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Div: C Batch: C4

Course Name: Design and Analysis of Algorithms Laboratory

Course Code: BCE5412

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Assignment 03:Implementing Floyd Warshall Algorithm.

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Input:

```
// Floyd Warshall Algorithm in Java
class FloydWarshall
{
	final static int INF = 9999, nV = 4;

	// Implementing floyd warshall algorithm
	void floydWarshall(int graph[][])
	{
		int matrix[][] = new int[nV][nV];
		int i, j, k;

		for (i = 0; i < nV; i++)
			for (j = 0; j < nV; j++)
			matrix[i][j] = graph[i][j];

		// Adding vertices individually
		for (k = 0; k < nV; k++)
		{
			for (i = 0; i < nV; i++)
			{
```

```
                    for (j = 0; j < nV; j++)
                    {
                        if (matrix[i][k] + matrix[k][j] <
matrix[i][j])
                            matrix[i][j] = matrix[i][k] +
matrix[k][j];
                     }
                    }
          }
          System.out.println("\nThe shortest path matrix calculated
using Floyd Warshall Algorithm is==>");
          printMatrix(matrix);
     }


     void printMatrix(int matrix[][])
     {

     System.out.println("\n=========================================
================================");
          for (int i = 0; i < nV; ++i)
          {
                    for (int j = 0; j < nV; ++j)
               {
                    if (matrix[i][j] == INF)
                         System.out.print("INFINITY ");
                    else
                         System.out.print(matrix[i][j] + "  ");
                    }
               System.out.println();
          }

     System.out.println("\n=========================================
================================");
     }
```

```
	public static void main(String[] args)
	{
		int graph[][] = { { 0, 3, 6, 5 }, { 2, 0, INF, 4 }, { 8, 1,
0, INF }, { INF, INF, 2, 0 } };
		FloydWarshall a = new FloydWarshall();
		System.out.println("\nThe original path matrix is==>");
		a.printMatrix(graph);
		a.floydWarshall(graph);
	}
}
```

Output:

```
D:\PCCOE\Semester5\DAA\Practicals>javac FloydWarshall.java

D:\PCCOE\Semester5\DAA\Practicals>java FloydWarshall

The original path matrix is==>

================================================================================
0  3  6  5
2  0  INFINITY 4
8  1  0  INFINITY
INFINITY INFINITY 2  0

================================================================================

The shortest path matrix calculated using Floyd Warshall Algorithm is==>

================================================================================
0  3  6  5
2  0  6  4
3  1  0  5
5  3  2  0

================================================================================

D:\PCCOE\Semester5\DAA\Practicals>
```

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