Name__________________________ Mark _______________________/50

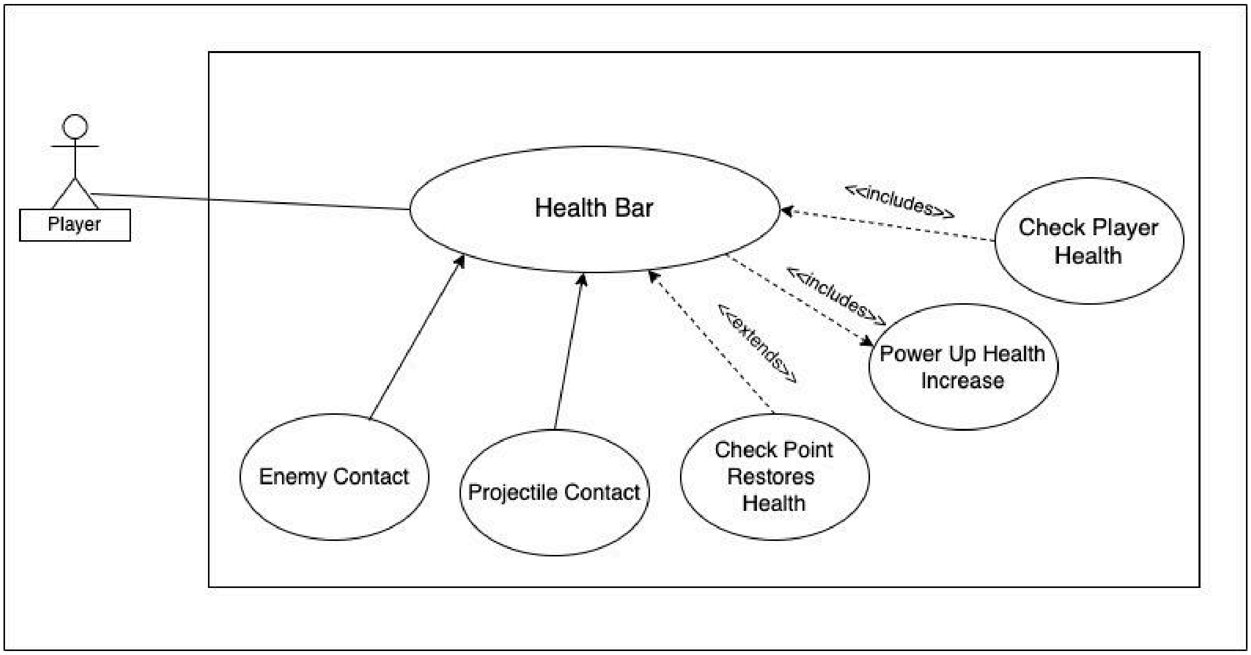
1. Brief introduction __/3

My feature for the game is the Heads-Up Display (HUD), as well as power up generation and interaction. The HUD feature will consist of a mini map showing the player's location, the player’s health bar, how long power-ups effects will last, and mission objectives.

I am in charge of making sure the health bar changes when colliding with an enemy or an object of an enemy. I also need to ensure the map is displaying the correct location at all times while the player is moving. The player will be able to make the map appear and disappear by pressing the H key. When the player picks up a power-up, it will display the kind of power-up and how long the power-up’s effect has left. The HUD will always display the next mission in a corner to help guide the player.

2. Use case diagram with scenario __14

Use Case 1



Scenarios

Use Case 1

Name: Health Bar

Summary: When the player gets hit with an object from an enemy or an enemy themselves, the player's health will decrease by a set amount. When the player picks up a power up, their health increases by a set amount.

