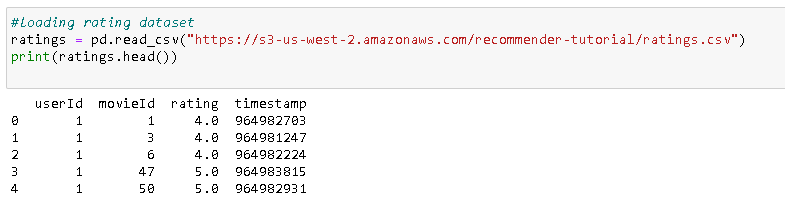
**EXPERIMENT NO: 7**

**Aim: Develop a recommendation system by applying any machine learning technique and using available data set**

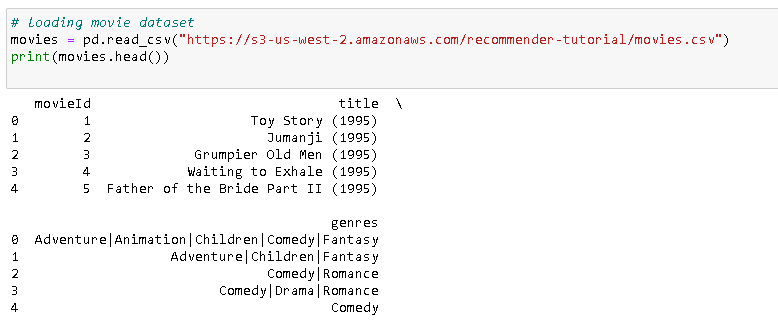
**Import Libraries:**



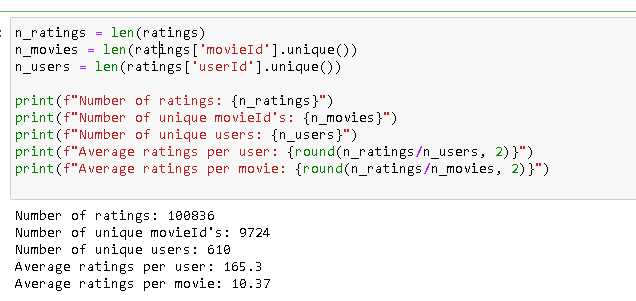
**loading rating dataset:**

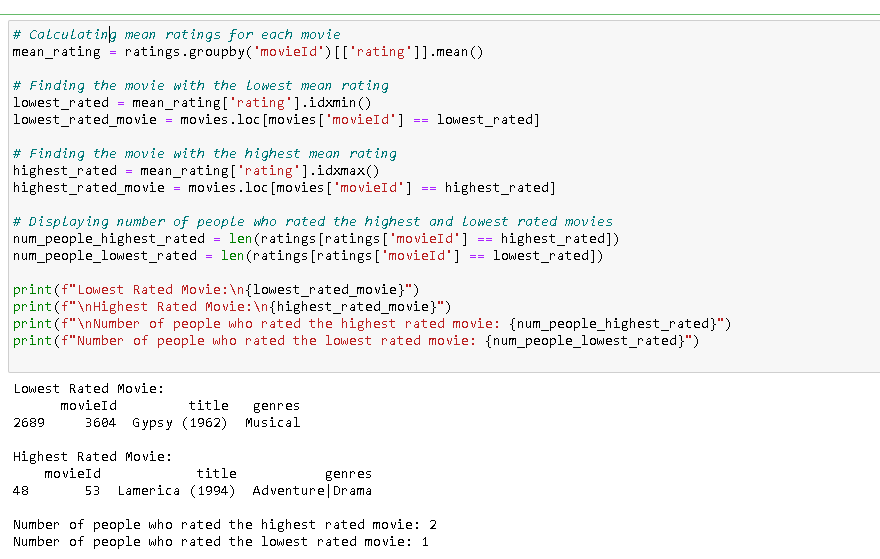


**loading movie dataset:**



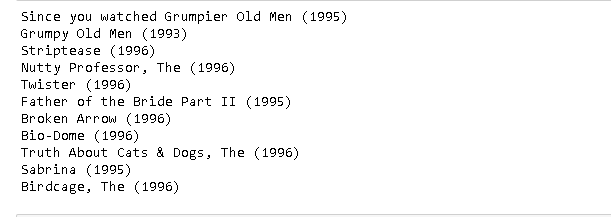
**Calculate number of ratings:**



**Calculating mean ratings for each movie **

**Find similar movies using KNN:**

****

****

**Conclusion:**

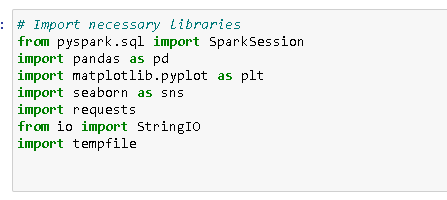
Hence, we have successfully studied to implement **a similar movie recommendation system.**

