Pixel Path
Software Engineering Comp 4110
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Pixel Path

The Road To Code

The Problem

- Software Development is a field that is always changing.
- Not many schools provide a good program to teach these topics to younger students.
- Not many tools in the field are directed towards children.
- Young kids don’t have access to a simple way to learn programming.

Pixel Path Overview

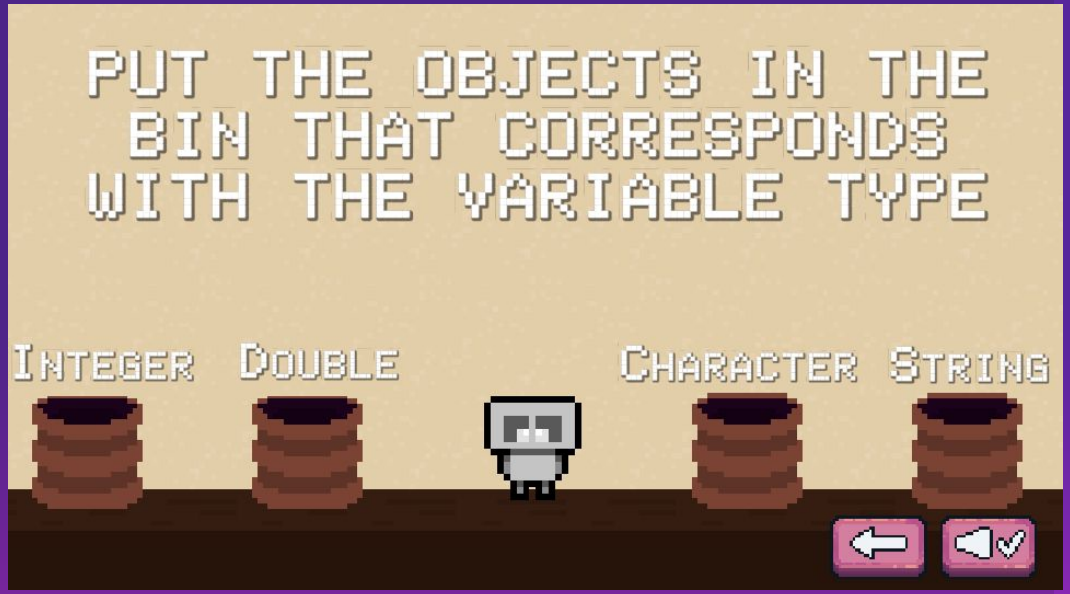
- A game designed for kids in the 4th-8th grade.
- A game where the player will follow a small pixelated robot and learn new concepts as they complete levels.
- Its goal is to encourage kids to explore and learn more about the fundamentals of coding. They will learn concepts such as data types, loops, and simple functions.
- The game consists of a group of mini-games where upon completion, new mini-games will unlock and rewards will be distributed.

Map of game

Our game map is the visual highlight of the game. Designed by our developer Kristina, the map is what holds each game and brings it all together.

Sorting Game

This game sorts values into buckets that represent variable types. The player then has to sort each value into its proper variable type.



Character Customization

The game also allows you to customize your character. Right now you are able to change the color of your character, with other accessories to be added in the future.

Domain Research

- Researched Unity and C# for design purposes and Git.
  - Implementing Pixel Path involved the use of Unity's software and the C# programming language.
  - We needed a system to hold all the project files while also allowing us to push updates out to all the group members, and thus we ended up using Git
- Research of Computer Science topics
  - All of the info used to create the elements to be taught came from our schooling at Umass Lowell.

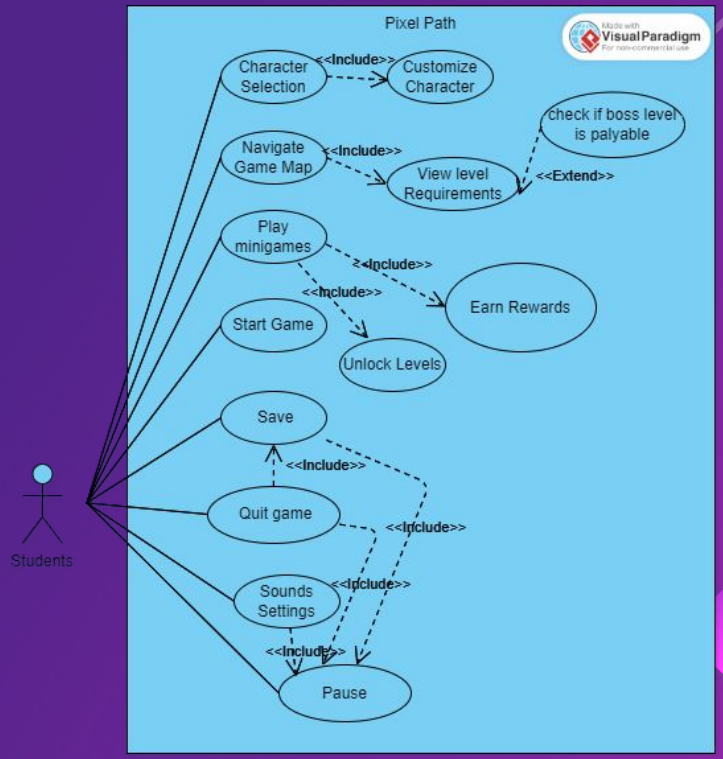
Constraints

- Hardware Constraints
  - Needs a Windows OS
  - Needs at least 4GB of RAM
- Software Constraints
  - C#
  - Javascript
  - Unity
- Internal Constraints
  - Scheduling
  - Time

Use Case Diagram

This diagram represents the different functions of the program and how they interact with each other.

- **Navigate Map**
- **Play Game**
- **Select Character**



Part III: Demonstration

Scenario 1

The player is presented with 3 options on the start screen. The player wants to play the game so the player presses the start button and is brought to the game map. The player navigates the character to the level 1 block with the arrow keys and starts the game with the E button. The player can then play level 1 which is the sorting game.

Scenario 2

The player wants to change the appearance of the window so the player presses the options button and selects either windowed or fullscreen mode. The player also thinks the sound is too loud and lowers the volume with the slider.

Future

- More concepts
  - Recursion
  - OOP
  - Pointers
- More Customization options and accessories for characters
- Boss Levels

Acknowledgements

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- A special thanks to Dr. Daly as well!

Thank you!

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