```java
// program to implement graph using Adjacency List. (Array List of array list)
package usingArrayList;

import java.util.ArrayList;

// 2d array using array list

public class Graph {

    static void addEdge(ArrayList<ArrayList<Integer>> al, int u, int v) {

        al.get(u).add(v);
        al.get(v).add(u);           // index goes to get() and integer goes to add()



    }

    static void printGraph(ArrayList<ArrayList<Integer>> al) {

        for (int i = 0; i < al.size(); i++) {
            System.out.println("\n Adjacency list of vertex:"+i);
            System.out.print("head");

            for (int j = 0; j < al.get(i).size(); j++) {
                System.out.print(" -> " + al.get(i).get(j));
            }

        }

        System.out.println();  //new line
    }

    public static void main(String[] args) {

        int V = 5;  // size of the array

        ArrayList<ArrayList<Integer>> al = new ArrayList<ArrayList<Integer>>(V);

        for (int i = 0; i < V; i++) {
            al.add(new ArrayList<Integer>());
        }

        addEdge(al, 0, 1);
        addEdge(al, 0, 4);
        addEdge(al, 1, 2);
        addEdge(al, 1, 3);
        addEdge(al, 1, 4);
        addEdge(al, 2, 3);
        addEdge(al, 3, 4);

        // print the graph elements

        printGraph(al);



```

```
60     }
61
62 }
63
64 /*
65  * OUTPUT
66  *
67  *
68  * Adjacency list of vertex:0
69  * head -> 1 -> 4
70  * Adjacency list of vertex:1
71  * head -> 0 -> 2 -> 3 -> 4
72  * Adjacency list of vertex:2
73  * head -> 1 -> 3
74  * Adjacency list of vertex:3
75  * head -> 1 -> 2 -> 4
76  * Adjacency list of vertex:4
77  * head -> 0 -> 1 -> 3
78  */
79
```