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**EXPERIMENT NO: 9**

**Aim: Develop a recommendation system by applying any machine learning technique and using available data set**

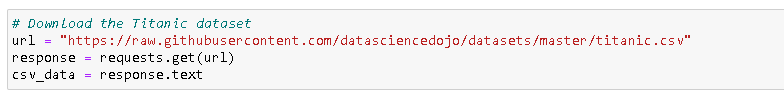
**Import Libraries:**



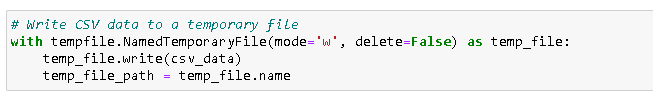
**Create a Spark session:**



**loading the Titanic dataset :**



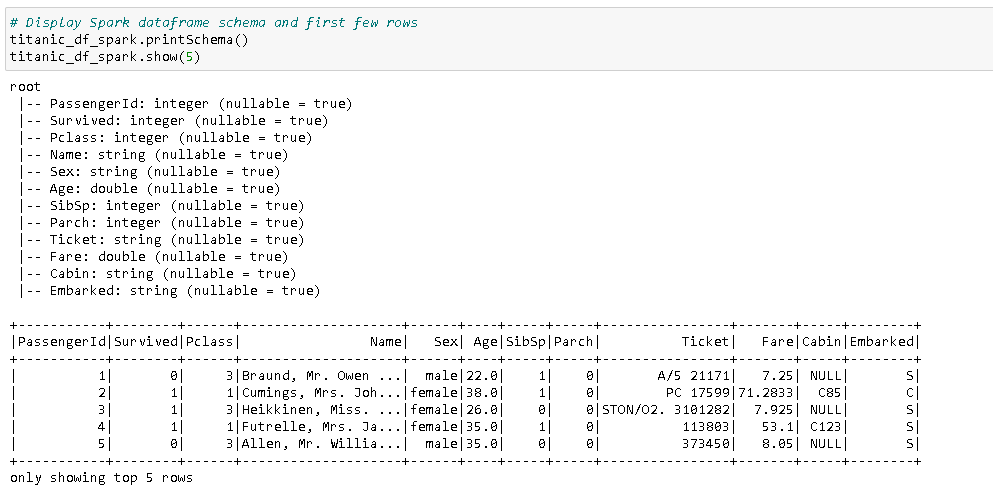
**Write CSV data to a temporary file:**

****

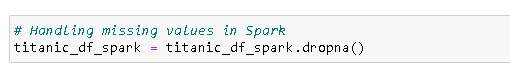
**Load the Titanic dataset using Apache Spark**

****

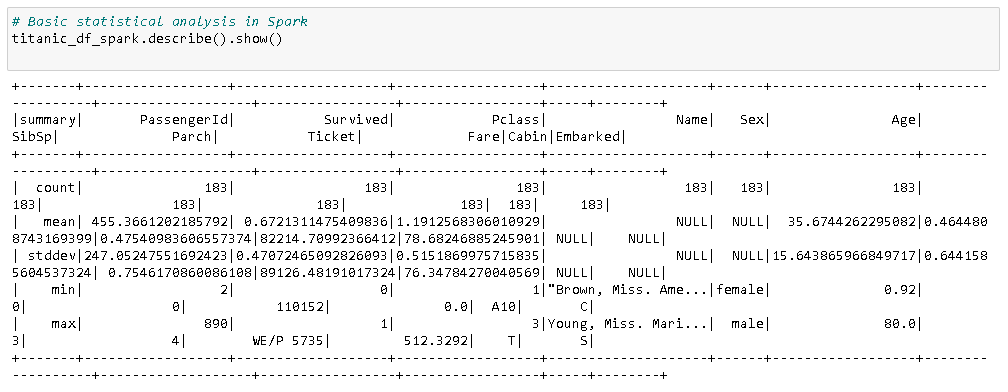
**Display Spark dataframe schema and first few rows:**

