Able Amigos - Multiplayer Puzzle Project

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Game Design 2

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Overview

The two Able Amigos are trapped in a perpetual puzzle world and need your help to escape! Working together, the Amigos must reach the escape door by pressing buttons that open doors along the way, absorbing energy that allows the Amigos to grow and shrink to reach new places, and dodging dangerous goop that can cause them to perish. At the end of each level, the two Amigos are transported to a new level, getting closer and closer to the end of the puzzle world. Together, the two of you will face many challenges, but with teamwork, you can overcome them and go home!

Able Amigos

Press space to Continue
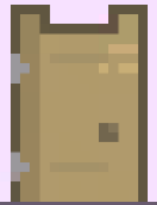
Genre

Our game is a 2D puzzle platformer that focuses on teamwork between two players. There are four levels in total, each teaching the players a new mechanic, such as CYCLE GROW, FORCE SHRINK, or exchanging power pellets. The player will have to use their previous knowledge of the game mechanics to complete each level.
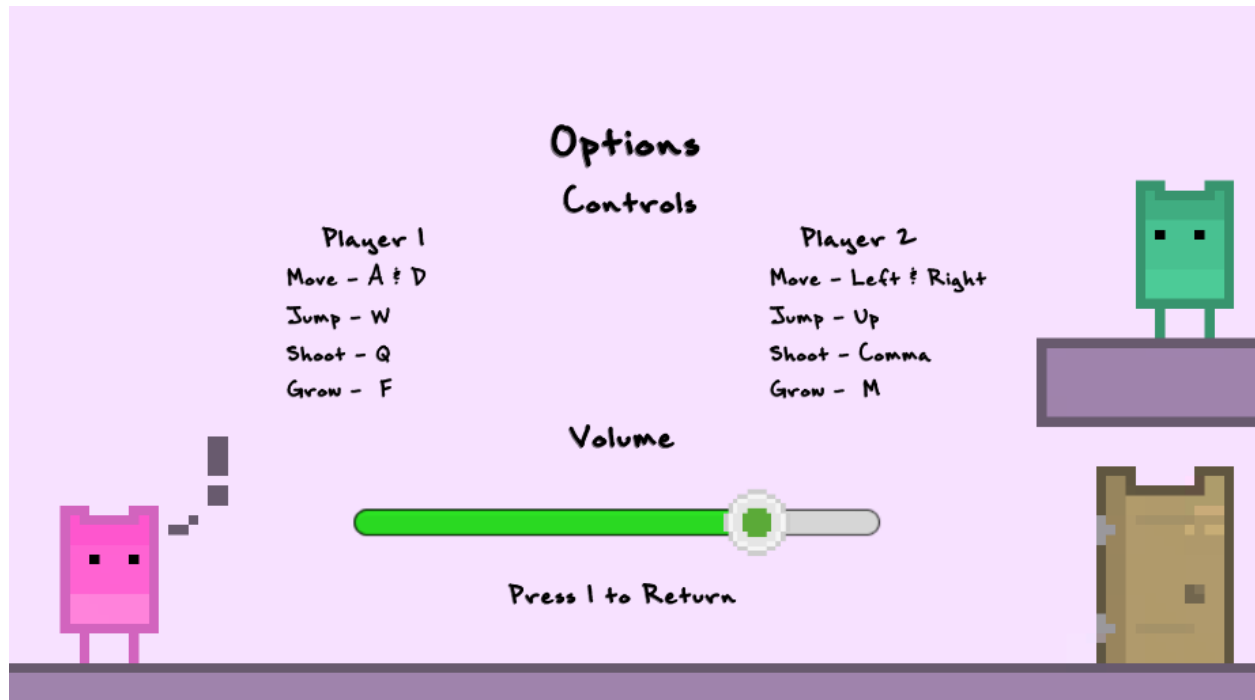
Goal

The overall goal of the game is to complete various levels with the help of another player. The levels require the players to utilize the Grow and Shrink mechanic strategically. Some levels require the players to strategically share energy through small spaces, so one player can reach buttons that unlock other areas of the level. Others require players to distribute their food properly so they can press elevated buttons at the same time.

Theme & Visual Aesthetics

The game will have pixel art graphics similar to the art in Pico Park. The levels will also take inspiration from the game Fireboy and Watergirl, using similar platformer puzzler mechanics, with hard-to-reach buttons and a goal door that the players must reach.

