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**Assignment No. 03**

**Problem Statement** : You have a business with several offices; you want to lease phone lines to connect them up with each other; and the phone company charges different amounts of money to connect different pairs of cities. You want a set of lines that connects all your offices with a minimum total cost. Solve the problem by Floyd-Warshall algorithm.

**Code**

package daa;

import java.util.Iterator;

import java.util.Scanner;

public class Assignment3 {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter the number of vertices : ");

int n = sc.nextInt();

System.out.println("Now Enter the graph of size nxn for INF enter 9999");

int graph[][] = new int[n][n];

for (int i = 0; i < n; i++) {

for (int j = 0; j < n; j++) {

graph[i][j] = sc.nextInt();

}

}

for (int k = 0; k < n; k++) {

for (int i = 0; i < n; i++) {

for (int j = 0; j < n; j++) {

if(graph[i][j] > graph[i][k]+graph[k][j]) {

graph[i][j] = graph[i][k]+graph[k][j];

}

}

}

}

System.out.println("The Final Matrix is : ");

for (int i = 0; i < n; i++) {

for (int j = 0; j < n; j++) {

System.out.print(graph[i][j]+ " ");

}

System.out.println("");

}

}

}

**Output**

Enter the number of vertices :

4

Now Enter the graph of size nxn for INF enter 9999

0 3 9999 7

8 0 2 9999

5 9999 0 1

2 9999 9999 0

The Final Matrix is :

0 3 5 6

5 0 2 3

3 6 0 1

2 5 7 0