****

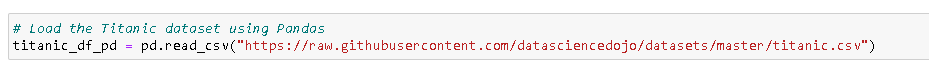
**Handling missing values in Spark:**

****

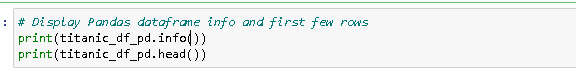
**Basic statistical analysis in Spark:**

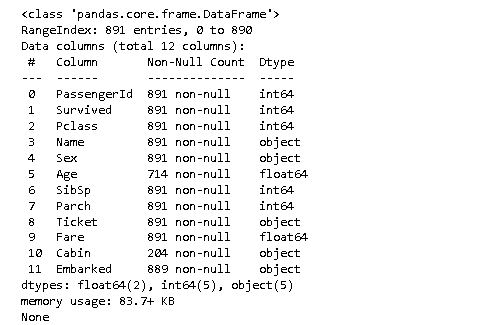
****

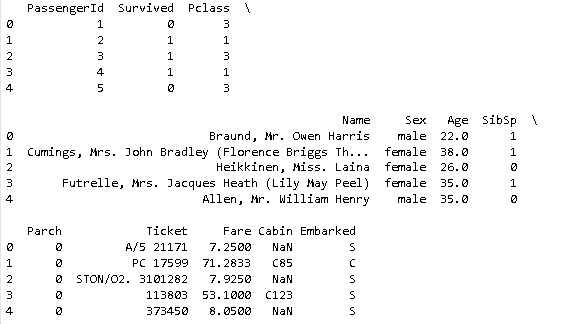
**Load the Titanic dataset using Pandas:**

****

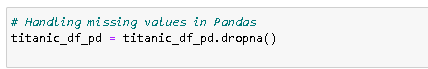
**Display Pandas dataframe info and first few rows:**

