DEPARTMENT OF
COMPUTER SCIENCE & ENGINEERING

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Experiment 2.1

Logistic Regression

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Semester: 5th
Subject Name: Machine Learning Lab **Subject Code: CSP-317**

1. Aim/Overview of the practical:

Apply logistic regression on iris dataset**.**

2. Source Code:

```
import pandas as pd
```

```
[1] from google.colab import drive
    drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

```
df = pd.read_csv("/content/drive/MyDrive/ML Lab/Iris.csv")
x = df.iloc[:, :2]
y = df.iloc[:,2]
```

```
[4] x=df[['SepalLengthCm']]
    y=df['Species']
    df.head()
```

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa

```
[5] from sklearn.model_selection import train_test_split
    x_train, x_test, y_train, y_test = train_test_split(x,y,test_size=0.4)
```

```
    from sklearn.linear_model import LogisticRegression
    model = LogisticRegression()
    model.fit(x_train, y_train)
    y_predicted = model.predict(x_test)
```

```
[7] from sklearn.metrics import accuracy_score
    print("Accuracy: ",accuracy_score(y_test,y_predicted))
```

```
Accuracy:  0.7333333333333333
```

```
[8] from sklearn import svm
    #Create a svm Classifier
    clf = svm.SVC(kernel='linear') # Linear Kernel
    #Train the model using the training sets
    clf.fit(x_train, y_train)
    #Predict the response for test dataset
    y_pred1 = clf.predict(x_test)
    y_pred1
```

```
array(['Iris-setosa', 'Iris-virginica', 'Iris-virginica',
       'Iris-virginica', 'Iris-virginica', 'Iris-setosa',
       'Iris-versicolor', 'Iris-virginica', 'Iris-versicolor',
       'Iris-virginica', 'Iris-virginica', 'Iris-setosa', 'Iris-setosa',
       'Iris-virginica', 'Iris-versicolor', 'Iris-versicolor',
       'Iris-virginica', 'Iris-setosa', 'Iris-versicolor',
       'Iris-virginica', 'Iris-versicolor', 'Iris-setosa', 'Iris-setosa',
       'Iris-versicolor', 'Iris-virginica', 'Iris-virginica',
       'Iris-virginica', 'Iris-virginica', 'Iris-setosa', 'Iris-setosa',
       'Iris-setosa', 'Iris-versicolor', 'Iris-virginica', 'Iris-setosa',
       'Iris-virginica', 'Iris-versicolor', 'Iris-setosa', 'Iris-setosa',
       'Iris-setosa', 'Iris-setosa', 'Iris-virginica', 'Iris-virginica',
       'Iris-versicolor', 'Iris-versicolor', 'Iris-versicolor',
       'Iris-versicolor', 'Iris-virginica', 'Iris-setosa',
       'Iris-versicolor', 'Iris-versicolor', 'Iris-setosa',
       'Iris-versicolor', 'Iris-virginica', 'Iris-setosa',
       'Iris-versicolor', 'Iris-virginica', 'Iris-versicolor',
       'Iris-setosa', 'Iris-setosa', 'Iris-virginica'], dtype=object)
```

```
[9] print("Accuracy: ",accuracy_score(y_test,y_pred1))
```

```
Accuracy:  0.7333333333333333
```

```
[10] from sklearn.metrics import confusion_matrix
```

```
[11] #This is for SVM
     confusion_matrix(y_test, y_pred1)
```

```
array([[20,  3,  0],
       [ 0,  9,  7],
       [ 0,  6, 15]])
```

Learning outcomes (What I have learnt):

1. Learn about the Logistic regression algorithm
2. Learn to perform the Logistic regression algorithm on iris dataset
3. Learnt about the exploratory data analysis
4. Learn to optimize the Model
5. Got the clear concept of logistic regression classifier

Evaluation Grid :

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Student Performance (Conduct of experiment) objectives/Outcomes.		12
2.	Viva Voce		10
3.	Submission of Work Sheet (Record)		8
	Total		30