# 1. Brief introduction __/3

Game / Level Manager:

The game manager and level manager are features that control the flow of the game from one scene to another, or from one level to the next. They entail navigation throughout the game, such as from the main menu into level select, into playing a certain level. Additionally, correct level setup is included in these features as well. Tile and background placement, player placement, spawn point placement and enemy spawn management setup are all required as part of the level setup. All this and more (such as interacting with sound and music) are wrapped up within this feature.

2. Use case diagram with scenario __14

Use Case Diagram
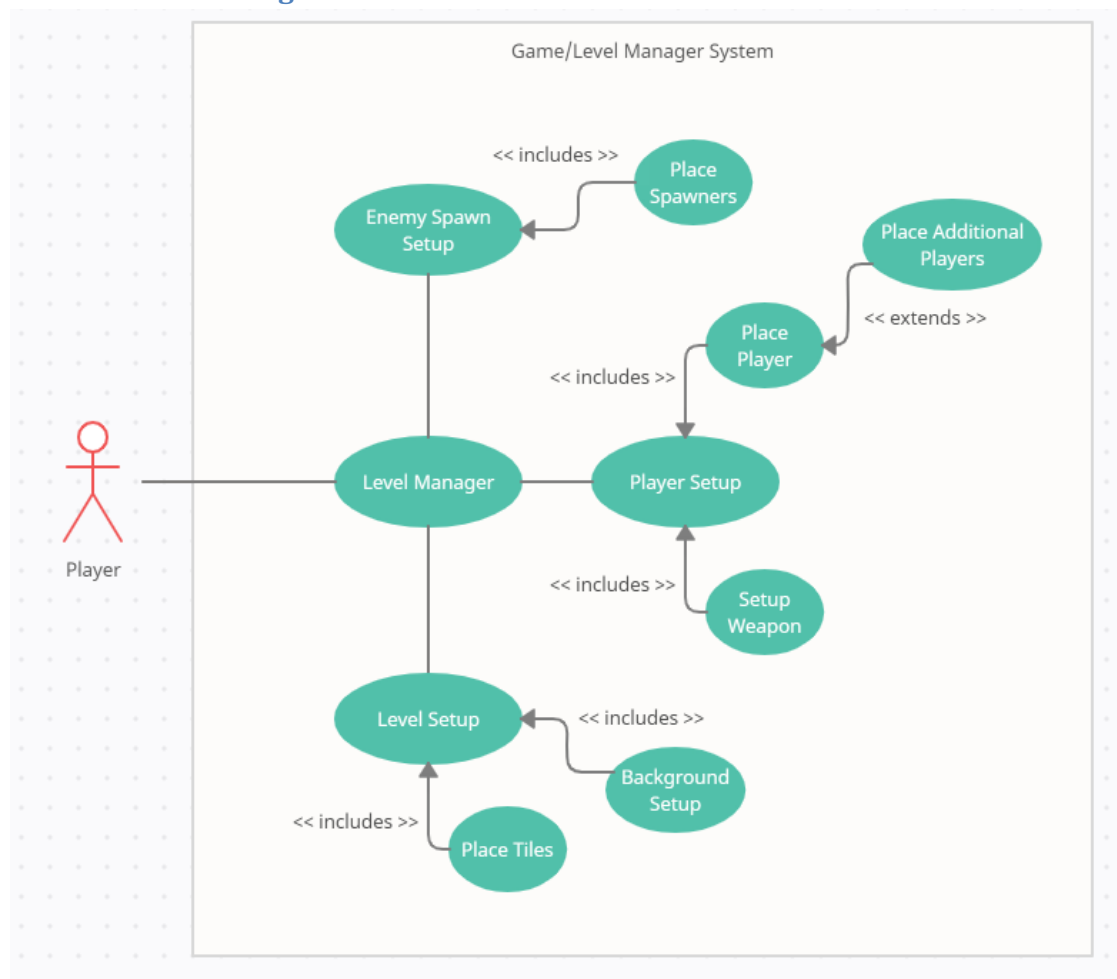
Scenarios

Name: Game / Level Setup (i.e. Level Manager)

Summary: To play the game, the player selects a level to play. This information gets sent to the level manager which then sets up the player, the level selected, and the appropriate enemies according to enemy spawners. Depending on single player or multiplayer, other players may need to be setup as well.

Actors: Level selected (coming from player input).

Preconditions: Appropriate information has been passed into the level manager and game manager to correctly setup the requested level. This includes information such as single player or multiplayer mode, selected level, selected characters, and other potentials (such as difficulty, level modification(s), etc.).

