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GRAPH TRAVERSAL

```
package Graph;
import java.util.*;
public class Graph1 {

		int n; //no. of vertices
		int e; //no. of edges
		int[][] adjMat;

		public Graph1() {

		  n = 0;
		  e = 0;
		}

	void create() {

		Scanner sc = new Scanner(System.in);
		System.out.println("Enter no. of vertices:");
		this.n = sc.nextInt();
		System.out.println("Enter no. of edges:");
		this.e = sc.nextInt();


		this.adjMat = new int[n+1][n+1];

		System.out.println("Enter connecting vertices for each     edge:");

		for(int i=1; i<e+1; i++) {

		     System.out.println("For edge "+i);
		     System.out.println("First vertex:");
		     int u = sc.nextInt();
		     System.out.println("Second vertex:");
		     int v = sc.nextInt();

		     this.adjMat[u][v] = 1;
		     this.adjMat[v][u] = 1;
		    }//close for
		}


void display() {

	for(int i=1;i<n+1;i++) {
	   for(int j=1;j<n+1;j++) {
		System.out.print(adjMat[i][j]+"\t");
	   }
		System.out.println();
	}
}


		void bfs() {
		     Scanner sc = new Scanner(System.in);
		     Queue<Integer> q = new LinkedList<>();
```

```
            int[] visited = new int[n+1];

            System.out.println("Enter starting vertex:");

            int start = sc.nextInt();

            q.add(start);

            while(!q.isEmpty()) {

               int curr = q.poll();
              visited[curr] = 1;

              System.out.print((curr)+" -> ");

              for(int i=1; i<n+1; i++) {
                     if(adjMat[curr][i]==1 && visited[i]==0) {
                      q.add(i);
                      visited[i] = 1;
                     }
                 }//close for

             }//close while()
        }
        void dfs() {

              Scanner sc = new Scanner(System.in);

              Stack<Integer> stack = new Stack<>();

              int[] visited = new int[n+1];

              System.out.println("Enter starting vertex:");
              int start = sc.nextInt();

              stack.add(start);

              while(!stack.isEmpty()) {

                     int curr = stack.pop();

                     if(visited[curr]==0) {
                       System.out.print((curr)+" -> ");
                     visited[curr] = 1;
                     }

                     for(int i=1; i<n+1; i++) {
                      if(adjMat[curr][i]==1 && visited[i]==0) {
                         stack.push(i);
                        }
                    }
               }
            }
        }


package Graph;
import java.util.*;
public class Main {
      public static void main(String args[])
      {
```

```
                Graph1 g = new Graph1();

                g.create();
                System.out.println();

                g.bfs();
                System.out.println();

                g.dfs();
                System.out.println();
        }
}
```