

```
1 import java.util.*;
2 /**
3  * Author: Jeel Tikiwala
4  * Student Id: 239659420
5  * Lab 10
6  * Any and All work in this file is my own.
7  */
8 public class GraphRepresentation {
9     public static void main(String[] args) {
10         // Undirected Graph with 9 vertices
11         System.out.println("Undirected Graph:");
12
13         Graph undirectedGraph = new Graph(9, false); // undirected graph with 9 vertices
14         undirectedGraph.addEdge(0, 1);
15         undirectedGraph.addEdge(0, 2);
16         undirectedGraph.addEdge(1, 4);
17         undirectedGraph.addEdge(2, 3);
18         undirectedGraph.addEdge(3, 6);
19         undirectedGraph.addEdge(3, 7);
20         undirectedGraph.addEdge(4, 5);
21         undirectedGraph.addEdge(4, 6);
22     }
23 }
```

Console Output:

```
<terminated> GraphRepresentation [Java Application] /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java (28-Mar-2024, 5:51:12 pm - 5:51:12 pm) [pid: 20755]
Undirected Graph:
Adjacency Matrix:
0 1 1 0 0 0 0 0 0
1 0 0 1 0 0 0 0 0
1 0 0 1 0 0 0 0 0
0 1 0 0 0 0 0 0 0
0 1 0 0 1 1 0 0 0
0 1 0 0 1 1 0 0 0
0 0 0 1 1 0 0 0 0
0 0 1 1 0 0 0 1 0
0 0 1 0 0 0 0 1 0
0 0 0 0 1 1 0 0 0
Adjacency List:
0: 1 -> 2
1: 0 -> 4
2: 0 -> 3
3: 2 -> 6 -> 7
4: 1 -> 5 -> 6
5: 4
6: 3 -> 4 -> 8
7: 3 -> 8
8: 6 -> 7
```

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Console Output:

```
<terminated> GraphRepresentation [Java Application] /Library/Java/JavaVirtualMachines/temurin-17.jdk/Contents/Home/bin/java (28-Mar-2024, 5:51:12 pm - 5:51:12 pm) [pid: 20755]
Directed Graph:
Adjacency Matrix:
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0 0
0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 0 0 1
0 0 0 0 0 0 0 0 0
0 0 0 0 0 1 0 0 1
0 0 0 0 0 0 1 0 0
0 0 0 0 0 0 0 0 0
0 1 0 0 0 0 0 0 0
Adjacency List:
0:
1:
2: 7 -> 9 -> 9
3:
4: 10 -> 1
5:
6: 7 -> 10
7: 8
8: 9
9:
10: 1
```