Basic sequence:

> **Step 1:** Receive all required information from player regarding level and players.
> **Step 2:** Navigate to selected level and load correct scene/prefab.
> **Step 3:** Once level information is loaded (i.e. tiles corresponding to map, background, and other relevant map information), load other elements.
> **Step 4:** Other elements loaded include player setup and enemy spawn setup.
> **Step 5:** Level is loaded, begin playing.

Exceptions:

> **Step 1:** Single player only – no additional player setup required, advance to gameplay.
> **Step 2:** Multiple players – setup additional players in predetermined locations.

Post conditions: The level and all required elements are loaded. Gameplay begins as normal (or maybe after pressing any button).

Priority: 1*

ID: D01 – What is this?

*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 Diagram   Level 0

Data Flow Diagram   Level 1
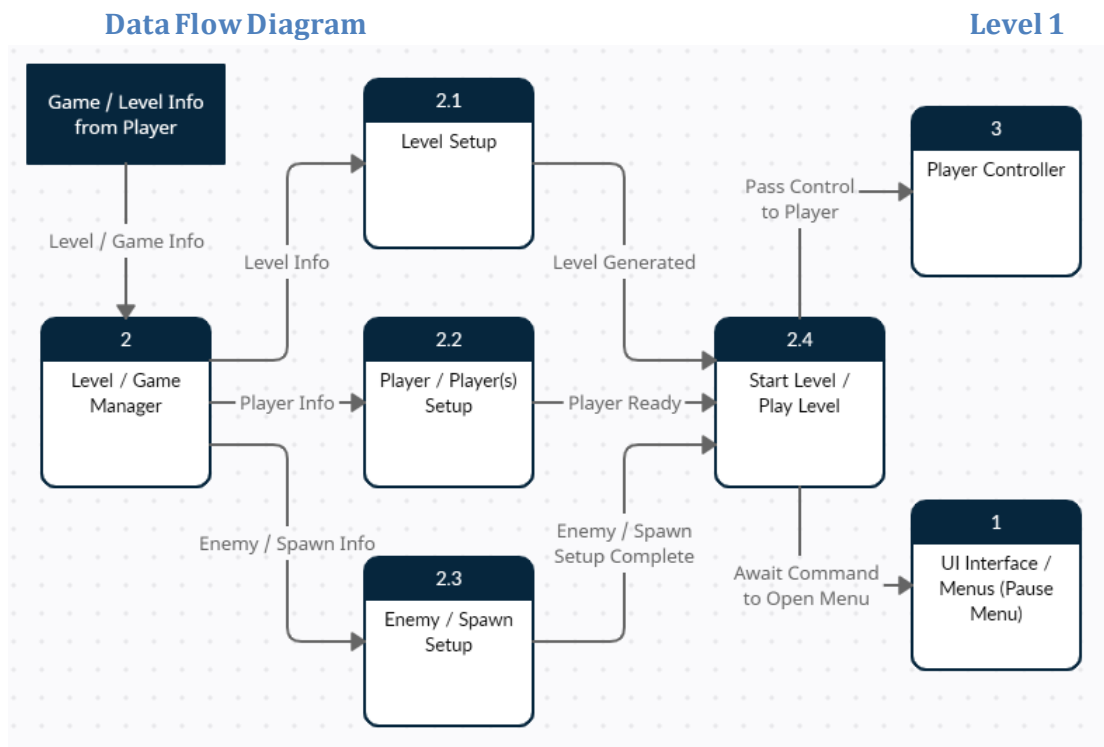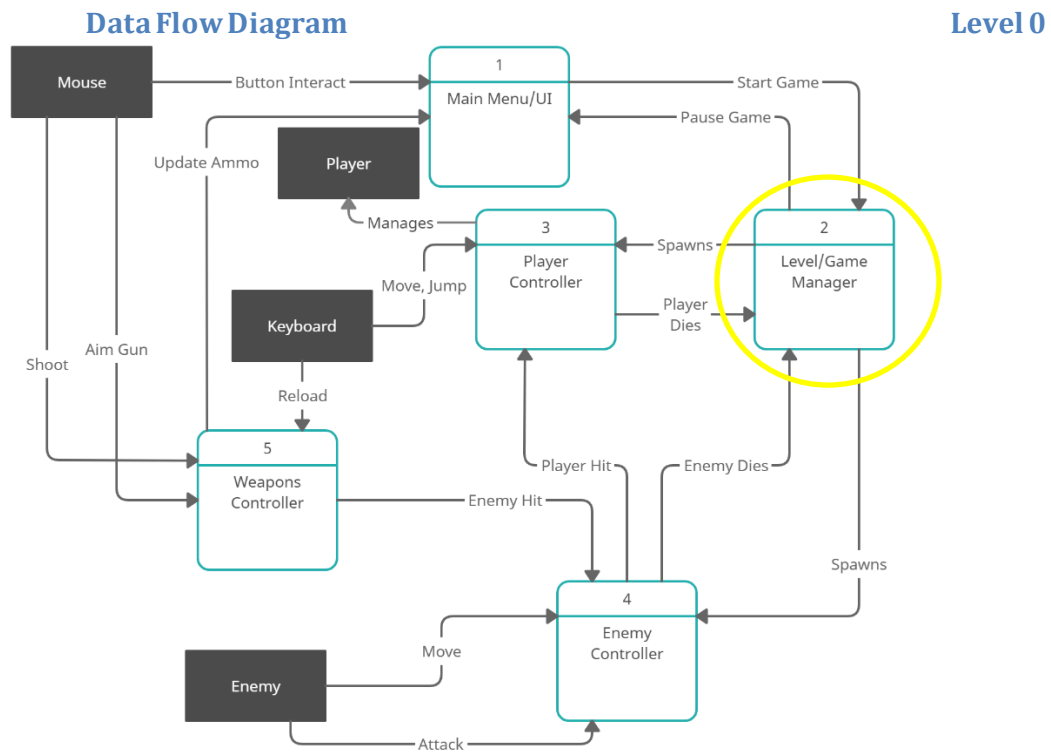
Process Descriptions

