Department of Data Engineering
Subject: Big Data Analytics Lab (CSL702)

Experiment No: 10

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Aim: Implementing Page Rank algorithm using python.

Code:

```
import numpy as np
import scipy as sc
import pandas as pd
from fractions import Fraction
def display_format(my_vector, my_decimal):
    return np.round((my_vector).astype(float), decimals=my_decimal)
my_dp = Fraction(1, 3)
Mat = np.matrix([
    [0, 0, 1],
    [Fraction(1, 2), 0, 0],
    [Fraction(1, 2), 1, 0]
])
Ex = np.zeros((3, 3))
Ex[:] = float(my_dp)
beta = 0.7
Al = beta * Mat + ((1 - beta) * Ex)
r = np.matrix([my_dp, my_dp, my_dp]).T
previous_r = r
for i in range(1, 10):
    r = Al * r
    print(display_format(r, 3))
    if (previous_r == r).all():
        break
    previous_r = r
print("Final:\n", display_format(r, 3))
print("sum", np.sum(r))
```

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Output:

```
[[0.333]
 [0.217]
 [0.45 ]]
[[0.415]
 [0.217]
 [0.368]]
[[0.358]
 [0.245]
 [0.397]]
[[0.378]
 [0.225]
 [0.397]]
[[0.378]
 [0.232]
 [0.39 ]]
[[0.373]
 [0.232]
 [0.395]]
[[0.376]
 [0.231]
 [0.393]]
[[0.375]
 [0.232]
 [0.393]]
[[0.375]
 [0.231]
 [0.394]]
Final:
 [[0.375]
 [0.231]
 [0.394]]
sum 0.9999999999999991
```