Actors: Player

Preconditions: Player and enemies have been initialized

Basic sequence:

Step 1: Player encounters an enemy

Step 2: Player gets comes in contact with an enemy projectile or touches the enemy

Step 3: The amount of health the player has gets subtracted by 10 points

Exceptions:

Step 1: Player health = 0: the player dies

Step 4: Player picks up a power up: health increases by 5 points if health bar is not maxed

Step 5: Player reaches checkpoint: health bar restores to full

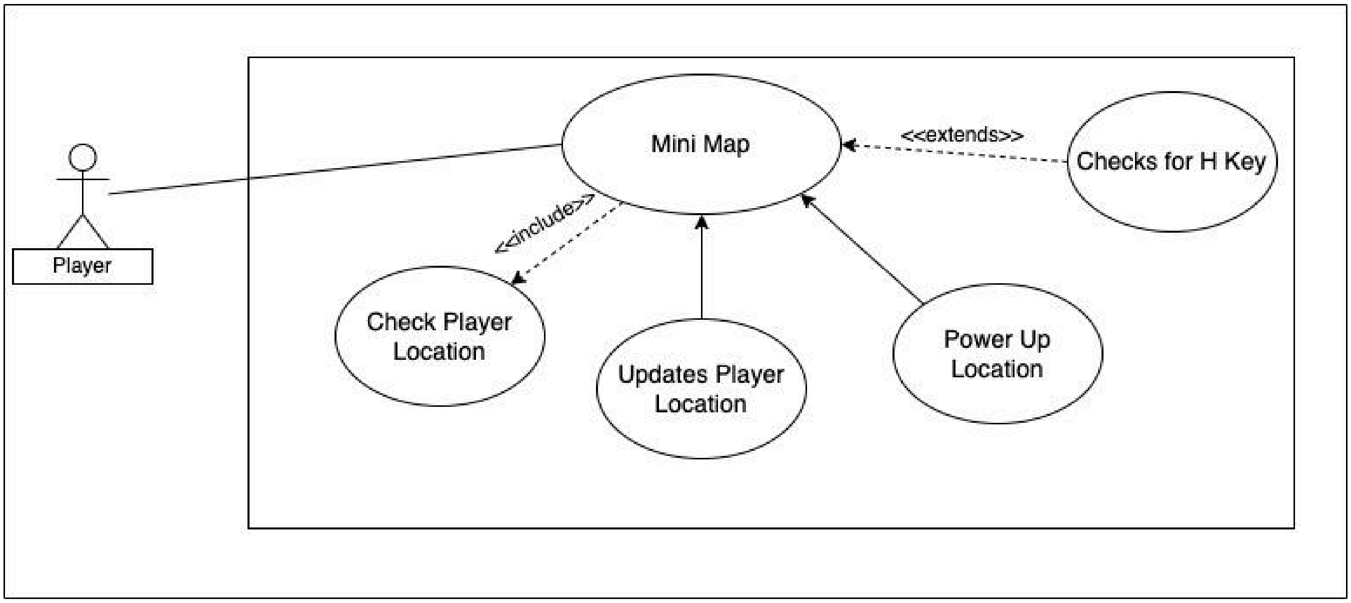
Post conditions: The health bar is updated to reflect the amount of health remaining

Priority: 1*

ID: C04R.1

*The priorities are 1 = must have, 2 = essential, 3 = nice to have.

Use Case 2



Use Case 2

Name: Mini Map

Summary: A mini map that will stay in a corner of the player's screen until a key is pressed to make it non visible

Actors: Player

Preconditions: Game world has been initialized

Basic sequence:

Step 1: Function checks for player location

Step 2: Movement of the icon on mini map correlates to player movement

Step 3: Power Ups are marked on map when they appear/generate

Exceptions:

Step 1.1: Player presses the 'h' key and mini map is showing: mini map disappears

Step 1.2: Player presses the 'h' key and mini map is not showing: mini map reappears

