



# Heriot-Watt University Dubai

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# Heriot-Watt University Dubai

## **“ROPE RUNNERS”**

Game Project, Praxis Programming (B37VB), Year 1

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<i><b>Date</b></i>	30 <sup>th</sup> March 2025

### **Introduction:**

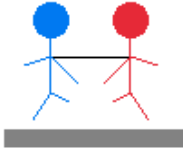
Rope Runners is a 2-player platformer game where the two characters Blue Guy and Red Guy work together to reach the exit of each level. They’re connected by a rope, so they have to help each other jump, move and pull each other to get past platforms and obstacles. It has two levels with different challenges. This game was made using the C programming language in the Notepad++ text and source code editor and the Raylib library. This report goes in depth into how the game works and how to play it.

### **Rules of “ROPE RUNNERS” And How To Play It**

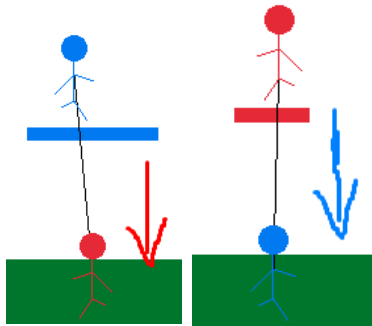
Rope Runners is a 2-player teamwork game where you can control both characters (Blue Guy and Red guy) or you can play with another person who controls one of the two characters.

Both characters are tied together by a rope. The goal is to get both characters to reach the green exit in each level.

- **3 types of platforms in the game in both levels:**

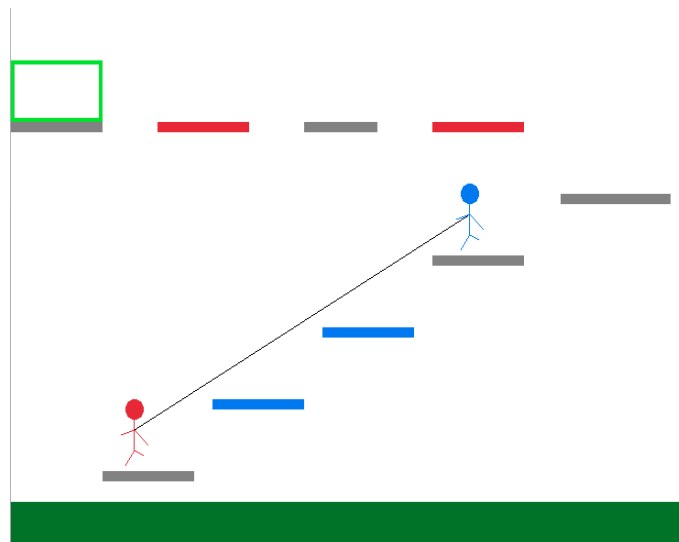


**Gray Platforms:** Both **Blue Guy** and **Red Guy** can stand on them. These are the typical platforms.

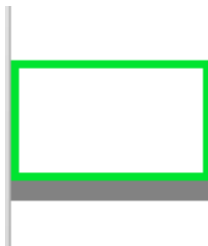


**Blue Platforms:** Only **Blue Guy** can stand on them, **Red Guy** simply falls through them when he tries to stand on them.

**Red Platforms:** Only **Red Guy** can stand on them, **Blue Guy** simply falls through them when he tries to stand on them.



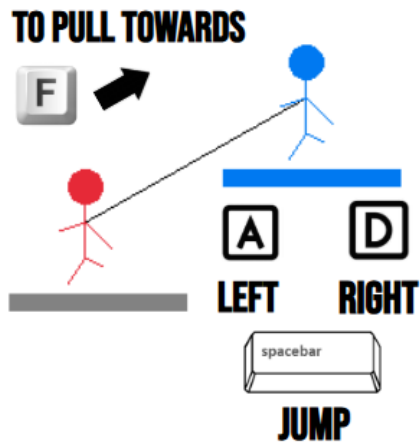
You need to jump and move to reach the exit, however the rope connects both characters, so they have to help each other. If one character is too far or if the platforms aren't possible for them to jump on, the other can pull them closer using the rope (*In this case, **Blue Guy** should pull **Red Guy** towards him since **Red Guy** can't jump on the blue platforms and **Blue Guy** is ahead in the level*).



