

Nunki - Tower Defense Game Demonstration

CS 467 Online Capstone Projects
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Instructions! (Super Quick Version!)

Open Chrome! Play the game at <http://3.91.212.9:3000>

Objective:

Build pirate towers to stop the dinos from stealing all your treasure!

Each dino that makes it to the end makes you lose a life!

Each dino defeated gives you gold!

Instructions:

Land that is not the dino path or occupied by palm trees or sand is buildable.

Double click buildable land to open the build UI at the bottom of the screen.

Select a tower from the tower menu and it will be added to the tile.

- Musket towers do the least damage with the fastest rate of fire.
- Cannon towers have medium damage and attack speed.
- Cabin towers do the most damage but have the lowest attack speed.

Camera Controls:

Rotate: To move the camera hold the left mouse button and move the mouse to change the rotation of the camera. If you're using a phone, use one finger to rotate the screen.

Pan: To pan the camera, hold the right mouse button or hold control with the left mouse button and move the mouse. On mobile, use two fingers to move the screen view.

Zoom: Use scroll to zoom in and out. Or pinch in and out to change the zoom on a touch-enabled device!

Saves:

The game is automatically saved after each wave.

If you exit and want to continue where you left off, choose load from the start menu.

To play a new game, choose start from the home screen.

Have fun!

Instructions! (Long Version)

Usage and Gameplay

Starting the game locally

Unzip the attached file and using the terminal inside of nodetest, run:

```
npm install  
npm start
```

This will start a version of the game that is accessible by the browser if you go to localhost:3000.

Starting the game through the hosted website

Follow the link provided (<http://3.91.212.9:3000/>) which will take you to the Menu Screen.

Objective

The objective of the game is to build various pirate towers that shoot projectiles to stop dinosaurs from getting to the end of their path.

Controls

To make a selection using mouse/pad/touchscreen:

- Click to press buttons (All Screens)
- Double Click to select a location on the map (Play Screen Only)

To change your view using mouse/pad/touchscreen:

- Click, hold, and drag to change perspective (Play Screen Only)
- Scroll/Pinch to zoom in and out (Play Screen Only)

Menu Screen

On the menu screen, you have two options available:

1. Start a New Game Button
2. Load a Game Button

*Clicking **Start Game*** will start a new instance of the game at level 1. *Clicking **Load Game*** will load your score (coins, lives, wave, level, towers) from the last successfully completed wave. Load Game will start a new game if you have not successfully completed a wave before. Clicking either option will direct you to the Play Screen, where the game is played.



Image: Menu Screen

Play Screen

There are several key components of the Play Screen:

1. Status Bar
 - a. Coins
 - b. Lives
 - c. Waves
 - d. Level
 - e. Sound Button
2. Wave Countdown Timer
3. Map Grid
 - a. Non-Buildable Land
 - b. Buildable Land
4. Build Tower Bar
 - a. Musket Tower Button
 - b. Cannon Tower Button
 - c. Cabin Tower Button
 - d. Exit Button
5. Towers
 - a. Musket Tower
 - b. Cannon Tower
 - c. Cabin Tower
 - d. Radius
 - e. Projectiles
6. Dinosaurs
 - a. Oviraptor
 - b. Velociraptor
 - c. T-Rex
 - d. Health Bars
7. Waves

The **Status Bar** is located at the top right of the Play Screen. It is always visible during play. It will show you how many coins and lives that you currently have, as well as your current level and wave. Additionally, within the Status Bar is a button that allows you to toggle the background music between on and off.

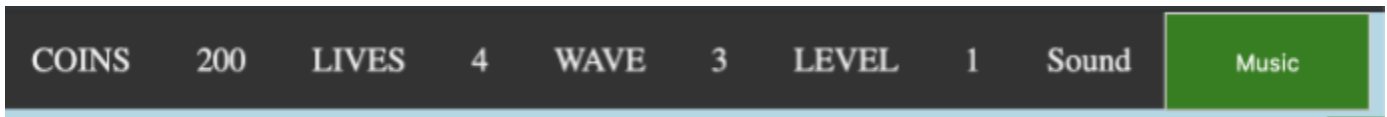


Image: Status Bar

Just below the Status Bar toward the middle of the screen is the **Wave Countdown Timer**. The Wave Countdown Timer displays when the next incoming wave is about to start. The Wave Countdown Timer will also announce the start of each wave by displaying “Wave <value> Incoming!” At the start of each level, or if you are returning to the game through Load Game, you are given additional time to build towers (approximately ten seconds). The Wave Countdown Timer will display “Get Ready” before beginning to countdown to the next upcoming wave during this this ten seconds. If you happen to make it to the last wave of any level, the Wave Countdown Timer will display “Stay Alive!” - let’s hope you make it that far!

