Name___Nathaniel Osterberg_ Team__PacketLoss_ Mark _____/50

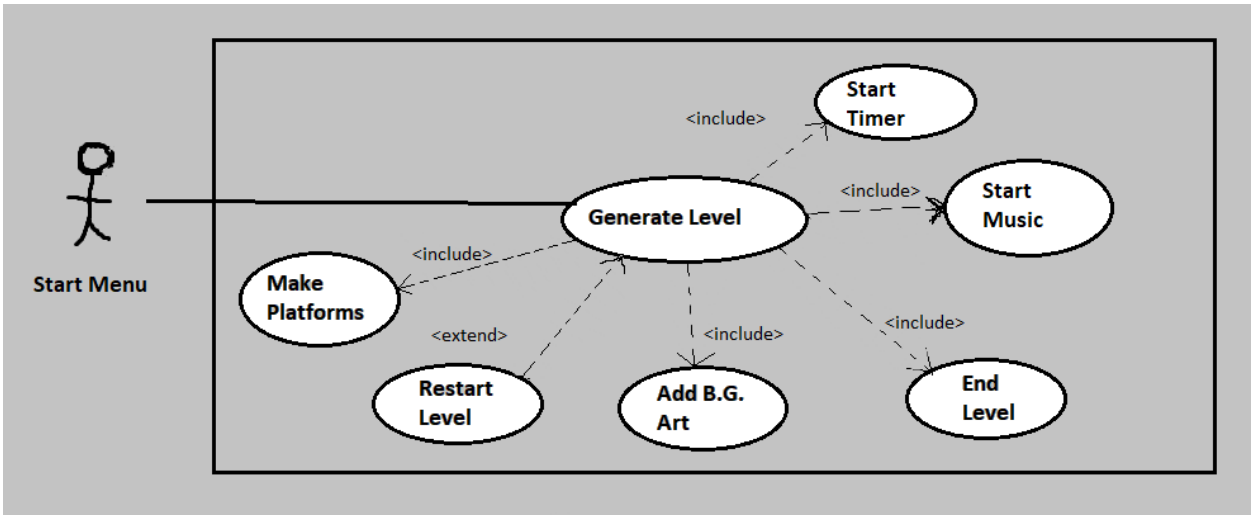
[**Instructions**: Remove everything that is not a heading below and fill in with your own diagrams, etc.]

1. Background/ Environment __/3

The background and the map environment of our 2D platform game, Tangent, change as the player progresses through calculus themed game levels. The basic map layout consists of a level start point, various platforms on which the game character interacts with game objects, and a level end point (where the game character moves to the next level). The player should be able to stand, move, jump and interact with game items on the platforms, and the level background should change to different themes as new levels are reached.

2. Use Case Diagram__14

Use Case Diagrams



Scenarios

Name: Make Platforms

Summary: Once play game has been initialized by the start menu, the game will spawn platforms into the 2D environment.

Actors: Start Menu

Preconditions: Generate level has been initialized by the start menu

Basic sequence:

Step 1: Play button is pushed on start menu.

Step 2: A pre-determined map made from platforms spawns into the environment.

Exception sequence:

Step 1: End level area is reached by the game character.

Step 2: Next level starts.

Step 3: Map platforms spawn.

Post conditions: Once the game character has spawned, he will be able to interact with the environment (stand, walk, jump, etc.)
Priority: 1*
ID: GL-1
*The priorities are 1 = must have, 2 = essential, 3 = nice to have.

Name: Restart Level
Summary: Once the game environment has been created, and the character has spawned, if the character touches the restart level area or dies, the game will restart the current level.
Actors: Game Menu
Preconditions: The level environment and game character have spawned, the video game player has taken control of the game character, and the game character has fallen out of the map or has died to enemies.
Basic sequence:

Step 1: Play button is pushed on the start menu.
Step 2: Restart Level area is spawned in the level.
Step 3: Restart Level area is not touched by the game character.
Step 4: Continue level are normal

Exceptions:

Step 1: Restart level area is touched by game character.
Step 2: The current level restarts.

Post conditions: The game character is respawned at the beginning of the current level.
Priority: 1*
ID: GL-2
*The priorities are 1 = must have, 2 = essential, 3 = nice to have.

Name: Add Background Art
Summary: The start menu initializes a background for the level
Actors: Game Menu
Preconditions: "Play game" has been selected from the Start Menu.
Basic sequence:

Step 1: Play button is pushed on the start menu.
Step 2: Background art from the level is set behind all platforms and objects.

Exception sequence:

Step 1: End level has been reached by game character.
Step 2: The game shifts to the next level.
Step 3: Background art for the next level is set behind all platforms.

Post conditions: Background art is displayed.
Priority: 3*
ID: GL-3
*The priorities are 1 = must have, 2 = essential, 3 = nice to have.

Once play game has been initialized by the start menu, the game will spawn platforms into the 2D environment.

