Project Analysis

# 2.3Project Management

* List activities up to this point with the time invested for it
* Compare to time spent to the time planned
* List measures to compensate if too much time was spent on something
* Show detailed planning for the next milestone
* Show risk list again (with updates if necessary)

Use Cases   
The following use cases are prioritized from top to bottom. The biggest use cases “Play Game” was split up into smaller use cases to keep it organized and clear, because it’s the biggest and most time consuming one.

|  |  |  |
| --- | --- | --- |
| Name | Detail |  |
| 1. Play game    1. Place tower    2. Upgrade tower    3. Tear down tower    4. Call next wave    5. Pause game    6. Unpause game | All use cases are extensions of “Play game”. |  |
| 1. Create map 2. Edit map 3. Import map 4. Export map |  |  |

## Play game (fully dressed)

**Primary Actor:** Player

**Stakeholders and Interests:**

* Player: Wants a stable framerate with short load times and no crashes to interrupt his experience.

**Preconditions:** The player has selected a map and started a new game on it.

**Post conditions:** The player has either defeated all enemy waves and won or his central structure has taken a critical amount of damage and has been destroyed resulting in the player losing the game.

**Main success scenario:**

1. The player has started a new game and the map is loaded.
2. The player spends his starting currency on building up his defenses.
3. The player clicks on begin, indicating they are done preparing and ready for the first enemy wave.
4. Incoming enemies are destroyed by the defensive structures and the player spends the money gained on new defenses.

*Step four repeats itself so long as there are enemies remaining in the current wave and the main structure has not been destroyed.*

1. When all enemies of the current wave have been destroyed, there is an indication that the next wave will be incoming soon.
2. The player has a set amount of time to improve his fortifications before the next wave begins automatically.

*Steps four through six are repeated while the last wave has not been defeated and the main structure has not been destroyed.*

1. The player has defeated the last wave and a message is displayed indicating that they have won the game.
2. The game automatically returns to the main menu after the message has disappeared.

**Extensions:**

\*a. At any time, the game crashes:

The game shuts down and the player must restart the game if he wishes to continue playing. Any game progress will not be saved.

\*b. The player closes the game window:

The current game ends and no game progress is saved.

\*c. The Player pauses the game:

The ongoing game is paused, and a menu is brought up allowing the player to leave  
 to leave the game or to resume it.

**Special Requirements:**

* Windows or Mac computer with Java 8.
* Computer with mouse or a touch display.

**Frequency of Occurrence:** However often it is initiated by player.

## Place tower (casually dressed)

**Main success scenario:**

1. The player selects a tower type to build. The selection is valid if the chosen tower type is unlocked and the players budget is not lower than the costs of the chosen tower type. If the selection is not valid, then the scenario ends here and can be restarted at any time.
2. The player selects a tile on the map to build the tower. The selection is valid if the chosen tile is neither a path tile nor is already occupied by another tower and also can fit the tower in if the tower is multilayered (Towers spanning two layers can only be placed on the lower 2 layers. Towers spanning all three layers can only be placed on the lowest layer). If there is no tile available which could be selected, the scenario ends here and can be restarted at any time.
3. The tower gets built on the selected tile and its cost gets subtracted from the players budget.

## Upgrade tower (casually dressed)

**Main success scenario:**

1. The player can upgrade a tower so that the tower makes more damage to the enemies. To upgrade a tower the player needs enough amount of money.
2. By clicking on an existing tower, a menu shows up with different upgrade possibilities like double damage, shoot faster etc. If the player doesn’t have enough money for a specific upgrade, the upgrade is still shown in the menu, but grayed out.
3. By clicking on the desired upgrade, the player loses money based on the cost of the upgrade and the tower gets upgraded.
4. The player closes the upgrade menu and is back in action.

**Alternate scenario:**

\*4a. After upgrading the tower, the player chooses to make a second upgrade before continuing with the game.

## Tear down tower (casually dressed)

**Main Success Scenario:**

1. The player clicks on the tower he wants to tear down.
2. The tower menu opens in which he can upgrade or tear down the tower.
3. The player clicks on the tear down button.
4. The tower gets destroyed and the player gets a fractional amount of the money he invested in building the tower.
5. The tower menu gets closed.

**Alternate scenario:**

\*3a. The player closes the tower menu.

1. The player must click on the tower again or else he can’t tear the tower down.

## Call next wave (casually dressed)

**Main success scenario:**

1. When all enemies are defeated from the previous wave and the player has modified his defense, he can click on the button “Call Next Wave”. This results with the beginning of the next wave.

**Alternate Scenario**

\*1a. When the player has defeated the last wave of enemies, the player can’t call a next wave because he has won the game.

## Pause game (briefly dressed)

The player can pause the game to take break for example. Nothing happens in the game during that time.

## Unpause game (briefly dressed)

The player can resume the game and keep going.

## Create map (briefly dressed)

The player can create a custom map for the game to play on.

## Edit map (briefly dressed)

The map can be edited in an editor to make changes on it.

## Import map (briefly dressed)

A map can be imported from a chosen directory to be used or edited in the game.

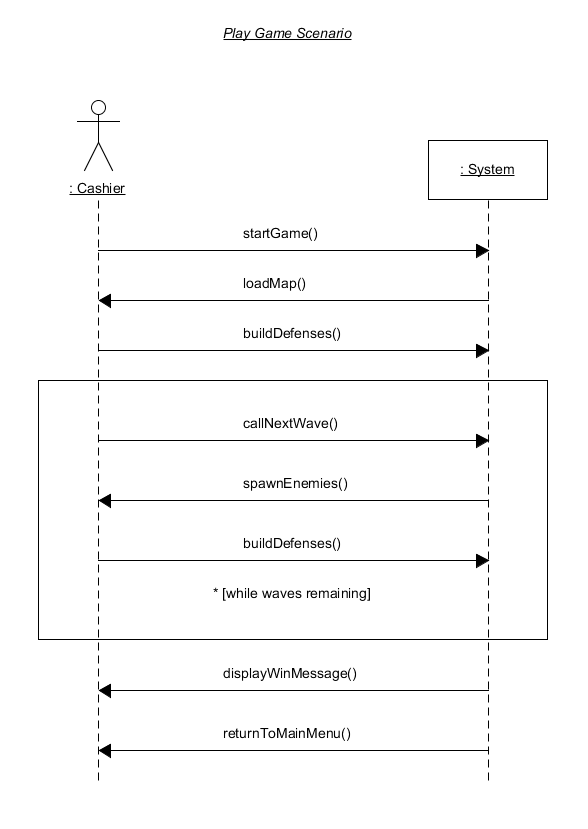
## Export map (briefly dressed)

The player clicks on the “Export Map” button and the program exports a selected map to a chosen file location.

# Use Case Diagram



# System Sequence Diagram



# Glossary

|  |  |
| --- | --- |
| Term | Definition |
| Castle | The players central structure, the defense of which is the games main objective. |
| Tower | Any of a variety of defensive or offensive building created by the player to hinder or destroy incoming enemies. |
| Wave | A wave refers to a group of enemies. A game encompasses multiple waves that need to be defeated. |
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