****

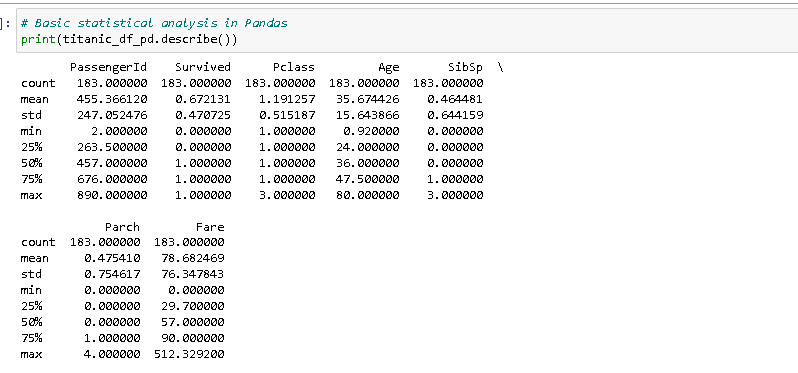
****

****

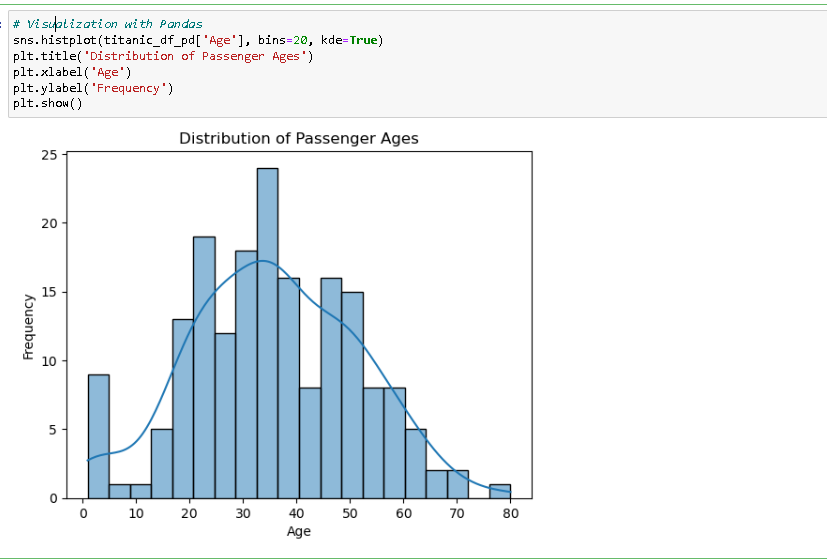
**Handling missing values in Pandas:**

****

**Basic statistical analysis in Pandas:**

****

**Visualization with Pandas:**

****

**Conclusion:**

Hence, we have successfully studied to implement **a similar movie recommendation system.**

.