Name: End Level
Summary: Once the game environment has been created, and the character has spawned, if the character reaches the end level area, the game will progress to the next level.
Actors: Game Menu
Preconditions: The level environment and game character have spawned, the video game player has taken control of the game character, and the game character has fallen out of the map or has died to enemies.
Basic sequence:

Step 1: Play button is pushed on the start menu.
Step 2: End level area is spawned at the end of the level.
Step 3: Move to next level if touched by the game character.

Exceptions:

Step 1: End level area is not touched by game character.
Step 2: The level continues as it normally would.

Post conditions: The game character is spawned at the beginning of the next level.
Priority: 1*
ID: GL-4
*The priorities are 1 = must have, 2 = essential, 3 = nice to have.

Name: Start Music
Summary: The start menu initializes the level music when start game is pushed.
Actors: Game Menu
Preconditions: Start game has been pushed
Basic sequence:

Step 1: Play button is pushed on the start menu.
Step 2: The level music starts playing

Exceptions:

Step 1: The end level has been touched by the game character
Step 2: The next level spawns
Step 3: The next level music starts.

Post conditions: Current level music is played.
Priority: 3*
ID: GL-5
*The priorities are 1 = must have, 2 = essential, 3 = nice to have.

Name: Start Timer

Summary: The start menu initiates the game timer to count how long it takes to complete the level.

Actors: Game Menu

Preconditions: The game menu has initialized play game.

Basic sequence:

Step 1: Play button is pushed on the start menu.

Step 2: Second timer is initialized to 0

Step 3: Level timer keeps track of time until game level is completed.

Step 4: Game shifts to next level and game timer restarts.

Post conditions: The game timer is restarted at the beginning of the next level.

