```
import numpy as np
import matplotlib.pyplot as plt
import pandas as pd
import xlrd as xl
import seaborn as s
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LogisticRegression
```

```
data = pd.read_csv('/content/drive/MyDrive/ML Assingments/diabetes.csv')
print(data.head)
```

```
<bound method NDFrame.head of      Pregnancies  Glucose  BloodPressure  SkinThicknes
0              6      148             72             35        0  33.6
1              1       85             66             29        0  26.6
2              8      183             64              0        0  23.3
3              1       89             66             23       94  28.1
4              0      137             40             35      168  43.1
..           ...      ...            ...            ...      ...   ...
763           10      101             76             48      180  32.9
764            2      122             70             27        0  36.8
765            5      121             72             23      112  26.2
766            1      126             60              0        0  30.1
767            1       93             70             31        0  30.4

     DiabetesPedigreeFunction  Age  Outcome
0                       0.627   50        1
1                       0.351   31        0
2                       0.672   32        1
3                       0.167   21        0
4                       2.288   33        1
..                        ...  ...      ...
763                     0.171   63        0
764                     0.340   27        0
765                     0.245   30        0
766                     0.349   47        1
767                     0.315   23        0

[768 rows x 9 columns]>
```

```
X = data[["Pregnancies", "Glucose", "BloodPressure", "SkinThickness", "Insulin", "BMI", "D
y = data.Outcome

X_train,X_test,y_train,y_test = train_test_split(X, y, test_size=0.20, random_state=5)

logreg = LogisticRegression()
logreg.fit(X_train,y_train)

y_pred = logreg.predict(X_test)
```

```
/usr/local/lib/python3.7/dist-packages/sklearn/linear_model/_logistic.py:818: Converg
STOP: TOTAL NO. of ITERATIONS REACHED LIMIT.

Increase the number of iterations (max_iter) or scale the data as shown in:
    https://scikit-learn.org/stable/modules/preprocessing.html
```

```
Please also refer to the documentation for alternative solver options:
    https://scikit-learn.org/stable/modules/linear_model.html#logistic-regression
  extra_warning_msg=_LOGISTIC_SOLVER_CONVERGENCE_MSG,
```

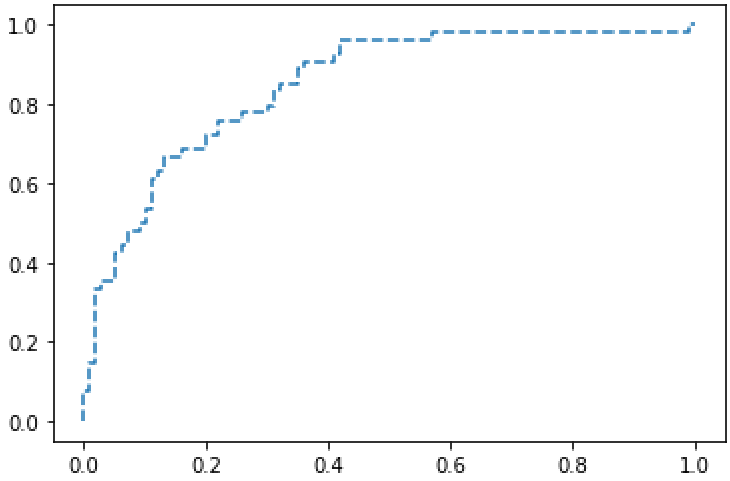
```
from sklearn.metrics import accuracy_score

score = accuracy_score(y_test,y_pred)
print('Accuracy :',score)
```

```
Accuracy : 0.7857142857142857
```

```
# ROC Curve
from sklearn.metrics import roc_curve, roc_auc_score
logreg_probs= logreg.predict_proba(X_test)
logreg_probs = logreg_probs[:, 1]
logreg_auc= roc_auc_score(y_test, logreg_probs)
print('Logestic Regression: AUROC = %.3f' %(logreg_auc))
logreg_fpr, logreg_tpr, _= roc_curve(y_test,logreg_probs)
plt.plot(logreg_fpr, logreg_tpr, linestyle='--', label='Logestic Regression(AUROC =
```

```
Logestic Regression: AUROC = 0.849
[<matplotlib.lines.Line2D at 0x7fc13d67fdd0>]
```



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