

MACHINE LEARNING - ASSIGNMENT 02

PART 2 SUPPORT VECTOR MACHINE

February 11, 2019

Problem

Model a SVM classifier with a Gaussian RBF Kernel for the following datasets that predicts:

Dataset 1 - Social_Network_Ads: if a user is going to make the purchase or not based on two variables, age and estimated salary.

Dataset 2 - Admission_Predict: if a student will be able to get an admission in the PhD programme based on his/her GRE_Score and TOEFL_Score.

Use the following block of code for computing the confusion matrix:

```
from sklearn.metrics import confusion_matrix  
cm = confusion_matrix(y_pred, y_test)
```

You only need to make changes to the variables **y_pred** that denotes the predicted output of the classifier and **y_test** that denotes the actual output.

Use the following block of code to plot the graph of the Classification Model :

```
from matplotlib.colors import ListedColormap
import matplotlib.pyplot as plt
X_set, y_set = X_train, y_train
X_grid_0 = np.arange(start = X_set[:, 0].min() - 1, stop = X_set[:, 0].max() + 1,
step = 0.01)
X_grid_1 = np.arange(start = X_set[:, 1].min() - 1, stop = X_set[:, 1].max() + 1,
step = 0.01)
X1 , X2 = np.meshgrid(X_grid_0, X_grid_1)
X3 = classifier.predict(np.array([X1.ravel(),X2.ravel()]).T).reshape(X1.shape)
plt.contourf(X1, X2, X3, alpha = 0.50, cmap = ListedColormap(("yellow",
"cyan")))
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(("yellow", "cyan"))(i), label = j, edgecolors = "Black")
plt.title("Logistic Regression")
plt.xlabel("Age")
plt.ylabel("EstimatedSalary")
plt.legend()
plt.show()
```

You only need to make changes to the variables **X_train** that denotes the set of input variables, **y_train** that denotes the output variable and the **classifier.predict** which is a method that predicts the output **y** given a set of input variables **X**.