P1: press F to grow :]
P2: press M to grow :)

track your growth energy
in the top left and right
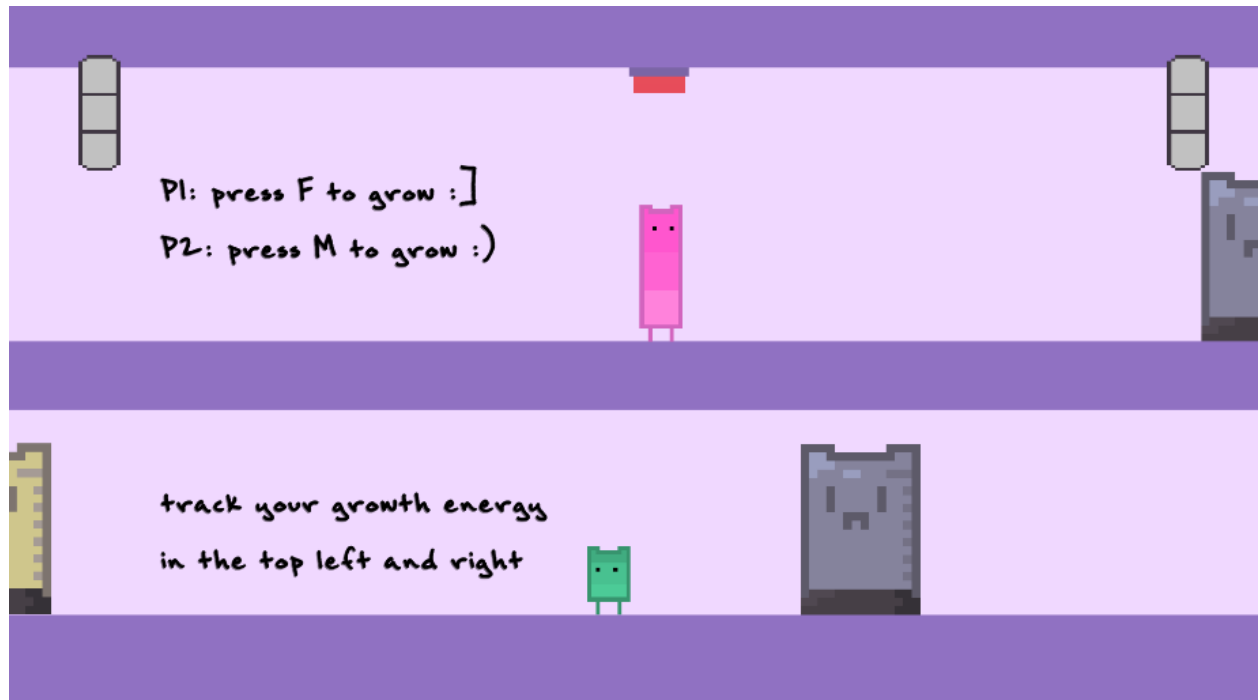
For the UI, we have a start screen with options to play, exit, or enter settings. In settings, the player can change the volume for sound effects and background music, and the player controls are displayed in the background. We will also have a level selector that the player can choose levels from. The level the player is hovering over will grow slightly to show which one they are touching.

Options

Controls

Player 1
Move – A & D
Jump – W
Shoot – Q
Grow – F

Player 2
Move – Left & Right
Jump – Up
Shoot – Comma
Grow – M

Volume

Press 1 to Return

Level Select

1 2 3 4

To create the art in our game, we will use tilesets, since they allow for efficient level creation and quick testing of our puzzle design. We used the program Aseprite to create these tilesets and the animated sprites.

