A Short Climb

CSCI/CITA280: Game Programming
Thomas Marshall, Alex Tate-Moffo

Sections

Gameplay Overview

A Short Climb is a 2D vertical platformer. The player, a small mouse, starts at the bottom of a large tree and must reach the top. The player will have to dodge enemies that patrol platforms and fly between them. There are optional items the player can collect called nuts. If the player collects all of the nuts, they get a different ending. There are mushrooms the player needs to bounce on to make it to higher platforms as well as spiders that act as vertical and horizontal moving platforms. The game keeps track of the current run's time so the player can see how fast they complete it.

Controls

Menu Controls:

- Use the up arrow key/down arrow key or W/S to go up and down on the title screen. The game supports Xbox controller support, so up/down on the left stick can also be used to navigate.
- By pressing enter or space on the keyboard, or the A button on the Xbox controller, the user can click the current button. The user can also use their mouse to select a button.

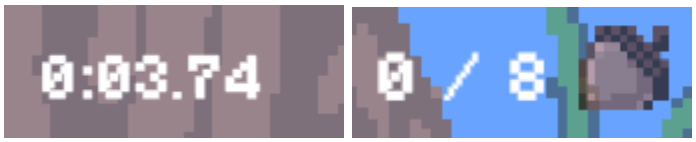
Main Game Controls:

- Move left and right by either the A/D, left/right arrow keys, or left and right of the left Xbox joystick.
- Jump with the spacebar on the keyboard or A on the controller.
- Press Escape on the keyboard or Start on the Xbox controller to pause/unpause the game.
- Bounce on mushrooms by jumping on them.
- Collect nuts by running into them.

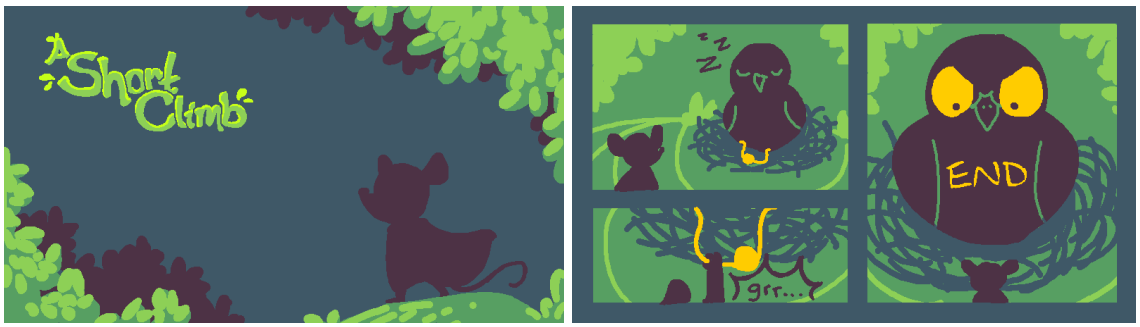
Art Style

A Short Climb has a simple 2D pixel art visual style. Each object sprite and tile is 16x16 pixels, with the exception of the spider sprite that is 32x16 pixels (two tiles). All animations consist of either a single still frame or two alternating frames. This size was chosen in order to keep the art and animations simple but still readable. Additionally, the tree graphic in the background was created to match the size of the tiles being used.

The numbers in the UI reflect classic game text with blocky integers and no smooth, diagonal lines. There is a timer of the top left and a counter on the top right representing how many nuts have been collected.



The menu screens and cutscenes use a pixelated style with a reduced color palette in order to fit with the style of the sprites, although the pixels there are a different size.



Prototype

Questions:

Our primary question in coming up with our prototype was, “How should obstacles be laid out in the level in our platformer level, such that the level makes sense to navigate vertically?”. Additionally, this question fed into some other smaller questions, such as “How long should the level be?”, “What types of obstacles should we include?”, and “What movement abilities should the player have to navigate these obstacles?”.

Our Prototype:

We decided the best way to answer these questions was to sketch out a mock level layout and play with the different elements and their locations, before we actually move on to code. Our level prototype is a digital sketch which depicts a large tree, serving as the context for the upward movement of the level. The tree is divided into five “stages,” which will essentially function as checkpoints from which the player cannot fall down from, and features the player (for scale), two different enemy types, two types of moving platforms, one type of pickup item, and a goal location (potentially the location of a boss).

What We Learned:

Our prototype did serve to answer our questions well, we believe. In laying everything out, it was easy to tell that, in order to keep the level relatively short, player movement needed to be fairly restricted. Otherwise, we would have to compensate for different movement abilities and lengthen the design for a greater difficulty curve. Additionally, the prototype helped us to settle on the different types of obstacles, since we had to come up with a way to progressively introduce them that was not too challenging or confusing to the player.

