

Design document for CHESSpecial

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Table of contents

Table of contents	2
1. Project description	3
2. Gameplay	3
2.1. Goal	3
2.2. Game mechanics	3
2.2.1. Placing chess pieces	3
2.2.2. Gaining coins	3
2.2.3. Chess pieces description	3
2.2.4. Bonus	4
2.3. Progression and challenge	4
2.4. Losing	5
3. Art Style	5
4. Music and sound	6
5. Technical description	6

1. Project description

CHESSpecial is a *Tower Defense* style 3D game where the goal is to destroy the opponent's fort by placing chess pieces in a checkered grid so that they can reach the other side of the board and weaken the opposing fort. It is a single player game, and the CPU will also place chess pieces that will attack the player's fort.

Each piece has its own attack, strength, power and range, and a cost requirement must be met before being able to place some piece. The forts also have a fixed amount of health points, and a level is over when the player destroys the opposing fort (victory), or when the player's fort is destroyed (defeat).

2. Gameplay

2.1. Goal

The goal of the game is to defend your fort from the opponent's chess pieces and destroy the opposing fort. Strategy skills are required to accomplish this, because you must plan which pieces to place on each position depending on the strength of the attackers approaching by a specific row.

The opposing fort has a fixed amount of health points. Once its damage is greater or equal than its health points, the fort is destroyed and the level is completed.

2.2. Game mechanics

2.2.1. Placing chess pieces

To place a chess piece, the player must select the type of piece they want to send to attack and click on the row where it must start its attack from. All pieces start attacking from the start of the row. To be able to place a piece, the player's coins must cover the cost of the piece they want to use, and they will be taken away once the piece has started its attack.

2.2.2. Gaining coins

The player is awarded with a fixed amount of coins for each second of gameplay. They will also start each level with a fixed amount of coins, and each opponent's destroyed piece will award coins as well.

2.2.3. Chess pieces description

Each piece has its own attack, strength, power, range and cost. The following table describes these characteristics¹.

¹ These are not final, some adjustments are likely to be made during development.

Piece	Attack	Strength	Power	Range	Cost
Pawn	Piece to piece	50	10	Melee	10
Rook	Arrows	50	8	Long	15
Knight	Piece to piece	100	15	Melee	30
Bishop	Spear	70	12	Medium	50
Queen	Big steps	80	12	Long	100
King	Piece to piece	60	20	Melee	150

2.2.4. Bonus

When a player's piece destroys an opponent's piece with a higher strength (for example, if a player's pawn destroys an opponent's bishop), there is a 50% chance that a fixed amount of coins is awarded to the player. This will be announced in the game as an accomplishment.

2.3. Progression and challenge

Initially, the game will have 5 levels, and in order to advance to the next one, the player must get a victory in the previous level.

Each level gets more complex, as the intensity in which the CPU attacks gets tougher. Health points for opposing forts also increase, so more effort is required to defeat the level. This means that the player must utilize their coins better, and forcing power-ups will become an important mechanic.

The size of the board also changes to increase the challenge. Here is the specifications for each level:

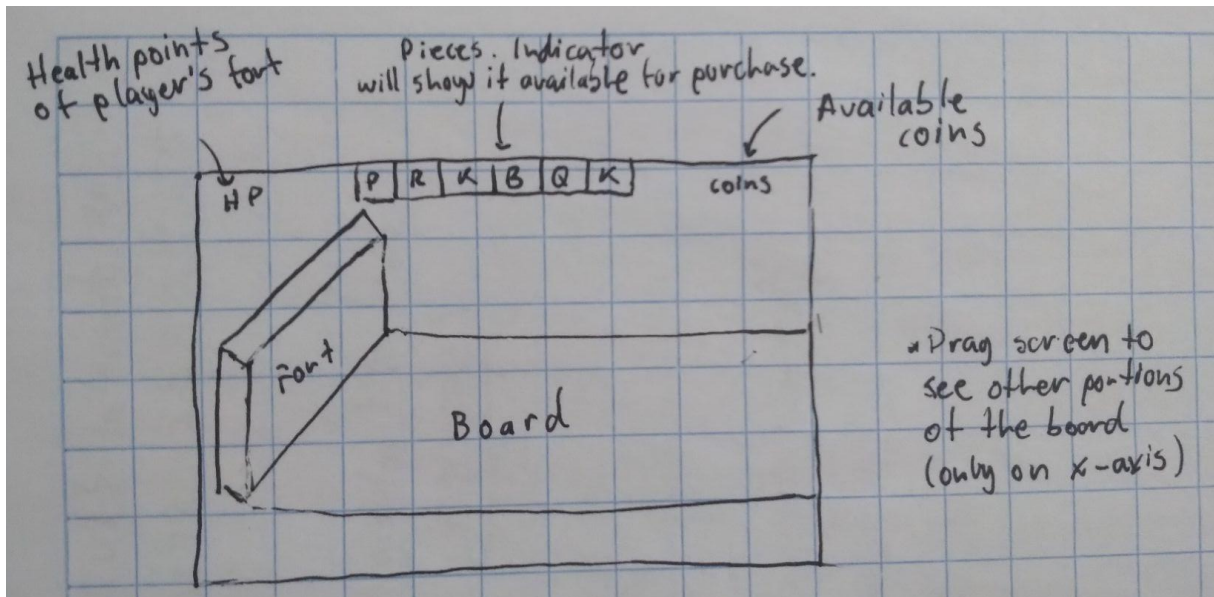
Level	Rows	Length
1	4	10
2	5	9
3	6	8
4	7	7
5	8	6

2.4. Losing

Players lose in a similar way that they win. Their fort also has a fixed amount of health points, when the damage dealt to them is greater or equal than their health points, the fort is destroyed and the level is failed.

3. Art Style

It is a 3D game, and the player will be able to navigate the board and change the perspective using the mouse. Here is a mockup of how the UI is intended to look like.



The pieces are typical chess shaped pieces. Here is the render of the pieces that will be used for the game:



The board and background will change color schemes depending on the level.

4. Music and sound

There will be a sound effect for every of the following events:

- New piece is placed
- Bonus is obtained
- Melee hit
- Medium range hit
- Long range hit
- Piece is destroyed
- Fort is dealt damage
- Fort is destroyed
- Victory
- Defeat

There will also be background music, classical music is the chosen genre ([example](#)).

5. Technical description

This game will be implemented using the Unity Engine, version 2019.4.34f1 LTS. The target platform is PC, more specifically Windows.

It is a 3D game that will implement some of the components that come integrated with Unity. Some of these include the Input System and Particle System.