Project proposal: Second integrative task CaDS 2023-2.

Game title: Into the Backrooms: Universidades.

Description

After a long day, you are ready to go home. As usual, you go to the MIO stop to board the A11 route that takes you to the Universidades station, where you will transfer to the P21E route that will drop you off at home. Once you arrive to Universidades, you notice that the station is completely empty and dark, which is strange knowing that it is 6 p.m., the middle of rush hour. You also see that the route that has just left you is not the A11, but the ŁŁΔĦŁ€ĸΞŁ€, a route without numbers that disappears into the shadows. Immediately, a fog spreads all around the place, limiting your vision and movement, despair begins to grow within you, where have you gotten yourself into?

Is this a consequence of your poor and unhealthy sleep schedule that has led you to hallucinate? Is it the fault of the ridiculous amount of energizer in your blood? The important thing is that you must get out of this place as soon as possible, before you already low level of sanity collapses completely.

Objective

The purpose of this integrative task is to create this labyrinth game using the graph theory seen in class. Each square in the labyrinth is going to be a vertex of the graph and the connection between these squares are going to be edges between them. The possible paths between the start square and the exit square can be founded via DFS or BFS and the shortest path can be defined via Djikstra. The score of the user is going to be defined by the number of steps taken from the start to the exit. This means that the fewer the steps, the higher the score.

Enumerating these objectives:

1. Use graph theory to model this labyrinth game in Java.
2. Use Search algorithms and Minimum Weight Paths algorithms to design the winning paths.
3. Implement a user interface (GUI) using JavaFX.
4. Develop a code capable of adapting to two types of graph implementations (adjacency list, adjacency matrix).