Software Requirements and Design Document

For

Group 14

Version 1.0

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1. Overview (5 points)

We created a 2D game through Unity called “Go Home, Hamster!” about a lost hamster trying to get home. Each level consists of the hamster rolling through various obstacles and avoiding enemies. There will be 4 levels in total, each with its own theme and increasing difficulty.

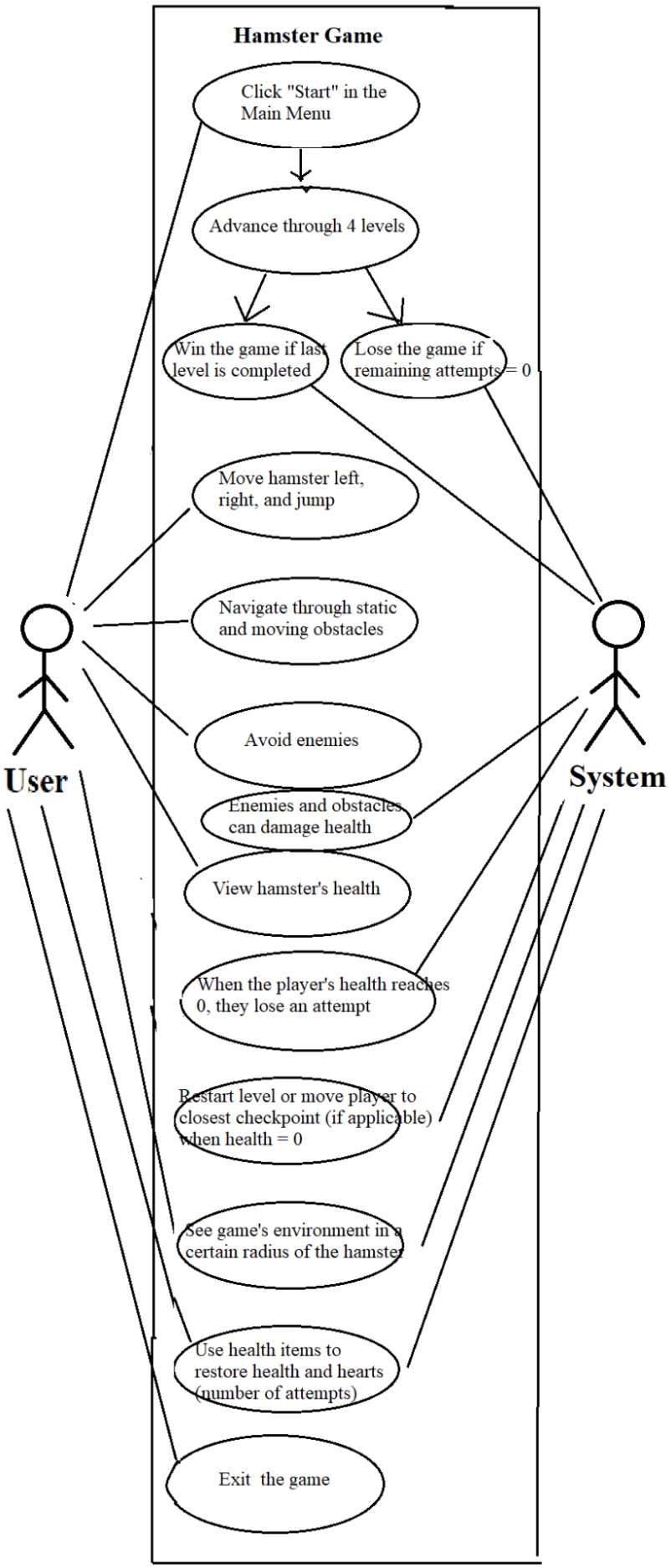
2. Functional Requirements (10 points)

1. (High) The game will allow the user to move the hamster (left, right, jump). 2. (High) The game will have static and moving obstacles that the player must navigate through.
3. (High) The game will have moving enemies that the player will need to avoid.
4. (High) The game will have a health bar for the player’s hamster.
5. (High) The game’s obstacles and enemies can damage the player’s health.
6. (High) The game will have a number of attempts for the player’s hamster. 7. (High) An attempt is taken when a player’s health reaches 0.
8. (High) The game will restart the level or move the player to the closest checkpoint (if applicable) when the player’s health bar reaches 0 and if the player still has remaining attempts.
9. (High) The game will end if the number of attempts reaches 0.
10. (High) The game will only show the environment in a certain radius of the player.
11. (Medium) The game will allow the user to start the game from a main menu. 12. (Medium) The game will allow the user to exit the game at any time.
13. (Medium) The game will have checkpoints.
14. (Medium) The game will have items to restore the player’s health bar and number of attempts.
15. (Medium) The game will have four levels.
16. (Medium) The game will have sound effects.
17. (Medium) The game will have music.
18. (Low) The game will have increasing difficulty by progressively adding more obstacles and enemies each level.
19. (Low) The game will allow the user to mute the music.
20. (Low) The game will have a secret level.
21. (Low) The game will have a “You Win!” screen when the last level is completed.

