

GENERAL PLAN

-Tower Defense Game-

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Description

The project is a tower defense game, much like Kingdom Rush. In this game, players must defend their base by tactically placing towers along a path to stop approaching enemies. The game will feature a graphical user interface (GUI) to make it user-friendly. The gameplay will include many progressively challenging stages, demanding that players change their strategies to a diverse array of enemies along with obstacles.

The game will be developed at a medium level of complexity, focusing on key features such as tower placement, enemy movement, resource management, and saving player progress. Additional features, such as advanced tower upgrades or special abilities, may be added later based on time and feasibility.

Functionality

The main functionalities of the game include:

1. Tower Placement & Upgrades

- The player can place towers at specific points on the map to attack enemies automatically.
- Towers can be upgraded to increase their attack power, range, or special abilities.

2. Enemy Waves

- Waves spawn enemies (e.g., grunts, armored units, bosses) with unique stats (health, speed, armor) based on their class in a predefined path.

3. Resources Management

- The player earns resources (e.g., coins) by defeating enemies and uses them to build or upgrade towers.

4. Player Progress

- The game saves the player's progress, including completed stages and stars earned based on performance .

5. Campaign Mode

- A series of stages with unique layouts and challenges, increasing in difficulty.

Draft User Interface

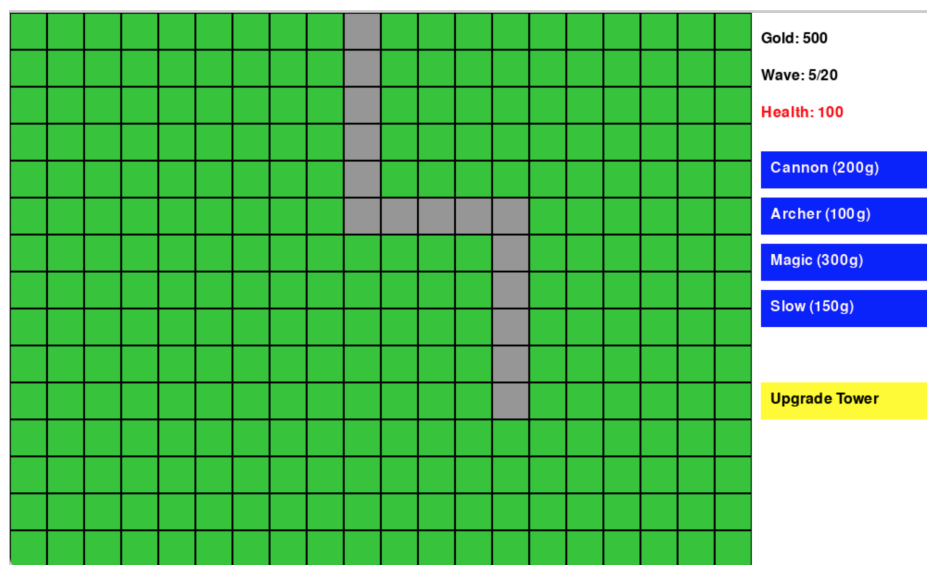
GUI components:

1. Main Menu

- Includes options for starting the campaign, continuing saved progress, viewing settings, and exiting the game.

2. Gameplay Screen

- The map showing the path enemies take and designated spots for placing towers.
- A sidebar or overlay displaying resources, current wave information, and remaining health of the home base.
- Buttons for selecting and upgrading towers.



(Draft interface)

3. Pause Menu

- Allows the player to pause the game, adjust settings, or return to the main menu.

4. Victory/Defeat Screen

- Displays results of the stage, including stars earned and total resources collected.

Input & Output:

- The player interacts with the game using a mouse or keyboard for commands (e.g., tower placement, upgrades).

- The program outputs messages on-screen, such as wave countdowns, error notifications (e.g., insufficient resources), and success/failure messages.

Files

1. Progress Files

- Saves the player's campaign progress, including completed stages and stars earned.

2. Configuration Files

- Stores settings such as sound volume, screen resolution, and control preferences.

3. Game Data Files

- Includes predefined enemy wave patterns, tower stats, and stage layouts.

4. Graphics and Assets Files

- Contains images, sounds, and animations used in the game. These files will be loaded dynamically at runtime to ensure efficient performance.

Errors

1. Insufficient Resources

- If the player does not have enough resources to build or upgrade a tower, a warning message will appear.

2. File Errors

- Missing or corrupted save files: The game will prompt the player to start a new campaign or reconfigure settings.
- Missing graphics or assets: The program will display a placeholder image or error message.

3. Unexpected Input

- Any unexpected input (e.g., clicking outside the map) will be ignored, with no impact on gameplay.