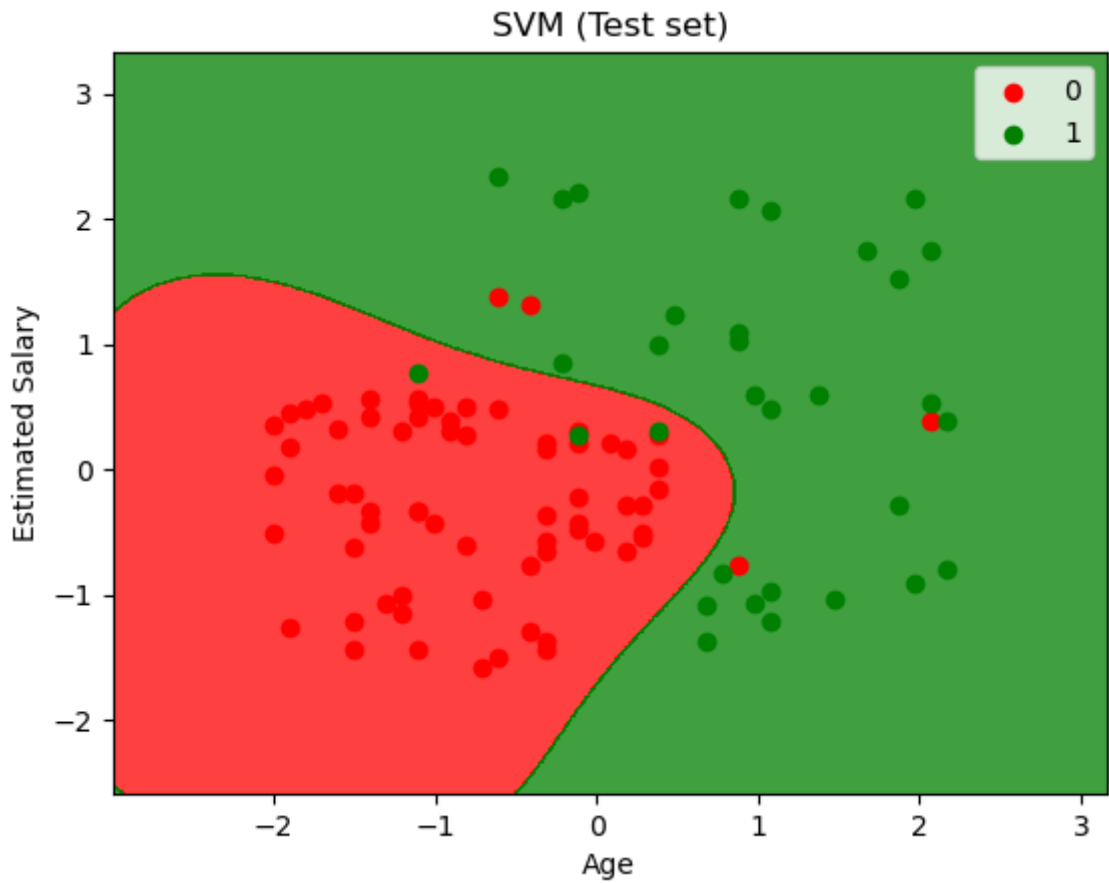
Accuracy : 93.0

| Report : | 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 |

```
In [10]: from matplotlib.colors import ListedColormap
X_set, y_set = X_test, y_test
X1, X2 = np.meshgrid(np.arange(start = X_set[:, 0].min() - 1,
                                stop = X_set[:, 0].max() + 1, step = 0.01),
                     np.arange(start = X_set[:, 1].min() - 1,
                                stop = X_set[:, 1].max() + 1, step = 0.01))
plt.contourf(X1, X2, classifier.predict(np.array([X1.ravel(),
                                                  X2.ravel()]).T).reshape(X1.shape),
              alpha = 0.75, cmap = ListedColormap(('red', 'green')))
plt.xlim(X1.min(), X1.max())
plt.ylim(X2.min(), X2.max())
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', 'green'))(i), label = j)
plt.title('SVM (Test set)')
plt.xlabel('Age')
plt.ylabel('Estimated Salary')
plt.legend()
plt.show()
```

c argument looks like a single numeric RGB or RGBA sequence, which should be avoided as value-mapping will have precedence in case its length matches with *x* & *y*. Please use the *color* keyword-argument or provide a 2D array with a single row if you intend to specify the same RGB or RGBA value for all points.

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In [ ]:
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