Sprite Design
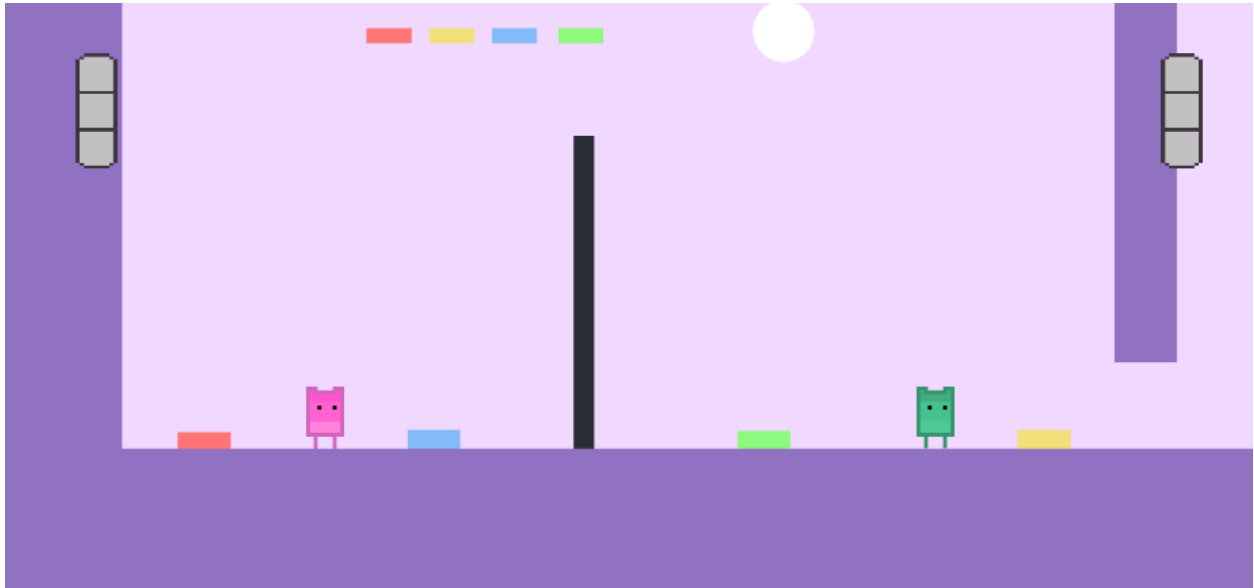
The sprites and color of our game follow a cuter and pastel aesthetic. The colors are bright and warm, and even our characters are small and pixelated. The game is supposed to give off a fun and happy vibe, rather than a riveting challenge. This is also shown in the length of our levels, which are supposed to be small challenges with a friend, instead of a long expansive world.

Level Design

Puzzle Mechanics

Level design will be one of the main focuses of our game. In each level, there will be various cooperative puzzles that the players can only complete if they work together. For example, the players may have to press buttons simultaneously or move boxes together. Completing these puzzles will allow the players to advance throughout the level to reach the end.

Mechanic	Description
Grow and Shrink	Throughout the level, there are energy orbs that the player can pick up. These energy orbs enable the player to grow, increasing their height. The player can grow

Cycle	2 times. On the third time, they shrink, resetting all of the food they have in their possession. Players can share food by firing it at each other, so different players can be taller throughout the levels.
Buttons	Require players to co-operate by pressing buttons simultaneously or in a certain order. Buttons may be separated between players, causing them to work together to press them in the correct order/ at the same time. Players may have to grow and/or shrink to reach buttons in certain places.
Moving Platforms	Levels feature platforms that move depending on whether the player is on the platform (or how many players are there). The players would have to move these platforms into places where they can jump from one larger platform
Breakable Platforms	These work with the grow mechanic and break if the player grows under the breakable platform. Players must share energy to get out of spaces by breaking these blocks.

Hazards & Enemies

There will be various hazards and a patrolling enemy in the game that (when hit) causes the players to have to restart a level. If one player dies (pops), then both die (pop). When the player has to restart there will be no death screen, but instead, all players will respawn at the beginning of the level.

Hazard	Description
Radioactive Goop	If the player touches the goop, they will pop and have to restart the level.
Pit	If the player falls in the pit, they will pop and the level will be restarted.

Mechanics/Controls

To start our game will just support a keyboard for each player. Each player will have the same basic movement options, but other controls/mechanics based on power-ups will be added throughout the level. The game will be operated by one keyboard and one controller (one player using the keyboard and the other using the controller).