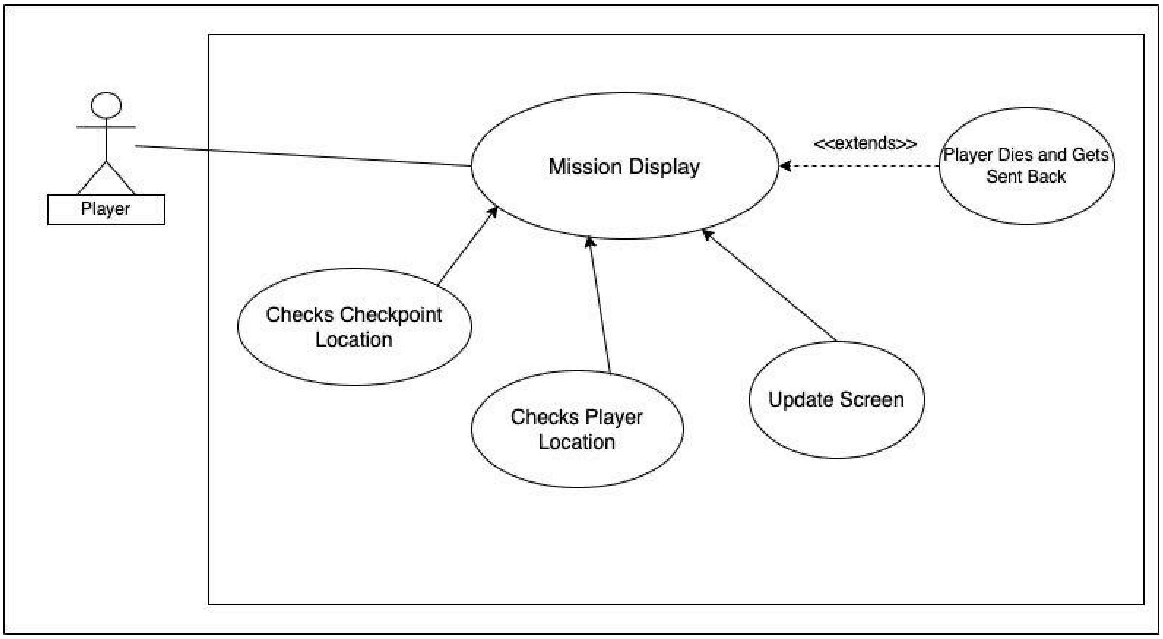
Post conditions: Mini map represents player location

Priority: 3*

ID: C04R.2

*The priorities are 1 = must have, 2 = essential, 3 = nice to have.

Use Case 3



Use Case 3

Name: Mission Display

Summary: Based on where the player is located and which checkpoint the player has crossed last, the next mission will be printed in the corner of the screen.

Actors: Player

Preconditions: Player and world have been initialized

Basic sequence:

Step 1: Player reaches checkpoint in world

Step 2: Function checks player location

Step 3: Screen is updated to display the next mission

Exceptions:

Step 1: Player dies: gets sent back to the last checkpoint they reached, updates mission statement

Post conditions: The health bar is updated to reflect the amount of health remaining