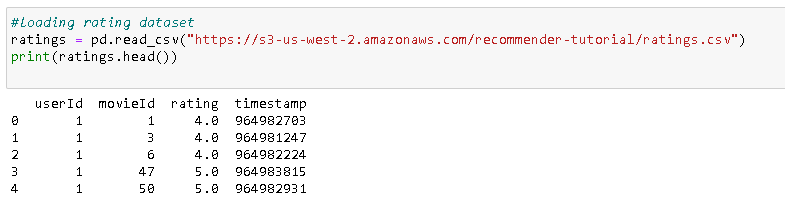
**EXPERIMENT NO: 8**

**Aim: Develop a recommendation system by applying any machine learning technique and using available data set**

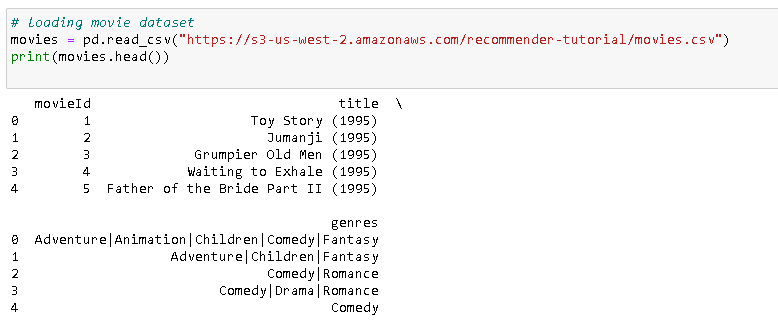
**Import Libraries:**



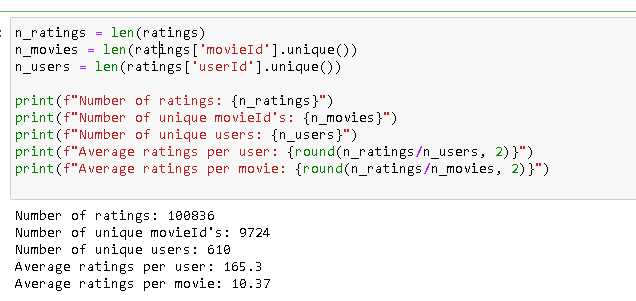
**loading rating dataset:**

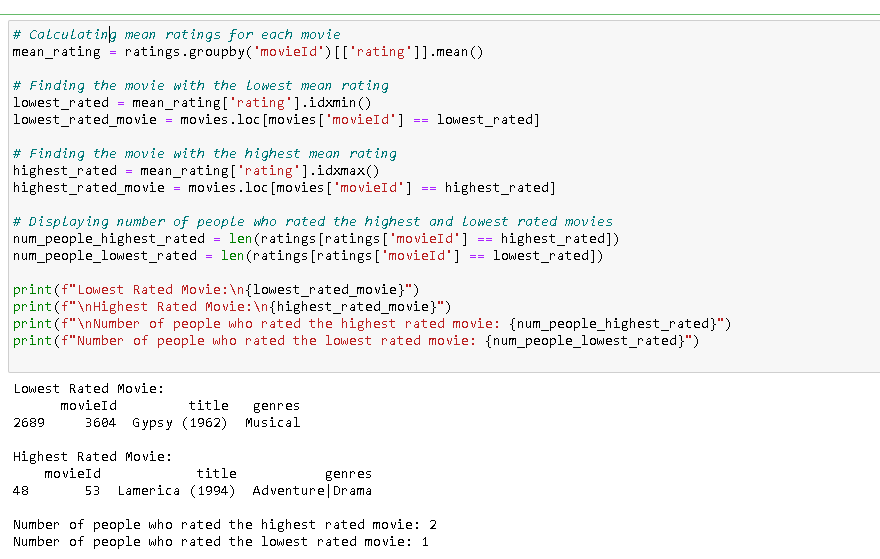


**loading movie dataset:**



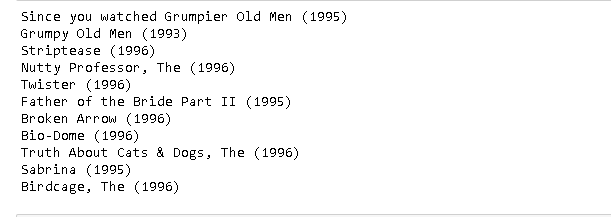
**Calculate number of ratings:**



**Calculating mean ratings for each movie **

**Find similar movies using KNN:**

****

****

**Conclusion:**

Hence, we have successfully studied to implement **a similar movie recommendation system.**

.

**EXPERIMENT NO: 10**

**Aim: Batch and Streamed Data Analysis using Spark**

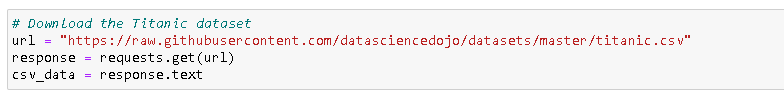
**Import Libraries:**



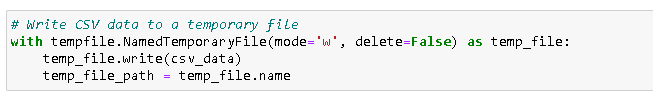
**Create a Spark session:**



**loading the Titanic dataset :**



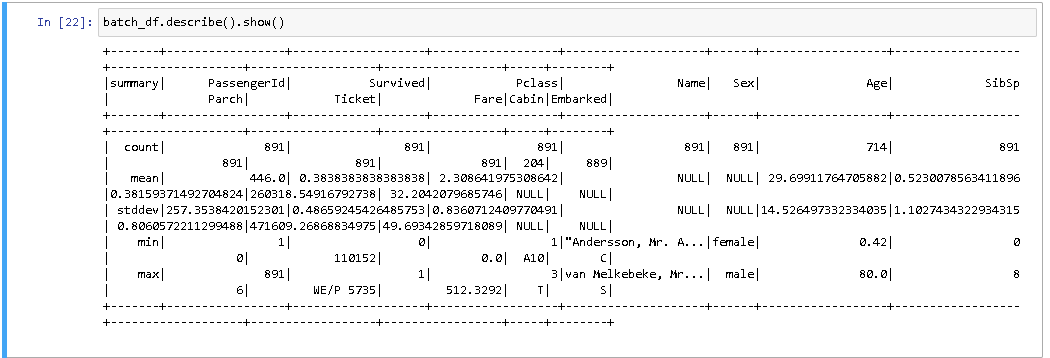
**Write CSV data to a temporary file:**

****

**Load the Titanic dataset using Apache Spark**

****

**Display Batch Data Analysis:**

****

**Conclusion:**

Hence, we have successfully studied to implement **Batch and Streamed data analysis using Spark.**

.

