

Practical 6

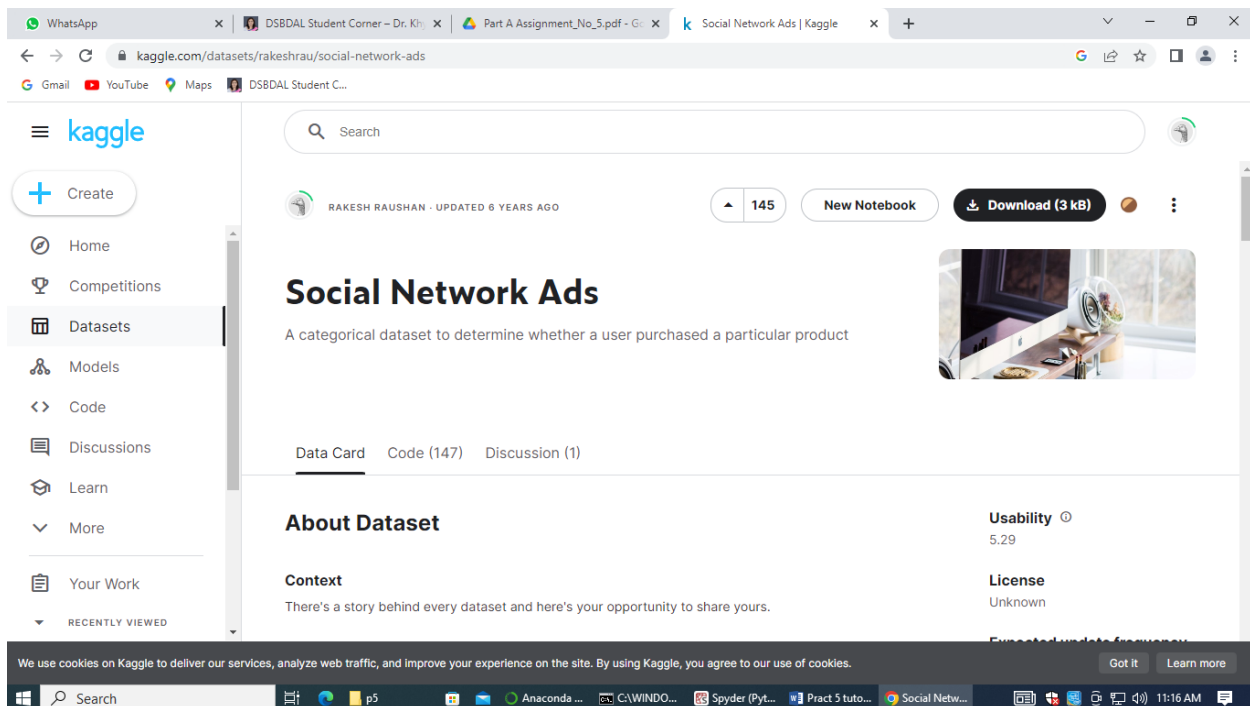
Tutorial

In the 6th practical we will be studying Naïve bayes classifier. The theory can be found in the lab manual which is provided.

Here we will be using an external data set from kaggle.

We will be using the the Social_Media_Adv Dataset.

Link on kaggle: <https://www.kaggle.com/datasets/rakeshrau/social-network-ads>



If the data set is in zipped format unzip it.

After downloading the database head over to anaconda and launch spyder.

To create a naïve bayes classifier follow these Steps :

Step 1: Import libraries and create alias for Pandas, Numpy and Matplotlib

Step 2: Import the Iris dataset by calling URL.

Step 3: Initialize the data frame

Step 4: Perform Data Preprocessing

- **Convert Categorical to Numerical Values if applicable**
- **Check for Null Value**
- **Divide the dataset into Independent(X) and Dependent(Y) variables.**
- **Split the dataset into training and testing datasets**
- **Scale the Features if necessary.**

Step 5: Use Naive Bayes algorithm(Train the Machine) to Create Model

```
# import the class
```

```
from sklearn.naive_bayes import GaussianNB
```

```
gaussian = GaussianNB()
```

```
gaussian.fit(X_train, y_train)
```

Step 6: Predict the y_pred for all values of train_x and test_x

```
Y_pred = gaussian.predict(X_test)
```

Step 7: Evaluate the performance of Model for train_y and test_y

```
accuracy = accuracy_score(y_test, Y_pred)
```

```
precision = precision_score(y_test, Y_pred, average='micro')
```

```
recall = recall_score(y_test, Y_pred, average='micro')
```

Step 8: Calculate the required evaluation parameters

```
from sklearn.metrics import
```

```
precision_score, confusion_matrix, accuracy_score, recall_score
```

```
cm = confusion_matrix(y_test, Y_pred)
```

```
cm
```

Conclusion:

In this way we have done data analysis using Naive Bayes Algorithm for Iris dataset and Evaluated the performance of the model.

In this way we have done data analysis using logistic regression for Social Media Adv. And evaluated the performance of the model.

Lastly save the file and create a text doc containing the final code and output.