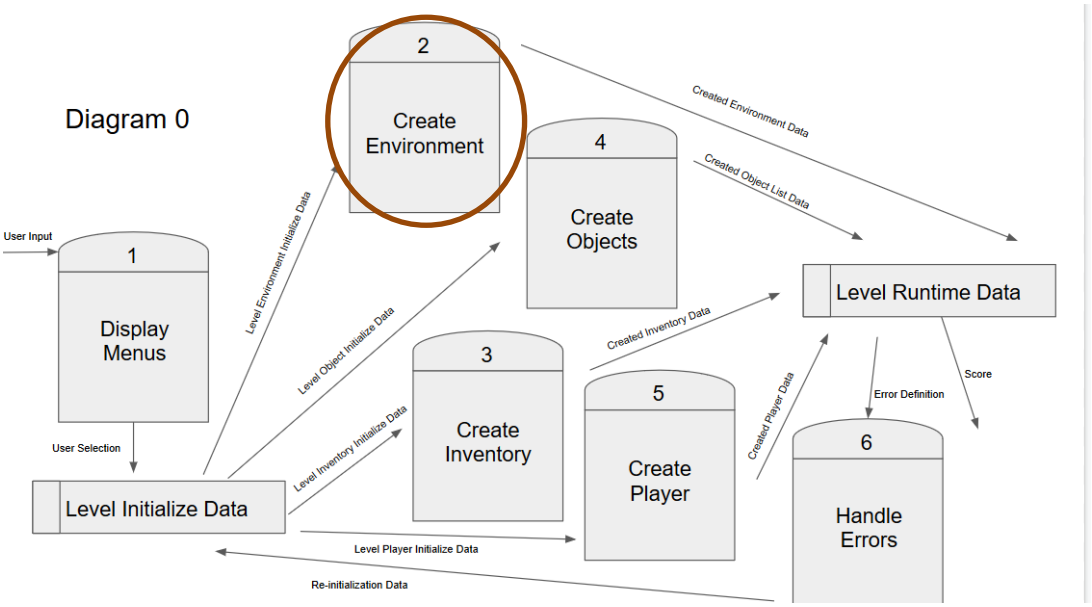
Priority: 3*

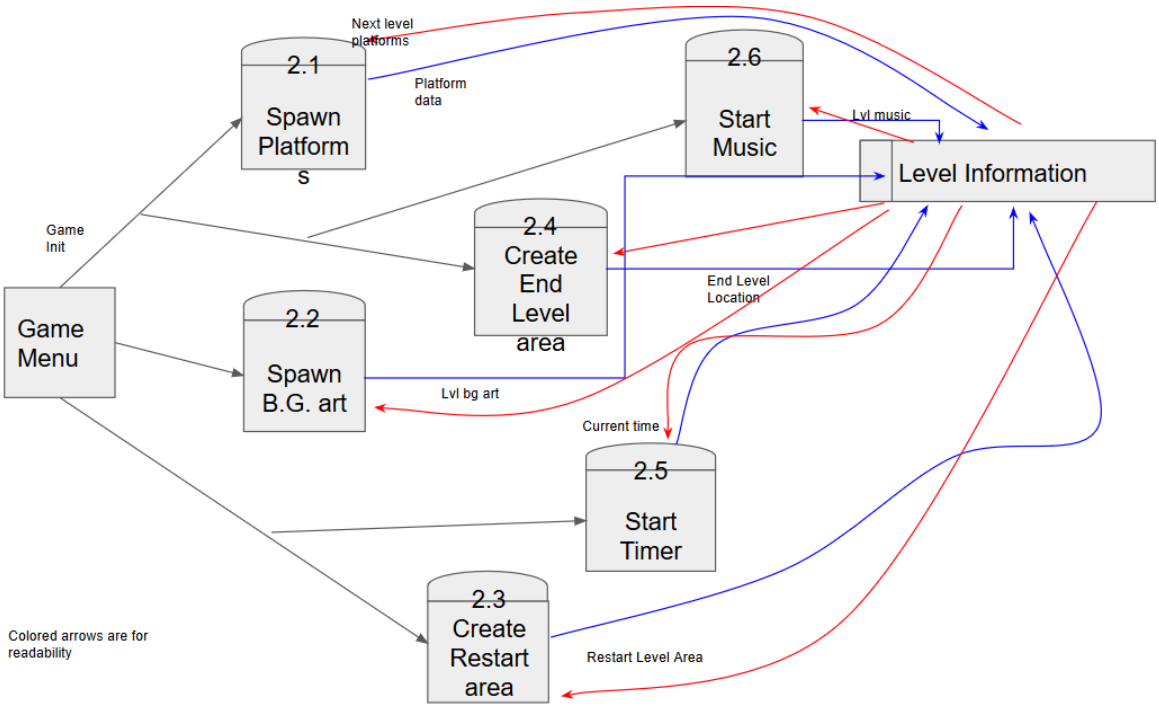
ID: GL-6

*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

Data Flow Diagrams





Process Descriptions

Restart Level*:

If (restart area has been touched by player

Restart level;

Else

Ignore restart protocal;

End Level*:

WHILE game character has not reached end of level

END WHILE

Move to next level

4. Acceptance Tests _____9

Example for restart level feature

Force the game character and other game objects to continually land in the restart zone.

Run feature 1000 times.

The game should respond by putting the character back at the beginning of the level, but the player should not respawn if a different game object touches the out of bounds area.

Example for start timer feature

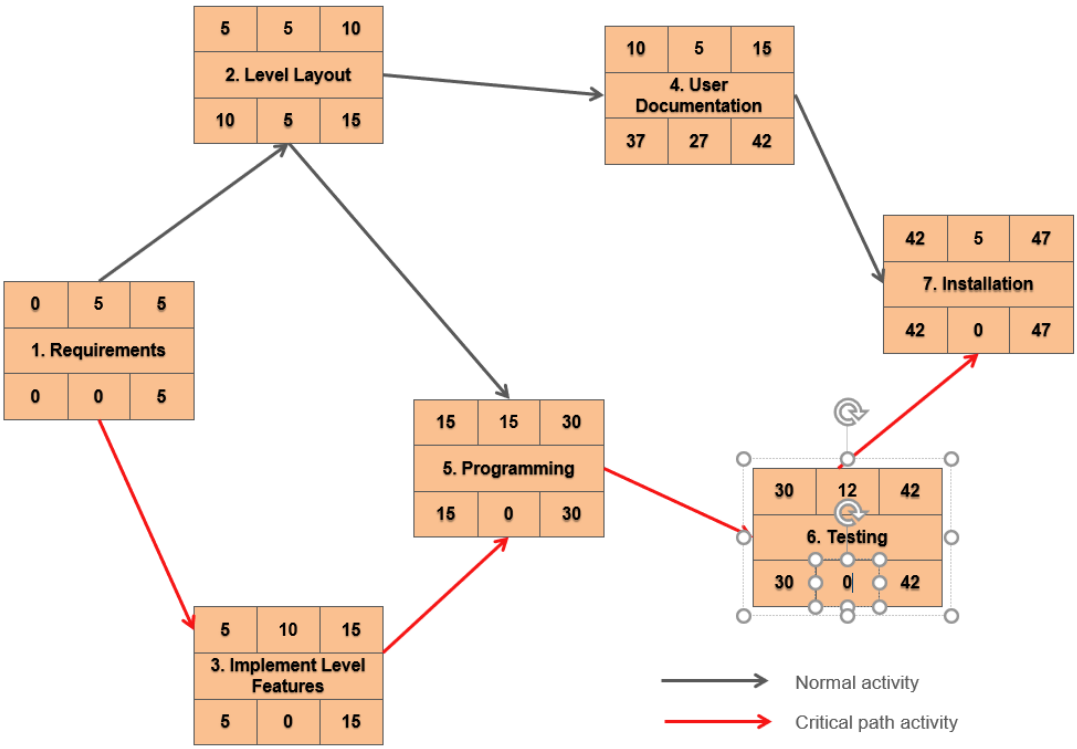
Simulate the game by leaving a level open for a long amount of time to see if the game clock will overwrite itself.

5. Timeline _____/10

Work items

Task	Duration (hours)	Predecessor Task(s)
1. Requirements	5	-
2. Level Layout	5	1
3. Implement Level Features	10	1
4. User Documentation	5	3
5. Programming	15	2,3
6. Testing	12	5
7. Installation	5	4,6

Pert diagram



Gantt timeline