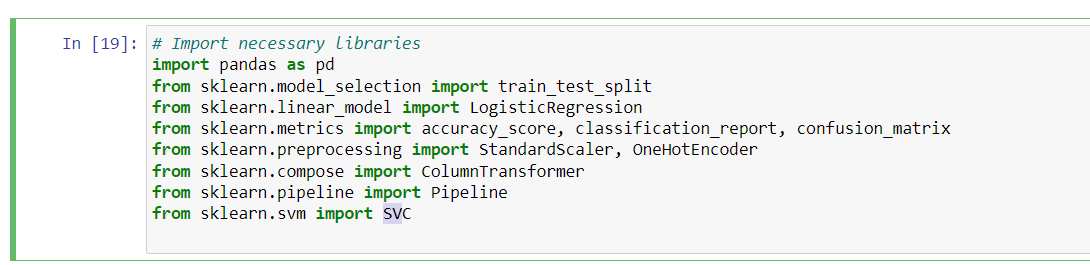
**EXPERIMENT NO: 6**

**Aim: Classification modelling**

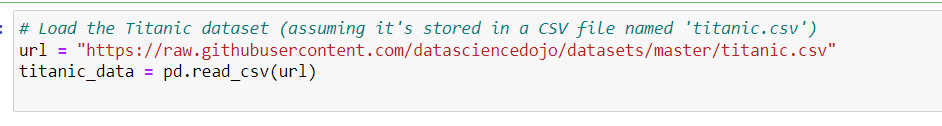
**a. Choose classifier for classification problem.**