Manage Game:

IF single player mode selected

IF level n selected

setup level → map, background, player, enemies, music, etc.

ELSE IF multiplayer mode selected

FOR all players

select character

select level (can be random)

setup level → map, background, players, music, etc., but no enemies

ELSE IF settings mode selected

WHILE in settings menu

adjust settings (volume, controls, etc.)

ELSE (quit)

quit application

Manage Level:

WHILE choosing level

select and confirm level to play

FOR information passed about level

grab appropriate assets and information for level setup

Setup level → map, background, music, and all other appropriate info

Setup player → grab and modify prefab according to passed info

Setup spawn points

Setup spawn manager for level via passed level info

Start first wave

WHILE waves are not over

WHILE current wave playing

IF any enemy still alive

continue waiting for wave to finish

ELSE IF all enemies dead AND another wave still available

start next wave

ELSE (all waves complete)

BREAK from inner while loop

Level complete → display UI elements, option to go back to map, etc.

4. Acceptance Tests _____9

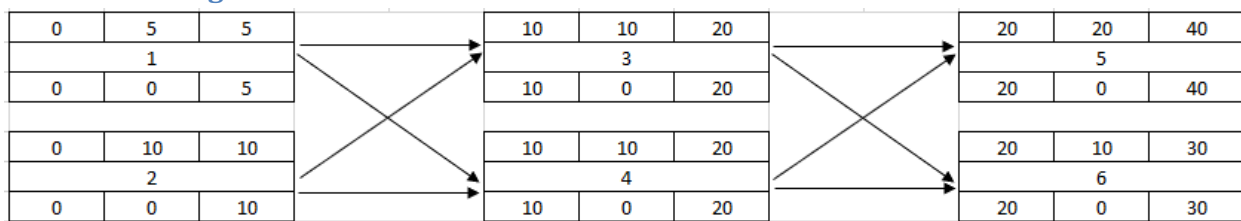| Input	Output	Notes
ESC / MENU	Pause menu (playing)	Pause menu will show up while playing within a level.
ESC / MENU	Back to Main Menu (menu screens)	While in the title screen area, this will bring the player back to the start of the main menu.

ENTER / LMB	Move to the next appropriate screen (menu screens)	If the player is selecting things like character, level, etc., then this brings up the next option to follow, which will change based on where in the selection process they are at currently.
ANY KEY	Joins a player to the game (character select screen)	If in a multiplayer capacity, pressing any button from a new device will grab that device and setup another player. (This may be changed to a specific button later depending on complexity to implement)
N/A	N/A	Special note on level setup: aside from selecting level, player will have no say in things such as enemy or player spawn locations, music, etc. These features are automatic and default.

5. Timeline _____/10

Work items

Task	Duration (Hours)	Predecessor Task(s)
0. Extra Learning for Tasks	20	-
1. Create Spawner	5	-
2. Implement Spawn Manager	10	-
3. Create Level Manager	10	1, 2
4. Create Game Manager	10	1, 2
5. Integration with Project	20	3, 4
6. Testing	10	3, 4

Pert diagram

0	5	5
	1	
0	0	5

10	10	20
	3	
10	0	20

20	20	40
	5	
20	0	40

0	10	10
	2	
0	0	10

10	10	20
	4	
10	0	20

20	10	30
	6	
20	0	30

Gantt chart

David					
additional learning to complete objectives	20	6	constant		
create spawner	5	4	1		
implement spawn manager	10	3	2		
level manager	10	2		3	
game manager	10	2		4	
integrate	20	5			5
testing	10	0			6
totals	85	22			