(see prototype below)

A Short Climb - Level Prototype

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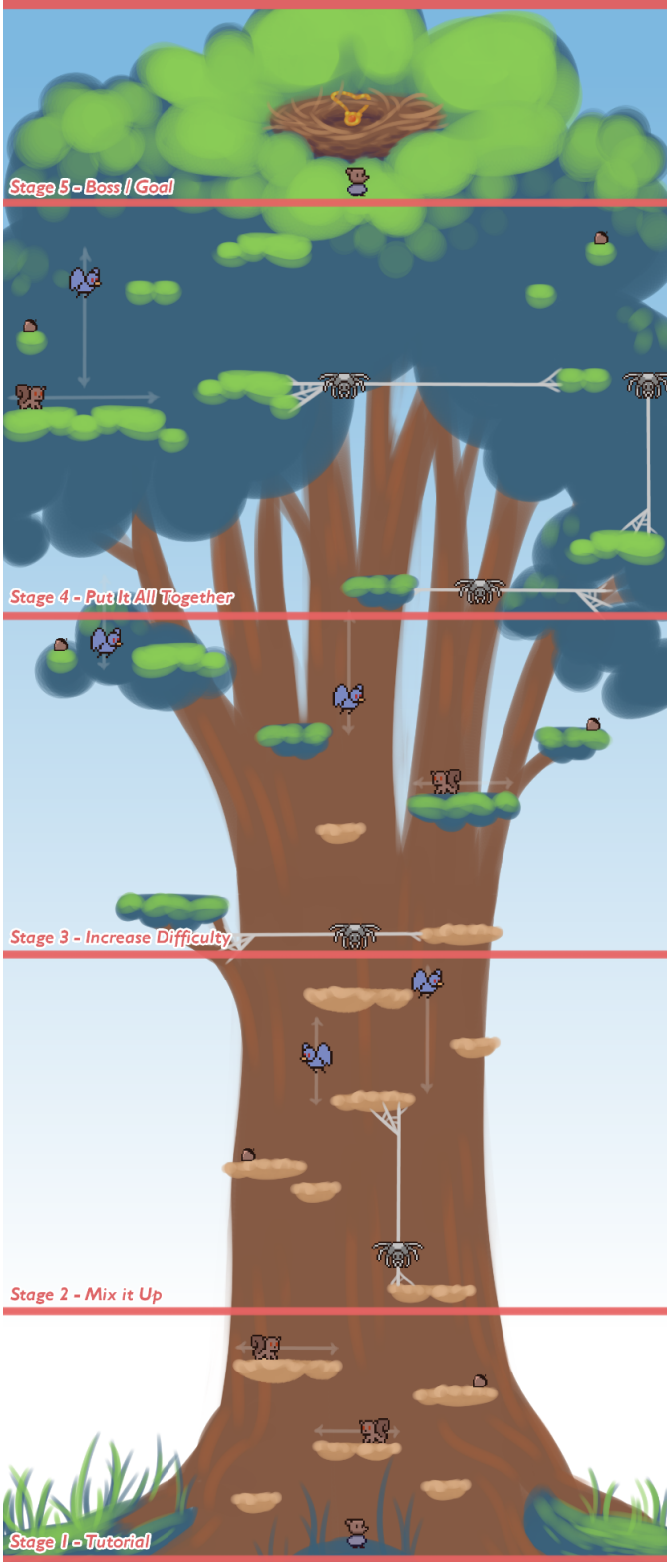

References

The YouTube videos we used as references in this were purely for the functionality and features on display, not to copy the game being created. There were also parts of the tutorial we did not use but explained implementations of features we had already done on our own, such as respawning, item pickups, or player movement left/right, or features that we had already covered in class, such as animation.

Jumping:
https://www.youtube.com/watch?v=1bHVsxw_o7o&list=PLfX6C2dxVyLw5kerGvTxB-8xqVlNe85gw&index=3&t=233s

Tracking Camera:
https://www.youtube.com/watch?v=G5YmvWdW9oo&list=PLfX6C2dxVyLw5kerGvTxB-8xqVlNe85gw&index=7

Tile Mapping:
https://www.youtube.com/watch?v=Ix5W-yfHrhY&list=PLfX6C2dxVyLw5kerGvTxB-8xqVlNe85gw&index=6

Patrolling Enemy:
https://www.youtube.com/watch?v=rHmCYf1EgdI&list=PLfX6C2dxVyLw5kerGvTxB-8xqVlNe85gw&index=9

Xbox Controller Support:
https://answers.unity.com/questions/1350081/xbox-one-controller-mapping-solved.html

Asset Credits

FONTS

Minecraft
Copyright: Craftron Gaming
Downloaded from: https://www.dafont.com/minecraft.font

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SFX

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