

Course: Graph Theory

Programming Activity 2

1. Download the following files available in the Activity 2:
 - Input files describing graphs: `G1.in`, `G2.in`, and `k5.in`.
 - Program: `bfs.cpp`.
2. Run the program for all graphs. Check if the program is correctly executing the BFS for them. Make test starting from different vertices.
3. As a result of the BFS executed from a vertex s , we get all the shortest paths from s to the other vertices of a graph with n vertices. Write a method to print these shortest paths giving the length of each one as well.

```
// Using the BFS, print the shortest path from a vertex s
// to the other vertices also giving their lengths
void print_min_paths(int s, int n, VertexType Vet[]){
    // your code here
}
```

4. Using the BFS, write a method to verify if the input graph is connected. Recall that n is the number of vertices of the graph. Since all graphs in `G1.in`, `G2.in`, and `k5.in` are connected, modify one of them to test the method with a disconnected graph.

```
// verify if a graph is connected
bool isConnected(int n,VertexType Vet[]){
    // your code here
}
```