Mechanic	Description	Player One Binding (Arcade Cabinet / Keyboard)	Player Two Binding (Arcade Cabinet / Keyboard)
Movement	Moves the player horizontally.	Joystick 1 / WASD	Joystick 2 / Arrow Keys
Jump	Gives the player a vertical boost.	Button 1 / Space	Action 1
Fire	Push-button or other interactives.	Button 2 / E	Action 3
Grow	Use whatever power-up is currently enabled.	Button 1 / Q	Action 2
Pause	Pauses the game and allows the player to go back to the menu.	2	2

Local Multiplayer Management

The game will be a local 2-player multiplayer game. The players use either one keyboard with bindings on opposite sides of the keyboard or the arcade machine attachment that can be plugged into a computer. This is accomplished by implementing both standard keypresses and the keyboard mappings from the arcade machine in the player code.
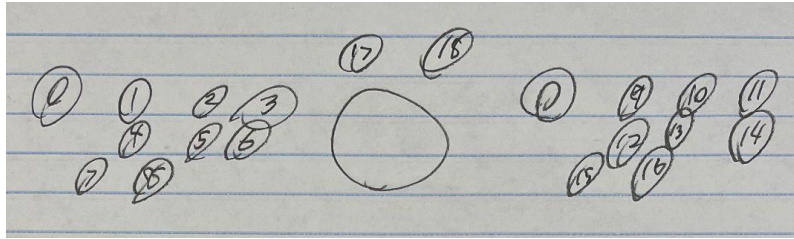
Fire 1 (Player 1)
Fire 2 (Player 1)
Fire 3 (Player 1)
Fire 4 (Player 1)
Fire 5 (Player 1)
Fire 6 (Player 1)
null
Button - Coin 1
Fire 1 (Player 2)
Fire 2 (Player 2)
Fire 3 (Player 2)
Fire 4 (Player 2)
Fire 5 (Player 2)
Fire 6 (Player 2)
null
Button - Coin 2
Button - Player 1 Start
Button - Player 2 Start

Sound Design

Our game utilizes more upbeat retro sounds to fit with the pastel background and cute aesthetic. The sound cues are important feedback for the player, since depending on if they hit a wall, or another player with their power pellet, a different sound cue will play.
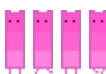
We used various free online sound packs and libraries (ZapSplat, Kenney.nl, Mixkit).
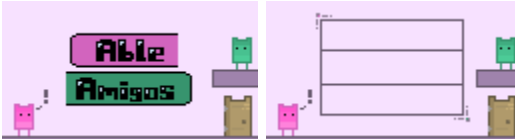
Mechanic	Source
Button Press	"click5' - https://kenney.nl/assets/ui-audio

|	
Pellet Shoot	"Game Ball Tap" - https://mixkit.co/free-sound-effects/game/?page=2
Door Unlock	"switch4" - https://kenney.nl/assets/ui-audio
Pellet Collect P1	"PepSound3" - https://kenney.nl/assets/digital-audio
Pellet Collect P2	"PepSound5" - https://kenney.nl/assets/digital-audio
Key Collect	"powerUp2" - https://kenney.nl/assets/digital-audio
Final Door Unlock	"DoorOpen_1" - https://kenney.nl/assets/rpg-audio
Pellet Warping Back to Player	"PhaserDown1" - https://kenney.nl/assets/digital-audio
Grow Sound P1	"High Pitched Cartoon Pop 2" - https://www.zapsplat.com/music/high-pitched-cartoon-pop-2/
Grow Sound P2	"High Pitched Cartoon Pop 1" - https://www.zapsplat.com/music/high-pitched-cartoon-pop-1/
Jump	"Cartoon bounce, boing, spring or twang" - https://www.zapsplat.com/page/3/?s=boing&post_type=music&sound-effect-category-id

Sprite Index

Sprite Name	Picture

Game Mechanics	
Block (happy & sad)	
Button	
Door	
Key	
Pellet	
Player 1	
Pop	
Walk g0	
Walk g1	
Walk g2	
Jump	
Static g0	
Static g1	
Static g2	
Player 2	

Pop	
Walk g0	
Walk g1	
Walk g2	
Jump	
Static g0	
Static g1	
Static g2	
UI	
Exit Button	Exit Exit
Options Button	Options Options
Start Button	Start Start
Main Menu Screen	Able Amigos
Empty Pellet Bar	
Green Pellet Bar	

Green Pellet Bar	
Level Select Button	
Tiles	
Half Tiles	
Tiles	

Technical References

Article / Video Name	Link
Board To Bits Games **Better Jumping with 4 Lines of Code**	https://www.youtube.com/watch?v=7KiK0Aqtmzc
Board To Bits Games **Better Jumping in Unity: Optimizations**	https://www.youtube.com/watch?v=acBCegN60kw
Pause Menu in Unity	https://www.youtube.com/watch?v=JivuXdrIHK0