Priority: 2*

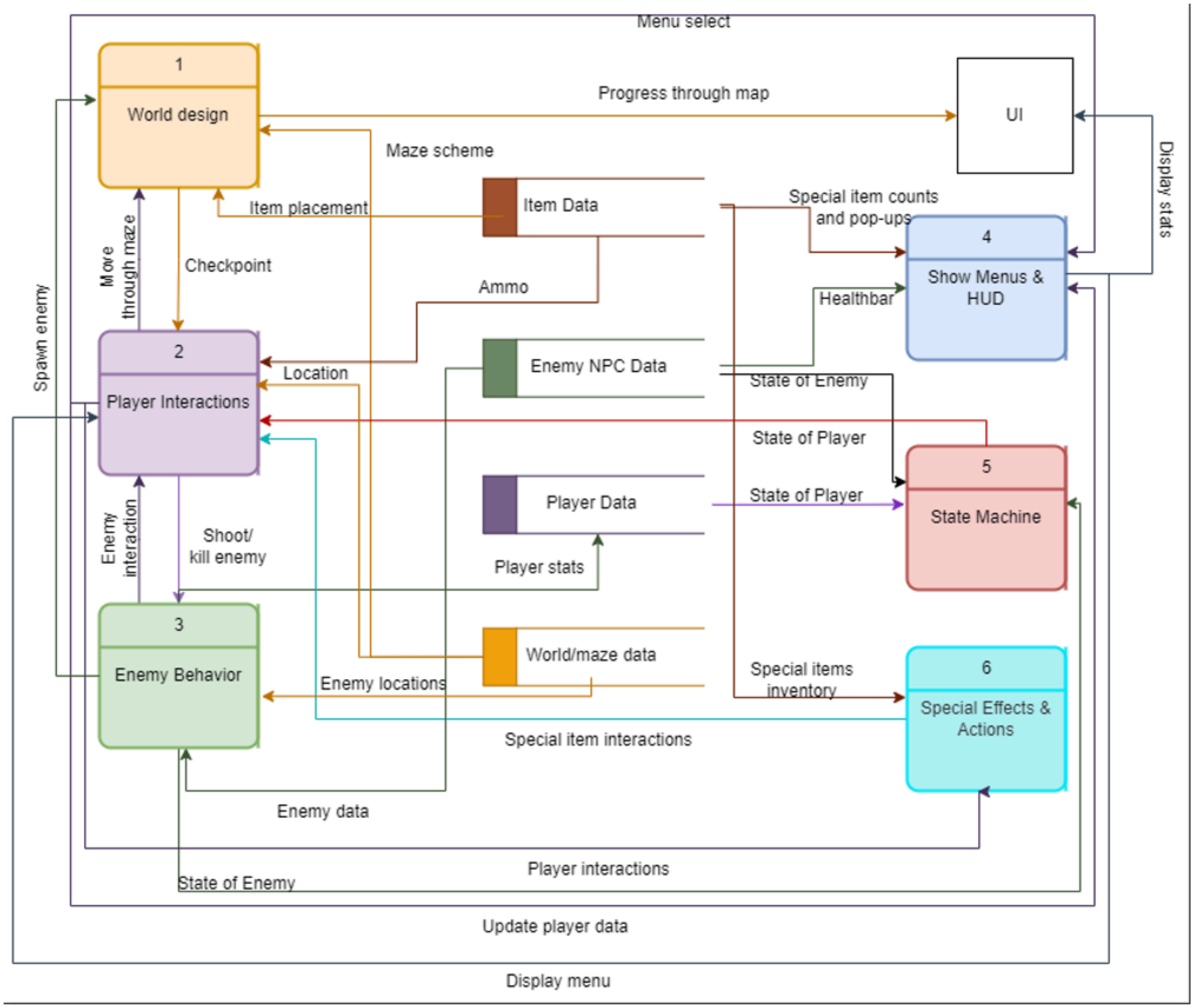
ID: C04R.3

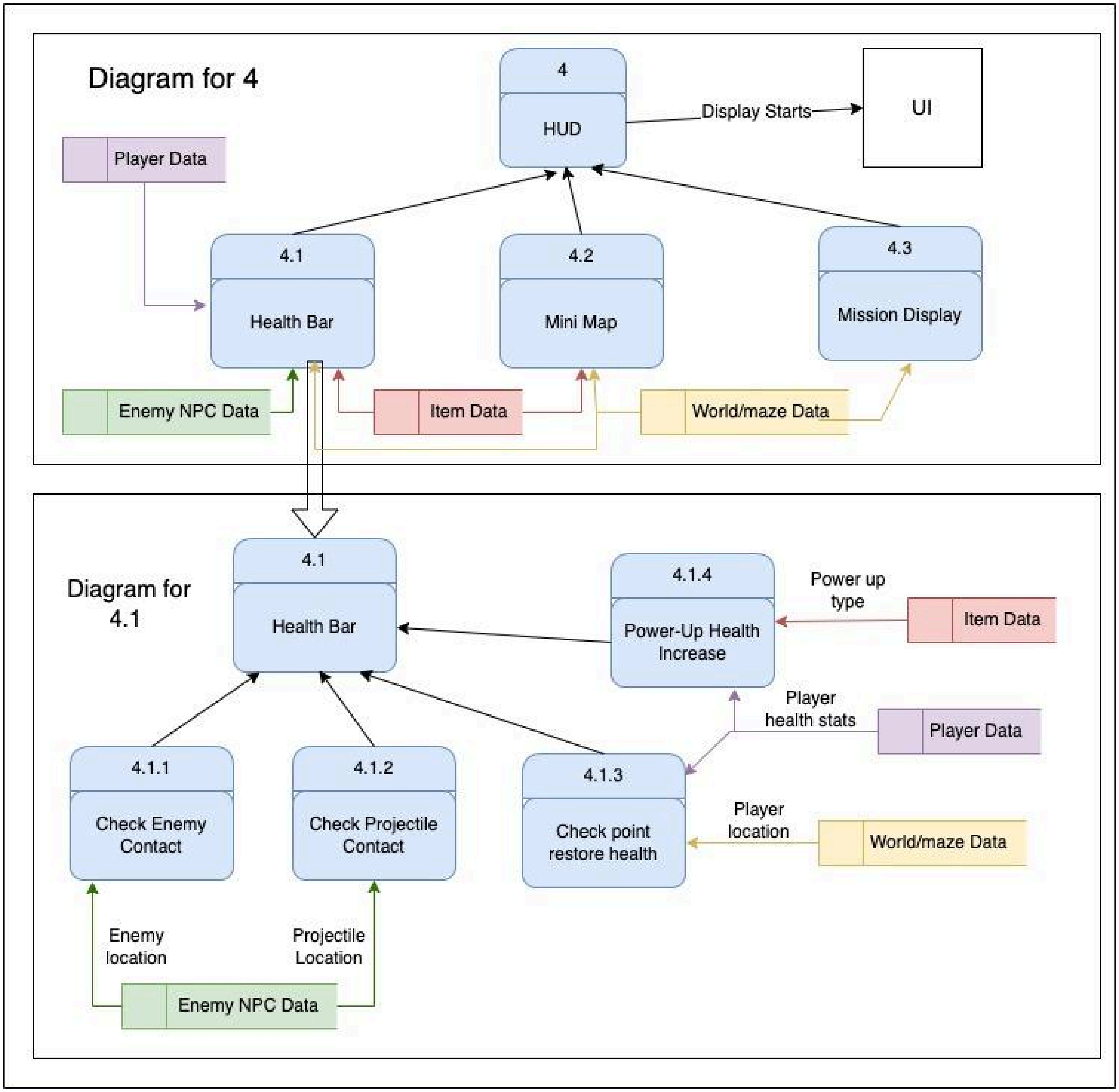
*The priorities are 1 = must have, 2 = essential, 3 = nice to have.

3. Data Flow diagram(s) from Level 0 to process description for your feature ______14

In the Data Flow diagram below, I will be covering the Health bar process. This includes all events that could affect the health of the player:

Data Flow Diagrams





Process Descriptions

```
Update Health Bar:
        IF enemy location == player location:
                Health = Health - 10
                Update health bar display
        ELSE IF enemy projectile == player location:
                health = health - 10
                Update health bar display
        ELSE
        Display health bar
END IF

IF player health == 0:
        Player dies
        Reset to latest checkpoint
END IF
IF player location == powerup location:
        Health = health + 5
        Update health bar display
END IF
IF player location == checkpoint location:
        Health = 100
        Update health bar display
END IF
```

4. Acceptance Tests _______9

The most important aspect of this test is to check for location accuracy. The player's health needs to be affected when in contact with an enemy or projectile from an enemy. If they encounter a power-up, the player's health needs to increase. When the player reaches a checkpoint location, the player's health should be restored if it's not already maxed out.