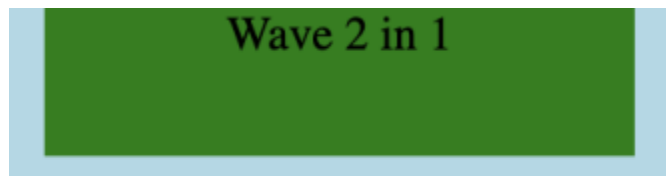


Image: Wave Countdown Timer

The **Map Grid** is the primary playing space of the game. The map will change between levels as you progress through the game. There are two categories of spaces on the Map Grid, **Non-Buildable Land** and **Buildable Land**. Non-Buildable Land are spaces on the board that are occupied by the environment (trees, caves, sand, water), towers, or the path taken by Dinosaurs. You will not be able to build new towers on Non-Buildable Land. Buildable Land are green spaces not already occupied by the environment, towers, or path. By *double clicking* Buildable Land you will see the Build Tower Bar appear at the bottom of the screen. Initial perspective of the Play Screen is set to nearly the center of the Map Grid. Zoom out and change perspective to see the vibrant, lego-reminiscent textures and colors of the environment. You should notice the palm trees swaying in the wind.

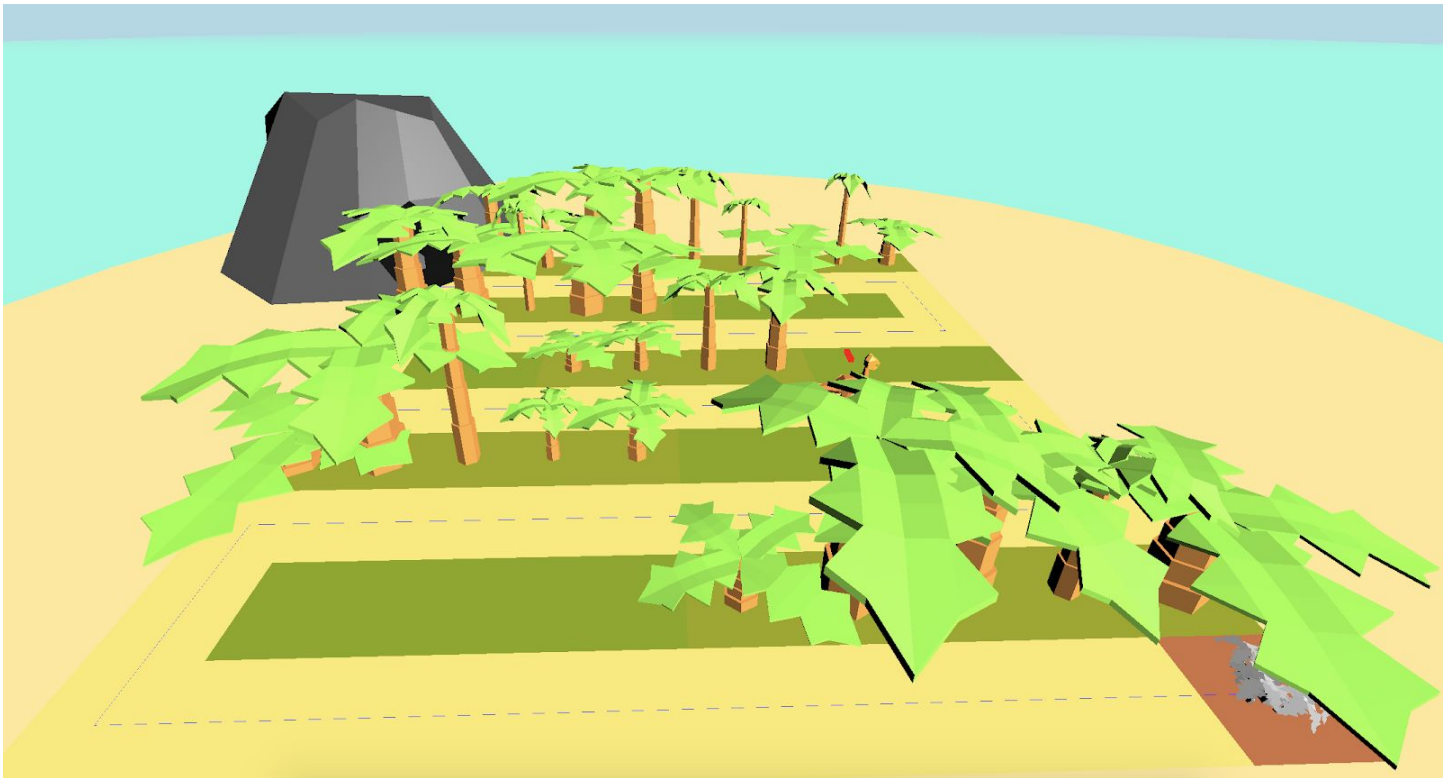


Image: Map Grid Level 1

The **Build Tower Bar** will allow you to choose which towers to build at a given space and only appears when you *double click* Buildable Land. The Build Tower Bar is composed of four buttons; **Musket Tower Button**, **Cannon Tower Button**, **Cabin Tower Button**, and the **Exit Button**. Tower buttons allow you to build the given tower in the space that was double clicked. If you do not have enough coins to build a given tower, that particular button will not be available. If you do not have enough coins to build any tower, you will only be able to click the Exit Button. Buttons will become available if you gain enough coins while the Build Tower Bar is open. By *clicking* a tower button within the Build Tower Bar, the given tower will be built at the specified space on the Map Grid, the space will become Non-Buildable, and your coins will decrease accordingly. If you do not wish to build at the specified location, you will need to *click* the Exit Button.



Image: Build Tower Bar; Cabin Tower not Buildable

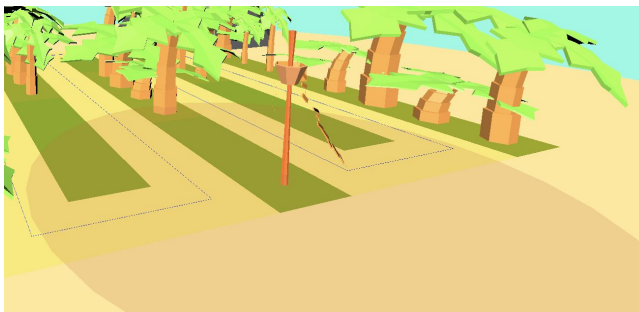
There are three types of towers: **Musket Tower**, **Cannon Tower**, and **Cabin Tower**. Each cost different amounts of coins to build, have different attack power, and different radius size. The Musket Tower has the largest radius, cost the least to build, and weakest projectile. The Cannon Tower has a medium radius, cost more than the Musket Tower to build, and has a projectile strength