**b. Evaluate the performance of classifier.**

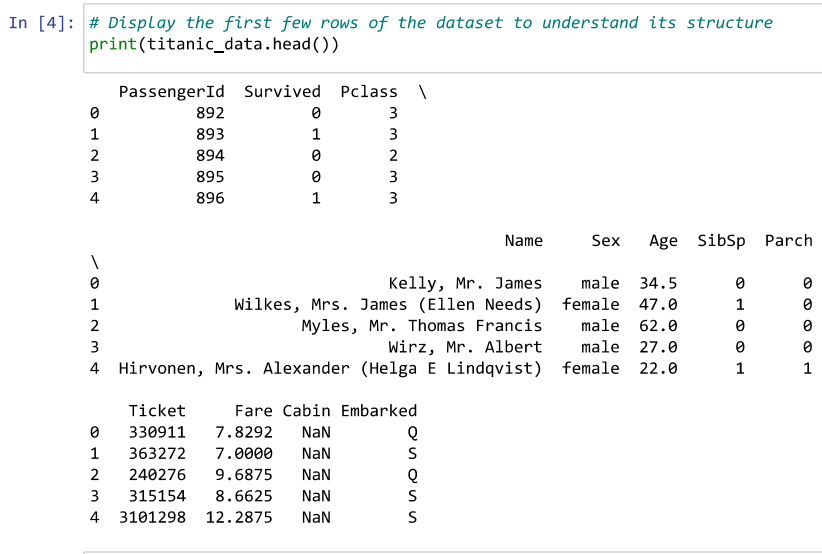
**Import Libraries:**



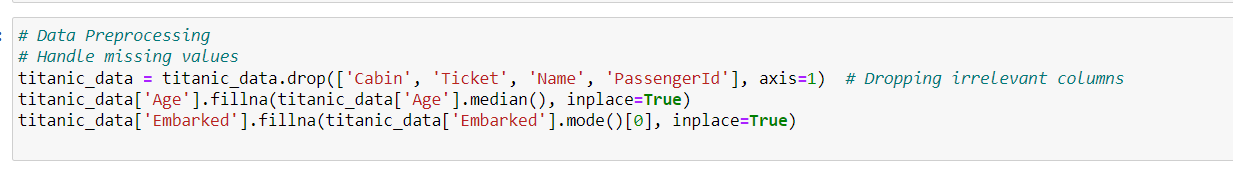
**Load the titanic dataset:**



**Display the first few rows of the dataset:**



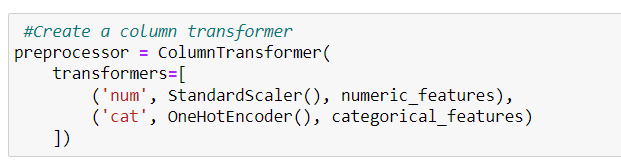
**Data Preprocessing:**



**Encode Categorical Variables:**

****

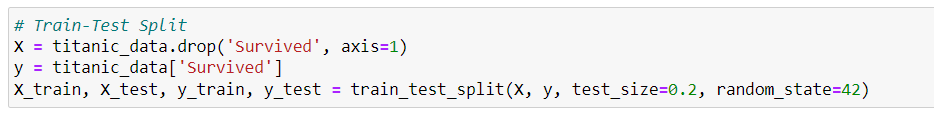
**Create a Column Transformer:**

****

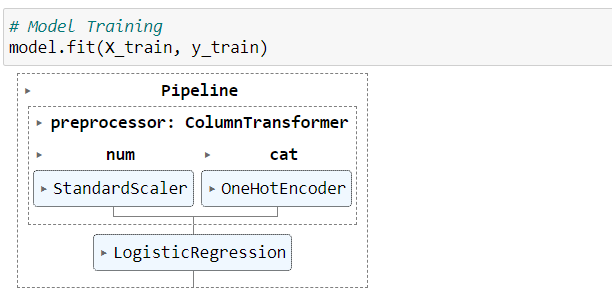
**Define the Model:**



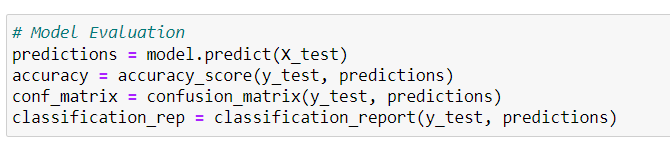
**Train-Test Split:**

****

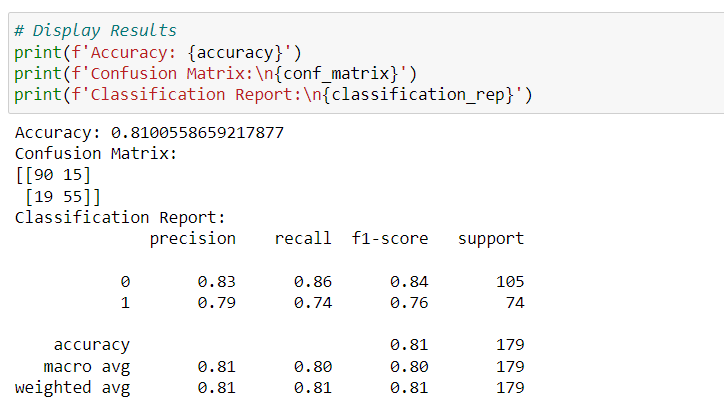
**Model Training**:

****

**Model Evaluation:**

****

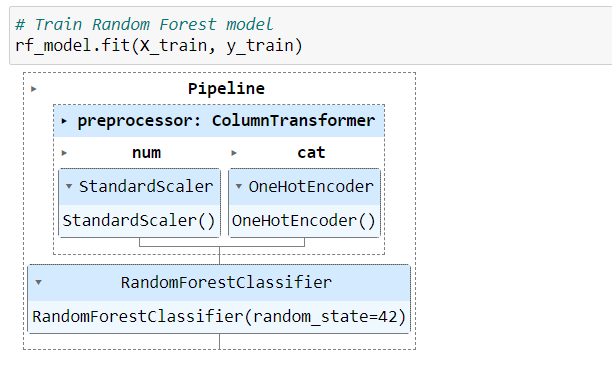
**Display Results:**

****

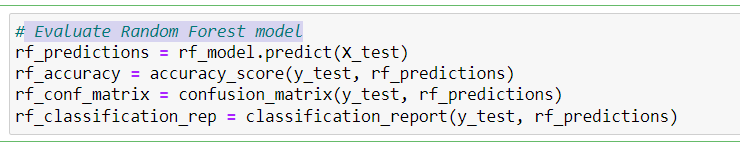
**Import and define Random Forest Model:**