Example for Health Bar feature

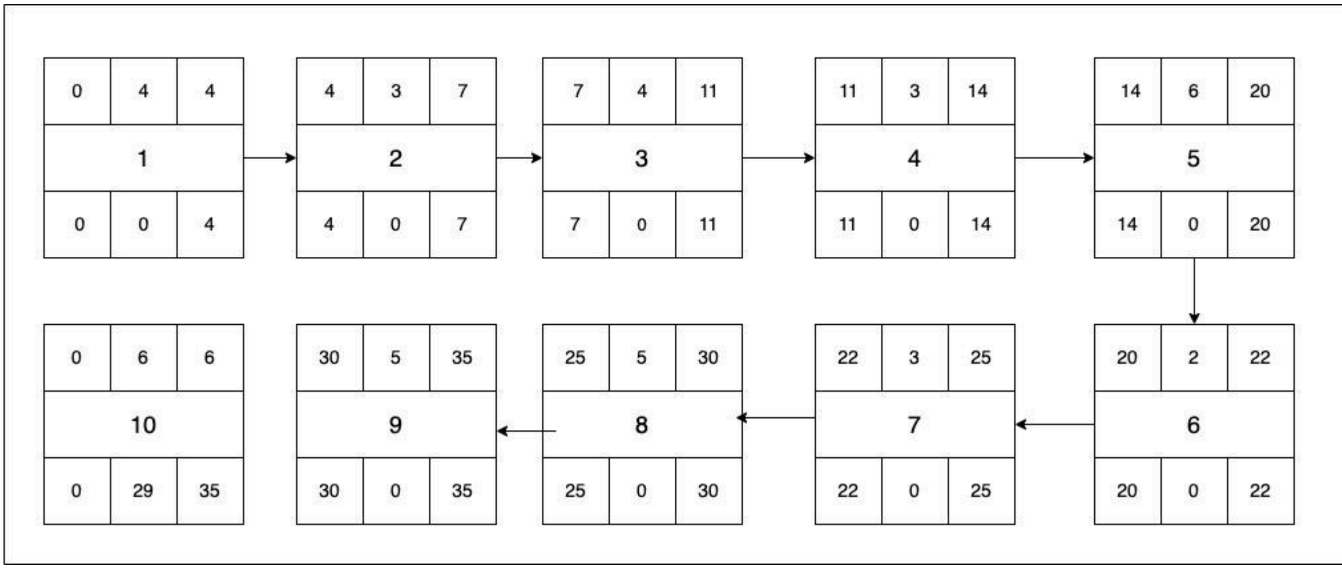
Player Location (x,y)	Enemy Location (x,y)	Power-Up location (x,y)	Are they the same?	What should happen
(10,0)	(10,0)	x	yes	Player health should decrease by 10
(25.5, 0)	x	(100, 20)	no	Player health should not change
(237,0)	(237,0)	x	yes	Player health should decrease by 10
(650,0)	(769,0)	x	no	Player health should decrease by 10
(89,0)	x	(89,0)	yes	Player health should increase by 5

5. Timeline ________/10

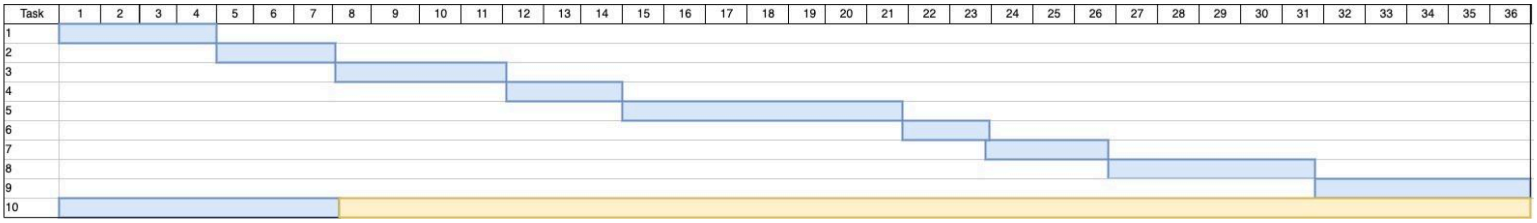
Work items

Task	Duration(hrs)	Predecessor
1. Check player location program	4	-
2. Check enemy contact	3	1
3. Check player health program	4	2
4. Make health bar move	3	3
5. Mini map functionality	6	1,4
6. Mission display	2	5
7. HUD layout	3	6
8. Testing	5	7
9. Installation	5	8
10. Artwork	5	-5

Pert diagram



Gantt timeline



Task	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
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Apologies for this being so small, I can’t make it bigger or else it’ll go off the page.