3. Non-functional Requirements (10 points)

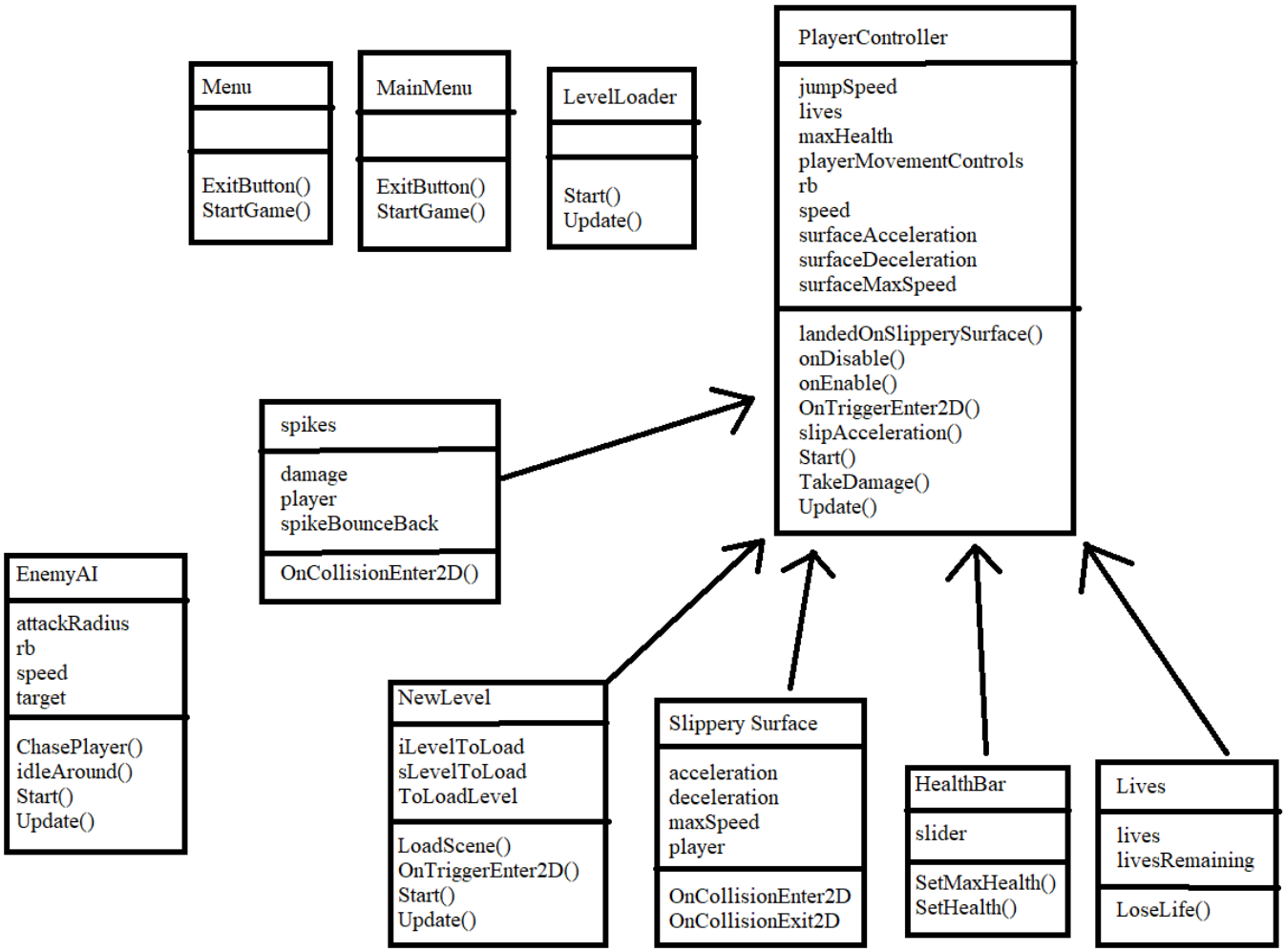
1. The game should be easy to use with minimal instructions.
2. The game’s frame rate should be decent and allow the game to run smoothly.
3. The game’s response time should be high.
4. The game should run with a keyboard in any web browser.

