

Experiment-8: HITS Algorithm

Aim: Implementation of HITS Algorithm

Source Code:

```
import numpy as np
import math

R = int(input("Enter the number of rows: "))
C = int(input("Enter the number of columns: "))

print("Enter the entries in a single line (separated by space):")

entries = list(map(int, input().split()))

matrix = np.array(entries).reshape(R, C)
print("\nAdjacency Matrix:")
for i in range(0, len(matrix)):
    print(matrix[i])

hub_weight_vector = np.ones([R,1], dtype = int)
print()

print('Initial Hub weight vector:')
for i in range(0, len(hub_weight_vector)):
    print(hub_weight_vector[i])

matrix_transpose = np.transpose(matrix)
number_of_steps = 1
j = 1
while j<= number_of_steps:
```

```

authority_weight_vector = np.matmul(matrix_transpose, hub_weight_vector)
hub_weight_vector = np.matmul(matrix, authority_weight_vector)
j = j + 1

print("\nAuthority weight vector:")
for i in range(0, len(authority_weight_vector)):
    print(authority_weight_vector[i])

print("\nHub weight vector:")
for i in range(0, len(hub_weight_vector)):
    print(hub_weight_vector[i])

```

Output:

```

C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19042.928]
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Enter the number of rows: 4
Enter the number of columns: 4
Enter the entries in a single line (separated by space):
0 1 1 1 1 1 1 0 0 0 1 1 0 0 1 0

Adjacency Matrix:
[0 1 1 1]
[1 1 1 0]
[0 0 1 1]
[0 0 1 0]

Initial Hub weight vector:
[1]
[1]
[1]
[1]

Authority weight vector:
[1]
[2]
[4]
[2]

Hub weight vector:
[8]
[7]
[6]
[4]

```

