Architecture

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1 Description of architecture

The game will consist out of multiple sections: The main menu and its sub-menus as well as the ingame interface. The following diagrams will describe the dependencies between objects and actions within the ingame interface. We plan to wrap the main menu around this core part. Planned: A game controller or master engine is planned, which consists of different parts.
It consists of different smaller Engines: The Health engine, Wave/enemy Engine, Tower engine, Spell Engine, Economy Engine. The architecture should be developed according to the bottom-up principle. The development of the project is according to object orientation and test driven.
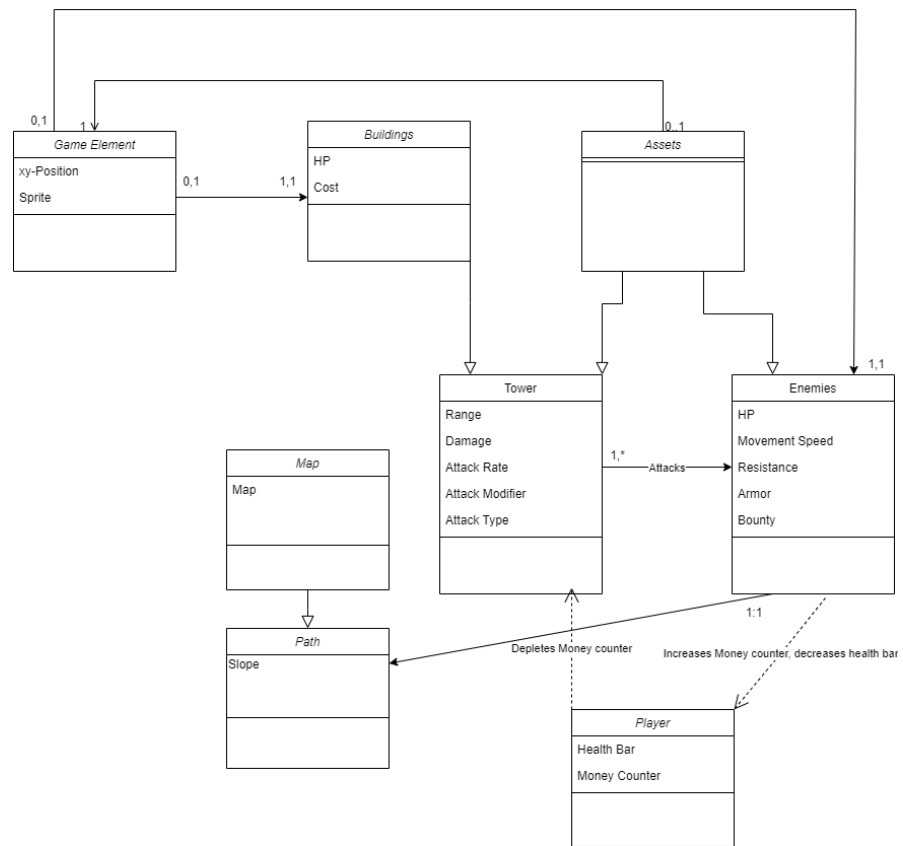
2 Diagrams

2.1 Class and structure diagrams

Figure 1: Class Diagram Version 1.0

2.2 State and flow diagrams

Story mode

Menu — Map/Level — Submenu

- open application
- game selection
- opt: failure
- opt: Quit/Save Level
- opt: Retry
- opt: Quit Level
- opt: victory
- Reward

Actor

Endless mode

Menu — Map/Level — Submenu

- open application
- game selection
- opt: failure
- opt: Quit/Save Level
- opt: Retry
- opt: Quit Level

Actor

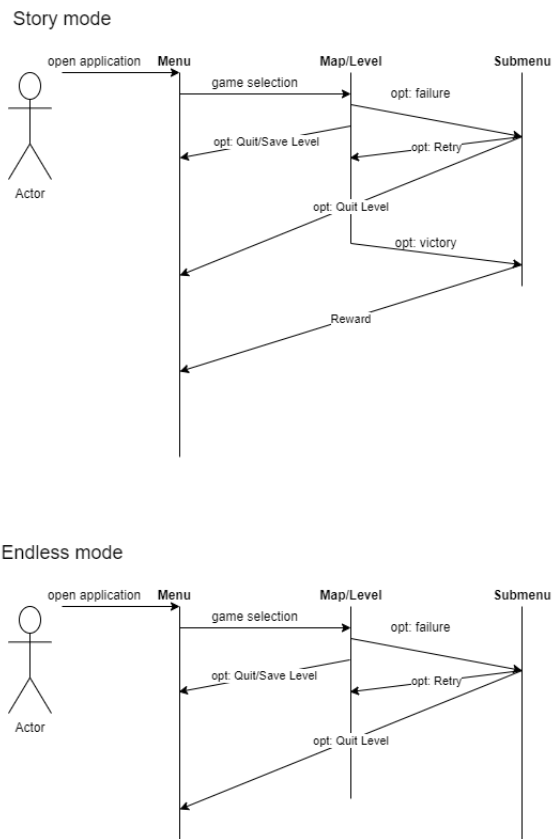Figure 2: The navigation between the components of the game is described by the following graphs:

Wave sequence

GUI	Towers	Assets	Enemies	Player HP

Select Tower → Decreased by Tower cost →

← Tower is placed on map

Ready Check

← Spawning

If in range: Attacking and applying attack modifier →

← If Hp=Zero: Bounty

← If Hp=Zero: Despawning

← If Hp=Zero: Despawning — If Hp>=0 and posiition=core.position: decrease HP →
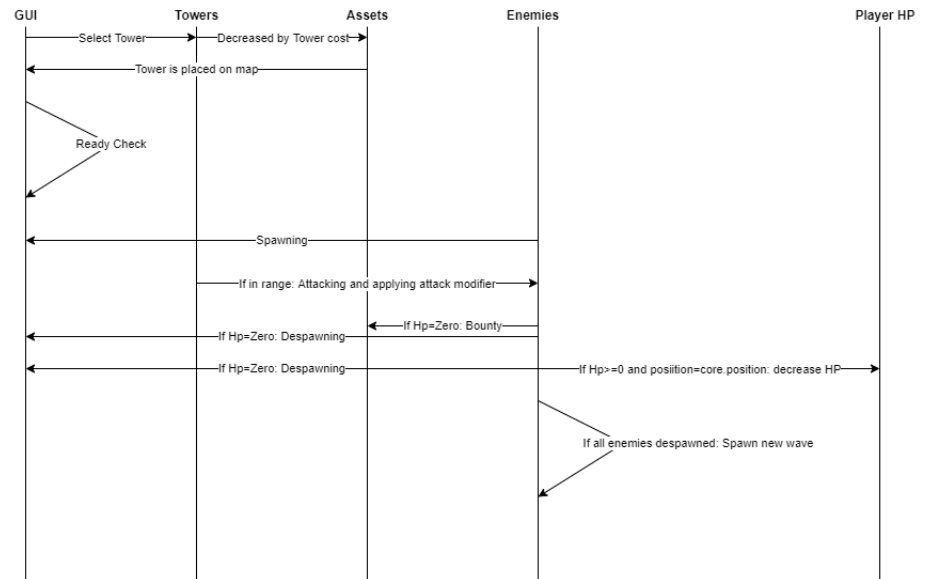
If all enemies despawned: Spawn new wave

Figure 3: As the user can interact freely with the gui while beeing ingame we
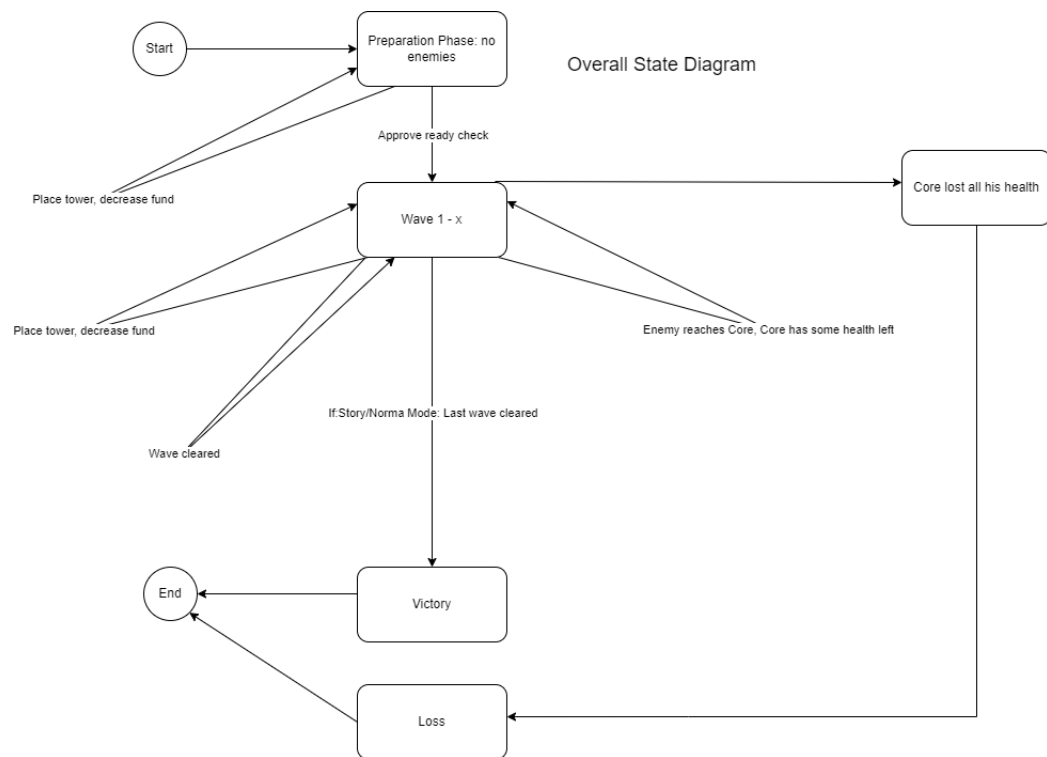present one possible flow of events for one wave of a level:

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Figure 4: State diagram for the completion of one level:

Menu and Game Selection

Awards (coming later)

Start Game

Profil (coming later)

Click

Click

Main Menu Page

Game Stats (coming Later)

Rang (coming later)

Click

Click

Click

Click

Click

Tower Menu

Select Game and Play

Ability Menu

Click

Click

Click

List of Tower

select difficulty

Gamemode Selection

List of Spells

Click

Click

Tower and Upgradewindows

Spells and Upgradewindows

Select the Gamemode or load the last saved game

Lose All Health from core / win the last wave

In the Game

Select and use Spell

Select and Place Turret

Click

Drag and Drop

Pause/Continue Game

Click

Ingame

Click

Start Wave

Click or ESC

Click

Back to Game

Click

Click

Menu

Leave the Game
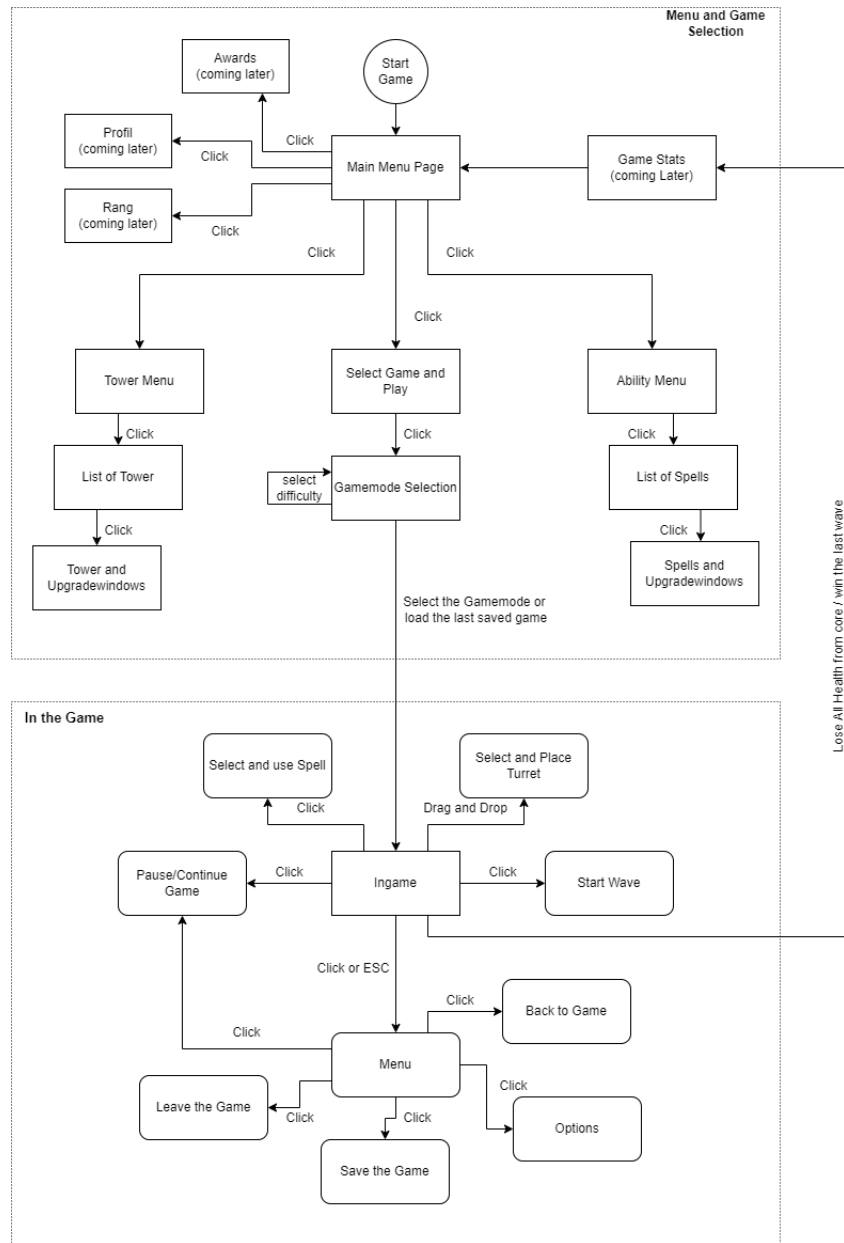
Click

Click

Click

Options

Save the Game

Figure 5: The process and different options in the game for the first version