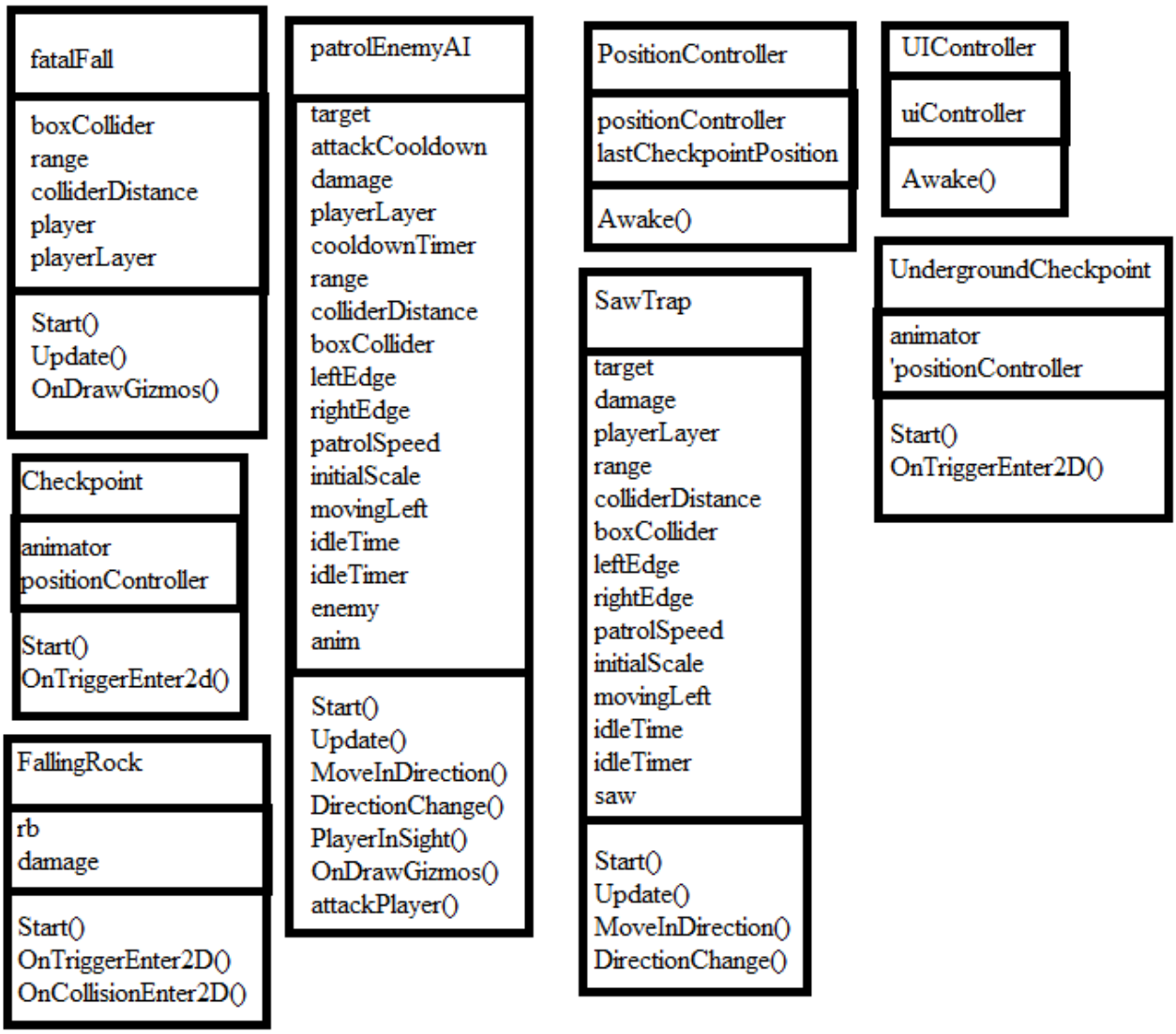
4. Use Case Diagram (10 points)


Hamster Game
Click "Start" in the Main Menu
Advance through 4 levels
Win the game if last level is completed
Lose the game if remaining attempts = 0
Move hamster left, right, and jump
Navigate through static and moving obstacles
Avoid enemies
Enemies and obstacles can damage health
View hamster's health
When the player's health reaches 0, they lose an attempt
Restart level or move player to closest checkpoint (if applicable) when health = 0
See game's environment in a certain radius of the hamster
Use health items to restore health and hearts (number of attempts)
Exit the game
User
System

5. Class Diagram and/or Sequence Diagrams (15 points)

Note: Not all of the classes could fit on the diagram so I had to split them up.





6. Operating Environment (5 points)

We are coding in C# using Unity version 2020.3.19.

7. Assumptions and Dependencies (5 points)

Because we used custom art, time constraints did end up affecting how much art we actually ended up with. More specifically, we were unable to get the art of the hamster in different positions to make him appear to be moving/animated in-game.