Linear Algebra Assignment 5

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Applications of Linear Algebra on Page Rank Algorithm

Python code (executed on IDLE) :

```python
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(np.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[:] = my_dp
beta = 0.7
Al = beta * Mat + ((1-beta) * Ex)
r = np.matrix([my_dp, my_dp, my_dp])
r = np.transpose(r)
previous_r = r

for i in range(1,100):
    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))
```

Output screenshots :