**Experiment 08**

**Aim:** Write a program to implement page rank algorithm for the following graph.

A diagram of a website

Description automatically generated

**Code:**

import numpy as np

def page\_rank(adjacency\_matrix, damping\_factor=0.85, max\_iter=100, tol=1e-6):

    num\_nodes = adjacency\_matrix.shape[0]

    damping\_factor=0.5

    page\_rank\_scores = np.ones(num\_nodes) / num\_nodes

    for \_ in range(max\_iter):

        new\_page\_rank\_scores = (1 - damping\_factor) / num\_nodes + \

                               damping\_factor \* np.dot(adjacency\_matrix.T, page\_rank\_scores)

        if np.linalg.norm(new\_page\_rank\_scores - page\_rank\_scores, 2) < tol:

            break

        page\_rank\_scores = new\_page\_rank\_scores

    return page\_rank\_scores

adjacency\_matrix = np.array([

    [0, 1, 1, 0],

    [0, 0, 1, 0],

    [1, 0, 0, 0],

    [0, 0, 1, 0]

])

page\_rank\_scores = page\_rank(adjacency\_matrix)

print("PageRank :", page\_rank\_scores)

**Output:**

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