between the Musket Tower and Cabin Tower. The Cabin Tower has the smallest radius, cost the most to build, and has the strongest projectile.



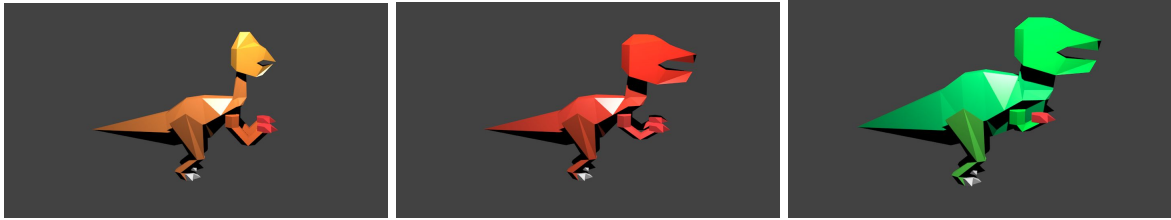
Image: Cabin Tower (left), Cannon Tower (middle), Musket Tower (right)

Each tower's **Radius** is visible on the Map Grid. When a dinosaur is within the radius, the tower will shoot its **Projectile** toward it. Projectiles decrease a dinosaur's health bar.



Images: Tower with radius (left), Dino with health bar (right)

Dinosaurs move along the path on the Map Grid toward your treasure during each of the waves. They will spawn at the entrance to their cave based on the wave. There are three dinosaurs; **Oviraptor**, **Velociraptor**, and **T-Rex**. Each type has unique stats, including movement animation. The Oviraptor has the least amount of life, but moves the fastest. The Velociraptor is much sturdier than the Oviraptor, but moves a bit slower along the path. In fact, you might even see Oviraptor run right past a Velociraptor. The T-Rex will appear much later in each level, but as the strongest of the group, it is a formidable opponent.



Images: Ovi (left), Velociraptor (middle), T-Rex (right)

Another key element for each dinosaur is its **Health Bar**. This is a red bar above its head to indicate its remaining health. As its health decreases, the health bar will shorten. Once its health bar reaches zero, the dinosaur is eliminated from the path and you will gain additional coins to continue to build. As a dinosaur reaches the end of the path your Lives will decrement by 1.

As mentioned, Dinosaurs will appear in **Waves**. You'll know a new Wave is approaching based on the Countdown Timer. If you manage to live through the wave, your stats and towers will be saved so you may return to the start of the proceeding Wave via the Lose Screen or Menu Screen if you were to lose all your lives or navigate away from the page in your browser before the next wave finishes.

If you successfully reach the end of the final wave of Level 1 and 2 without losing all your lives, you will be taken to the next level, where a new map will be loaded into the Map Grid. During the transition you will see a blue box momentarily spin as the next level loads. Once loaded, your stats within the Status Bar will update to the new level's settings. You begin each new level without towers, full lives, and a certain amount of coins.