****

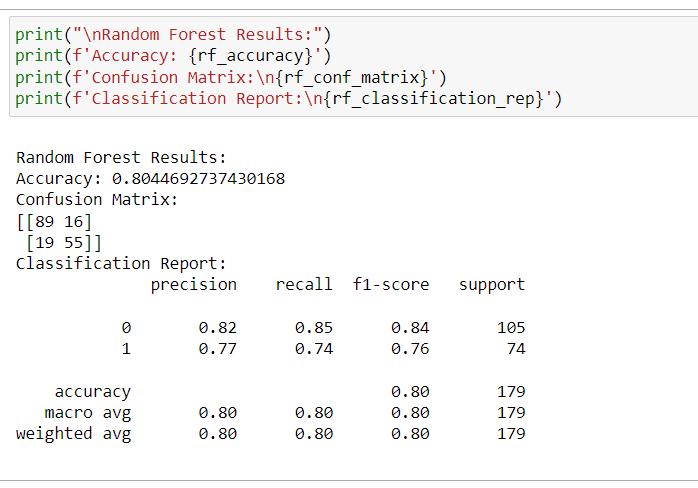
**Train Random Forest Model:**

****

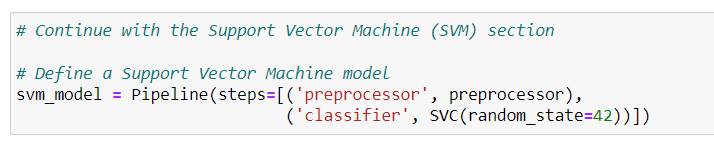
**Evaluate Random Forest model:**

****

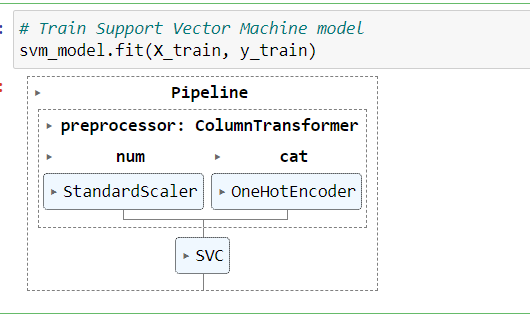
**Display Random Forest Results:**

****

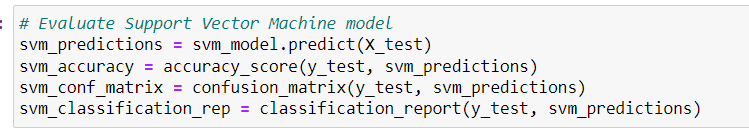
**Define a Support Vector Machine model:**

****

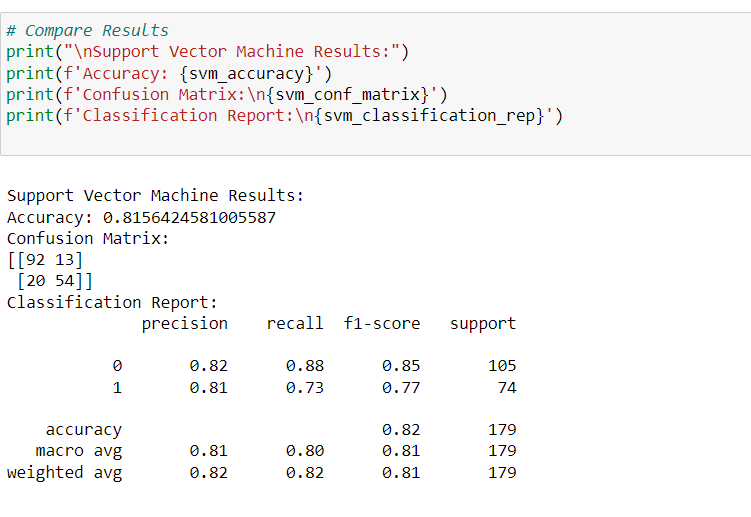
**Train Support Vector Machine model:**

****

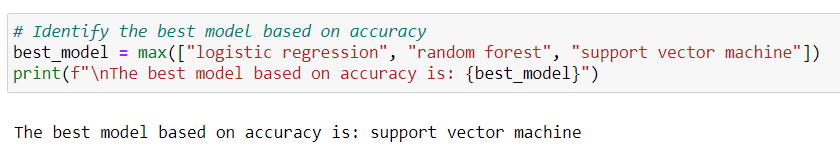
**Evaluate support vector machine model:**

****

**Display Support Vector Machine Results:**

****

**Identify the best model based on accuracy:**

****

**Conclusion:**

Hence, we have successfully studied to implement Classification Modelling.