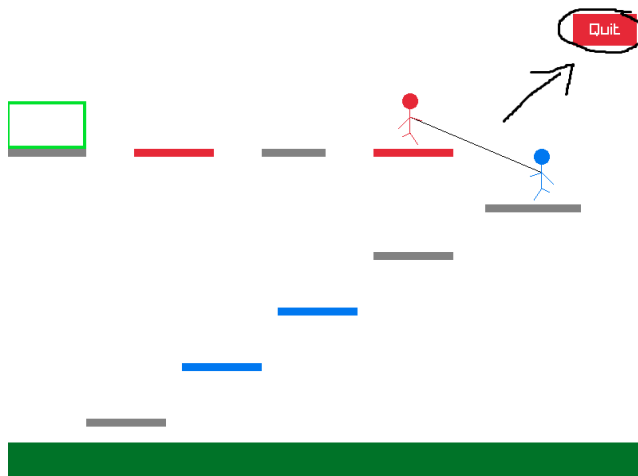
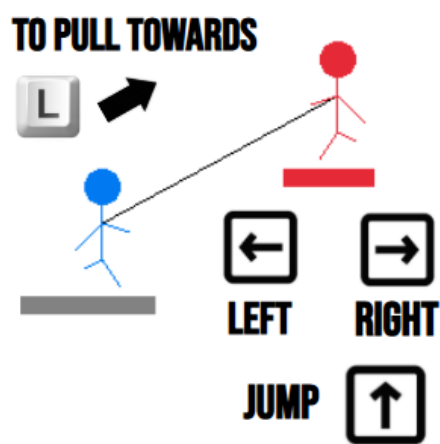
**You win the level** when both **Blue Guy** and **Red Guy** touch the **green exit** at the same time. Afterwards a “level complete” screen will appear, then it's up to the player if they want to replay, go to the next level, or simply return to the menu.

- Controls:

### Blue Guy Controls:



### Red Guy Controls:



Click the "Quit" button during gameplay to go back to the main menu. In the menu and level complete screens, use the mouse to click buttons like "Play," "Level 1," or "Replay."

# How “ROPE RUNNERS” Works

***Important Note:*** (Words like Main Menu, Level Select and other in game terms are color coded based from the flowchart shown below for clarity)

Rope Runners has its own **Main Menu**, **Level Select**, and **Level Complete** screens that can guide players through the game itself whether they want to play a certain level, go back to the menu, or simply quit in game. It starts with InitWindow to open an 800x600 window at 60 frames per second. Clicking **Play** moves to **Level Select** where choosing **Level 1** or **Level 2** starts the **Gameplay of lvl 1** or the **Gameplay of lvl 2** depending on which level the player has selected, or clicking **Back** which returns to **Main Menu**. In Both Gameplay **lvl 1/lvl 2**, players move with different control keys for movement and they use a rope to pull each other with gravity and collisions, in short this is where the main gameplay happens. If the players wish to stop playing, a **Quit** button is provided in the top right corner of the game which directly sends them back to the **Main Menu**. If both players manage to reach **Exit 1/Exit 2**, it goes into the **Level Complete screen** which differs for both levels depending on which one the player has completed:

- **Level Complete Screen 1** has three options presented which are, **Replay** that replays **Level 1**, **Level 2** which proceeds to the next level, or **Menu** which goes back to the **Main Menu** if clicked.
- **Level Complete Screen 2** has only two options presented which are, **Replay** that goes back to **Level 1** when clicked or **Menu** which goes back to the **Main Menu**.

The game ends when the window closes. The code uses functions and structures to manage this flow which is shown by the flowchart created below.