If you successfully reach the end of the final wave of Level 3, the entire Map Grid and Status Bar will be removed and you will be taken to the Credits Screen.

If your lives reach zero, you will be taken to the Lose Screen.

Credits Screen

Once you reach the **Credits Scene**, the credits will roll across the screen over approximately 35 seconds, at which point you will return to the Menu Screen. The credits are similar to the Star Wars intro, so the text will start from the bottom and move away from you at an angle. Our blue friend in the middle of the screen provides additional depth and spins as the credits roll.

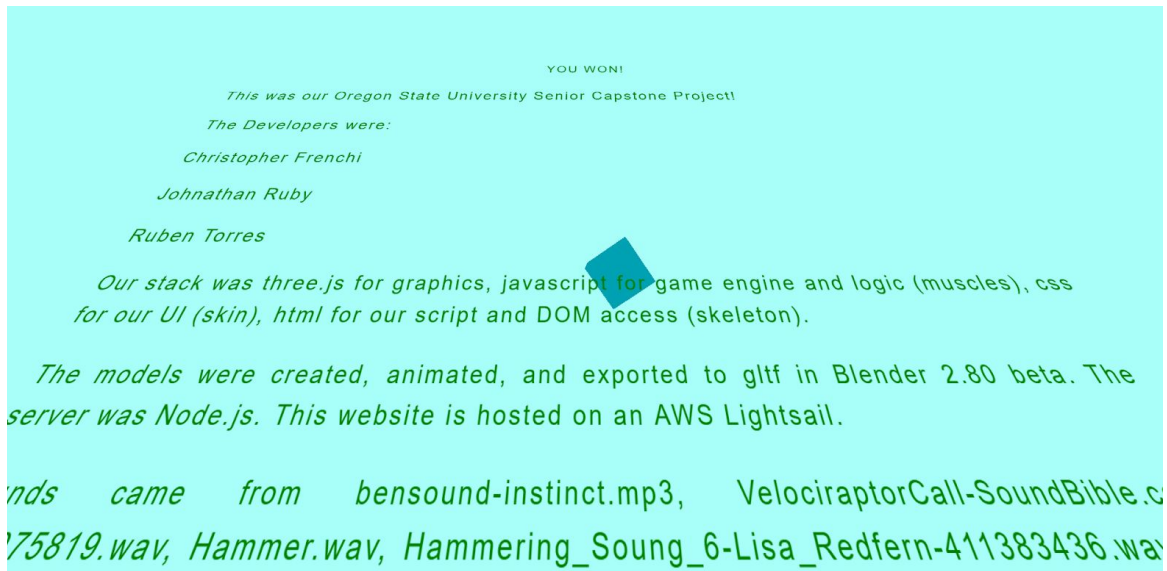


Image: Credits Screen

Lose Screen

If your lives reach zero, the camera will pan in to provide you with two options:

1. Load Game
2. Return to Menu

By **clicking Load Game**, the game will return to the end of the last successfully completed wave before you ran out of lives. By **clicking Menu**, you return to the Menu Screen. While on the Lose Screen, you will continue to see (and hear) Dinosaurs move along the path until you click Load or Menu.

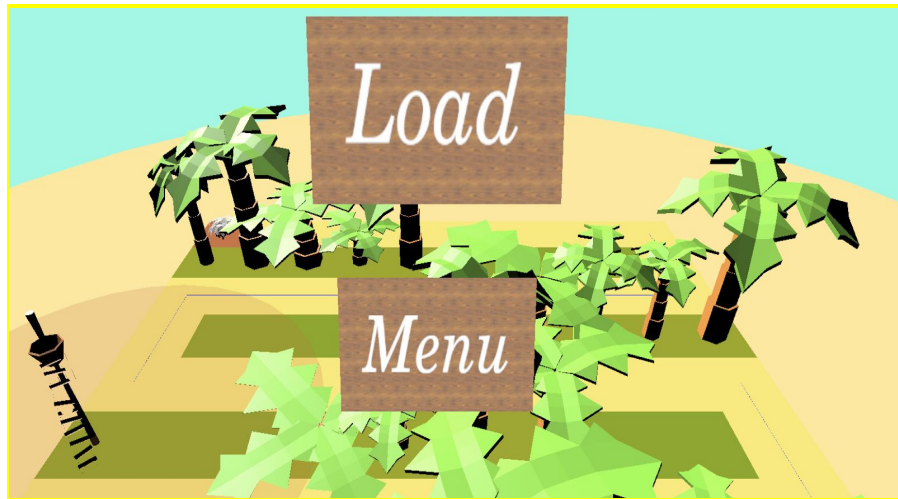


Image: Lose Screen