BFS_GRAPH

```java
package DAY7;
import java.util.*;
public class BFS_GRAPH {

//Class representing a graph

 private int vertices; // Number of vertices
 private LinkedList<Integer> adjacencyList[]; // Adjacency list

 // Constructor
 BFS_GRAPH (int vertices) {
     this.vertices = vertices;
     adjacencyList = new LinkedList[vertices];
     for (int i = 0; i < vertices; i++) {
         adjacencyList[i] = new LinkedList<>();
     }
 }

 // Method to add an edge to the graph
 void addEdge(int source, int destination) {
     adjacencyList[source].add(destination);
     // For undirected graph, add the reverse edge as well
     // adjacencyList[destination].add(source);
 }

 // Method to perform BFS traversal from a given source node
 void BFS(int startNode) {
     boolean visited[] = new boolean[vertices]; // Array to keep track of visited nodes
     LinkedList<Integer> queue = new LinkedList<>(); // Queue for BFS

     visited[startNode] = true; // Mark the starting node as visited
     queue.add(startNode); // Enqueue the starting node

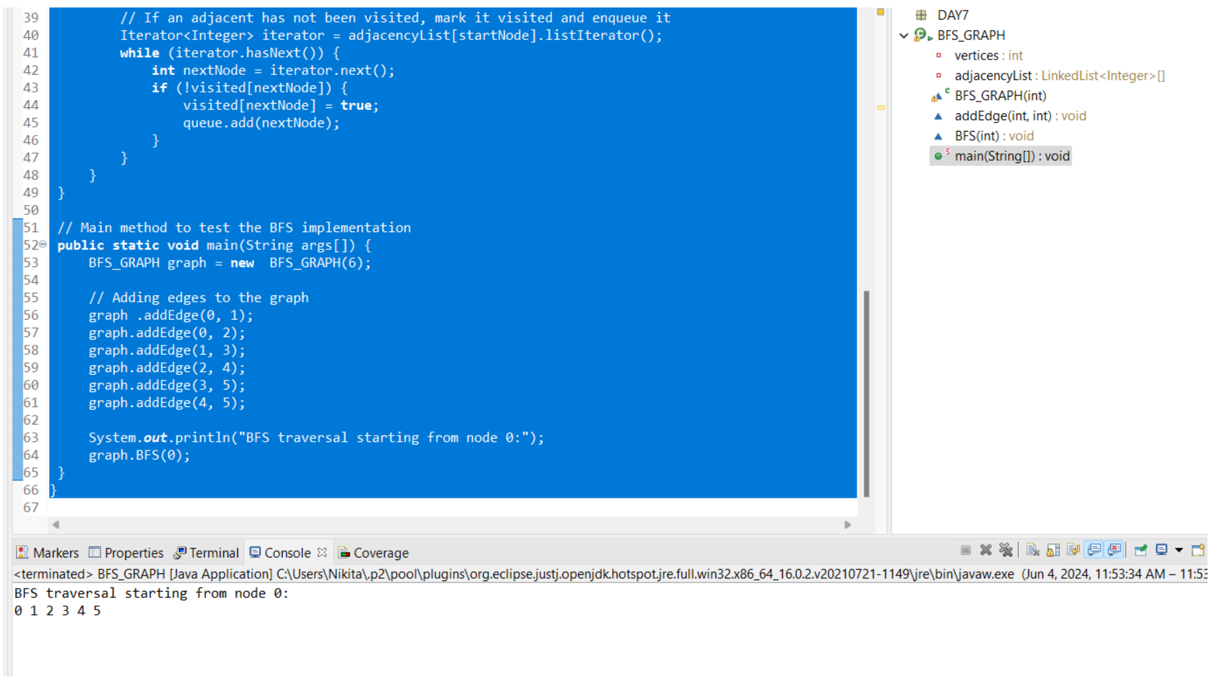
     while (!queue.isEmpty()) {
         startNode = queue.poll(); // Dequeue a node
         System.out.print(startNode + " "); // Print the dequeued node

         // Get all adjacent vertices of the dequeued node
         // If an adjacent has not been visited, mark it visited and enqueue it
         Iterator<Integer> iterator = adjacencyList[startNode].listIterator();
         while (iterator.hasNext()) {
             int nextNode = iterator.next();
             if (!visited[nextNode]) {
                 visited[nextNode] = true;
                 queue.add(nextNode);
             }
         }
     }
 }

 // Main method to test the BFS implementation
 public static void main(String args[]) {
        BFS_GRAPH graph = new  BFS_GRAPH(6);

     // Adding edges to the graph
        graph .addEdge(0, 1);
        graph.addEdge(0, 2);
        graph.addEdge(1, 3);
        graph.addEdge(2, 4);
        graph.addEdge(3, 5);
        graph.addEdge(4, 5);

     System.out.println("BFS traversal starting from node 0:");
     graph.BFS(0);
 }
}
```



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            int nextNode = iterator.next();
            if (!visited[nextNode]) {
                visited[nextNode] = true;
                queue.add(nextNode);
            }
        }
    }
}

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    System.out.println("BFS traversal starting from node 0:");
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```

```
<terminated> BFS_GRAPH [Java Application] C:\Users\Nikita\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_16.0.2.v20210721-1149\jre\bin\javaw.exe  (Jun 4, 2024, 11:53:34 AM – 11:53
BFS traversal starting from node 0:
0 1 2 3 4 5
```