

Supervised Learning-Classification Models\SVM-For-Social-Network-ads.py

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1  # ----- Support Vector Machine (SVM) ----- #
2
3  # Importing the libraries
4  import numpy as np
5  import matplotlib.pyplot as plt
6  import pandas as pd
7  import pickle
8
9  # Importing the dataset
10 dataset = pd.read_csv(r"C:\Users\Jan Saïda\OneDrive\Documents\Desktop\Excel sheets\Social_Network_Ads.csv")
11 X = dataset.iloc[:, [2, 3]].values
12 y = dataset.iloc[:, -1].values
13
14 # Splitting the dataset into the Training set and Test set
15 from sklearn.model_selection import train_test_split
16 X_train, X_test, y_train, y_test = train_test_split(X, y, test_size = 0.20, random_state = 0)
17
18 # Feature Scaling
19 from sklearn.preprocessing import StandardScaler
20 sc = StandardScaler()
21 X_train = sc.fit_transform(X_train)
22 X_test = sc.transform(X_test)
23
24 # Training the SVM model on the Training set
25 from sklearn.svm import SVC
26 classifier = SVC()
27 classifier.fit(X_train, y_train)
28
29
30
31 # Predicting the Test set results
32 y_pred = classifier.predict(X_test)
33
34 # Making the Confusion Matrix
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35 from sklearn.metrics import confusion_matrix
36 cm = confusion_matrix(y_test, y_pred)
37 print(cm)
38
39 # This is to get the Models Accuracy
40 from sklearn.metrics import accuracy_score
41 ac = accuracy_score(y_test, y_pred)
42 print(ac)
43
44 bias = classifier.score(X_train,y_train)
45 print(bias)
46
47 variance = classifier.score(X_test,y_test)
48 print(variance)
49
50 # This is to get the Classification Report
51 from sklearn.metrics import classification_report
52 cr = classification_report(y_test, y_pred)
53 cr
54
55 # Pickling the trained model to a file
56 with open('svm_model.pkl', 'wb') as model_file:
57     pickle.dump(classifier, model_file)
58     print("Model saved to 'svm_model.pkl'")
```