Information Retrieval

Homework 2

The tolerance for this assignment has been 1e-06.

1. What is the output for Matrix M? Give (print) the matrix.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| A | 0 | 0 | 0 | 0 | 0 | 0 |
| B | 1 | 0 | 0.33333333 | 0.33333333 | 0.25 | 0 |
| C | 0 | 0.33333333 | 0 | 0.33333333 | 0.25 | 0 |
| D | 0 | 0.33333333 | 0.33333333 | 0 | 0.25 | 0 |
| E | 0 | 0.33333333 | 0.33333333 | 0.33333333 | 0 | 0 |
| F | 0 | 0 | 0 | 0 | 0.25 | 0 |

1. What is the output of Matrix A? After applying teleportation. Give (print) the matrix.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E | F |
| A | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 |
| B | 0.875 | 0.025 | 0.30833333 | 0.30833333 | 0.2375 | 0.025 |
| C | 0.025 | 0.30833333 | 0.025 | 0.30833333 | 0.2375 | 0.025 |
| D | 0.025 | 0.30833333 | 0.30833333 | 0.025 | 0.2375 | 0.025 |
| E | 0.025 | 0.30833333 | 0.30833333 | 0.30833333 | 0.025 | 0.025 |
| F | 0.025 | 0.025 | 0.025 | 0.025 | 0.2375 | 0.025 |

1. What is the original rank vector (R)?

|  |
| --- |
| 0.16666667 |
| 0.16666667 |
| 0.16666667 |
| 0.16666667 |
| 0.16666667 |
| 0.16666667 |

1. What is the Converged rank vector (R')? When you use Matrix A and M, give answer for both.

Converged Rank Vector for M:

|  |
| --- |
| 0.0000E+00 |
| 1.2588E-05 |
| 1.2588E-05 |
| 1.2588E-05 |
| 1.3473E-05 |
| 3.6054E-06 |

Converged Rank Vector for A:

|  |
| --- |
| 0.025 |
| 0.15902274 |
| 0.1424643 |
| 0.1424643 |
| 0.150787 |
| 0.05704245 |

1. How many iterations did it take to get the convergence? When you use Matrix A and M, give answer for both.

Iterations M : 143

Iterations A : 42