

Over the next five milestones, your team will design and build a team multiplayer game. The proposed project is similar to the cool math game, fireboy and watergirl. The task would be to create an in-person multiplayer game. It would include the ability to select levels, earn coins, and work together with the other user to complete each level and beat the final level. The users would use separate sets of keys to control their characters as they navigate through the levels, with platforms that kill only certain players. The goal is to collect enough coins throughout the level to make it to the final level and beat the game.

## **M1**

Description:

For this milestone, you will create and submit two design deliverables to Canvas: a Domain Model and a set of SSDs. For the implementation portion of this milestone, you will create three screens: a welcome screen, a level-select screen, and an initial game screen.

Implementation:

- Starting the application will open a welcome screen which:
  - Can start a new game
  - Can quit the game
- Starting the game takes user to level-select screen which:
  - Contains a map where user can select levels to go to
- Selecting a level should take the user to a game screen which:
  - Contains a button to return to level-select screen

## **M2**

Description:

For the implementation portion of this milestone, you will create maps for each level. You will also be creating a Design Class Diagram that represents the backing of your project and a set of Sequence Diagrams that relate to user stories of the total project.

Implementation:

- The level select screen must have at least three levels to choose from
- Each level should take the user to a game screen which:
  - Contains a “door” to complete the level when both characters reach
- At least one level must include:
  - A platform only player 1 can survive on
  - A platform only player 2 can survive on
  - A platform neither player can survive on
  - A platform both players can survive on
  - A moving platform

## **M3**

Description:

For the implementation portion of this milestone, you will create movement capabilities for the two characters. To document your system, you will be updating the Design Class Diagrams and Sequence Diagrams from the previous milestone.

Implementation:

- Each game screen should have starting spawn locations for the two characters
- The characters should be able to:
  - Run left and right
  - Jump
- Movement should be based on two different sets of keys

#### **M4**

Description:

For the implementation portion of this milestone, you will create object detections for the different game elements, and restart the level if a character dies or return to the level-select screen after completing a level. You will continue to update your DCD and fix code smells that appear within your code.

Implementation:

- For each game level, the characters should only be able to touch the platforms they are designated to touch
- If a player touches one they aren't supposed to, the character dies and the level must reset
- Remember the requirements from M2:
  - A platform only player 1 can survive on
  - A platform only player 2 can survive on
  - A platform neither player can survive on
  - A platform both players can survive on
  - A moving platform
- If both players reach the door, then the user should be taken back to the level-select screen, indicating that the level has been completed

#### **M5**

Description:

For the implementation portion of this milestone, you will develop a point system where the players must earn a combined amount of points to reach the final level. Create a final level and win screen. To showcase your design, you will update your DCD once more and provide examples of SOLID and GRASP principles within your program.

Implementation:

- For each game level, the characters should be able to collect coins placed around
- Both the game screens and the level-select screen should show how many coins the user has collect and how many they need to reach the final level

- Once the amount of coins needed is reached, a new level should reveal on the level-select screen, which takes the user to the final level
- The final level must include all of the following:
  - A platform only player 1 can survive on
  - A platform only player 2 can survive on
  - A platform neither player can survive on
  - A platform both players can survive on
  - A moving platform
- When the user completes the final level, they must be taken to a win game screen which:
  - Contains a way to restart the game
  - Reveals a score / coins collected