Maze Time! - Game Documentation

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The Game

Maze Time! is a short game where the players can create their own maze and then explore it with the help of Shaon, the playable character.

Picture 1: Playable character - Shaon

The game has 3 scenes: the intro scene, the maze generation scene and the maze exploration scene.

1. Intro Scene

This is a very short scene which only shows the title of the game and the option to advance to the next scene, the maze generation scene.

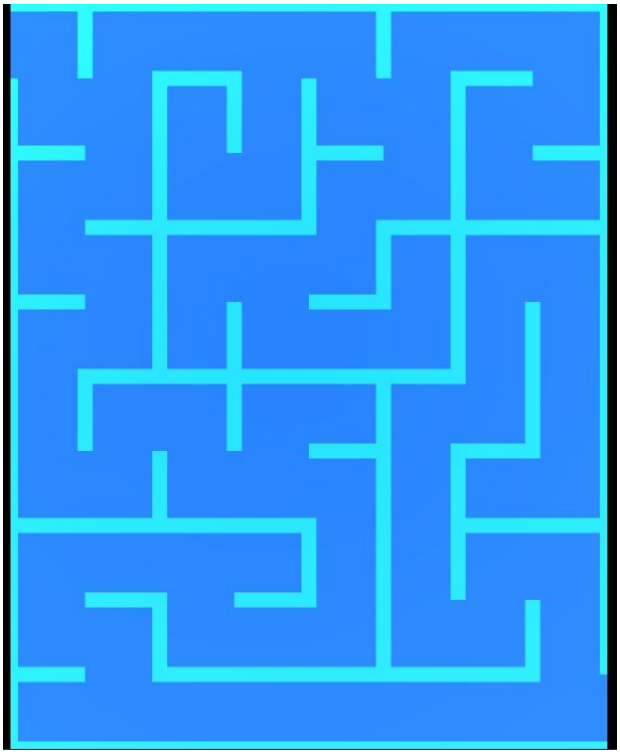
Picture 2: Intro screen

Pressing the key “E” would lead the player to the next scene. Pressing the “Esc” key would end the game but only when playing outside the Unity editor.

2. Maze Generation Scene

This is the scene that lets players create their own mazes. It has 2 input fields where the user can type the width and height of the maze. Below these fields, there is a button (with the text “Regenerate”) that when pressed will create the maze.

Picture 3: Maze generation screen



Picture 4: Maze created

Pressing the “E” key would lead the players back to the maze generation screen. In case the numbers corresponding to height and width are both below 21 a new green button will appear.

Picture 5: Maze generation screen with the exploration button active

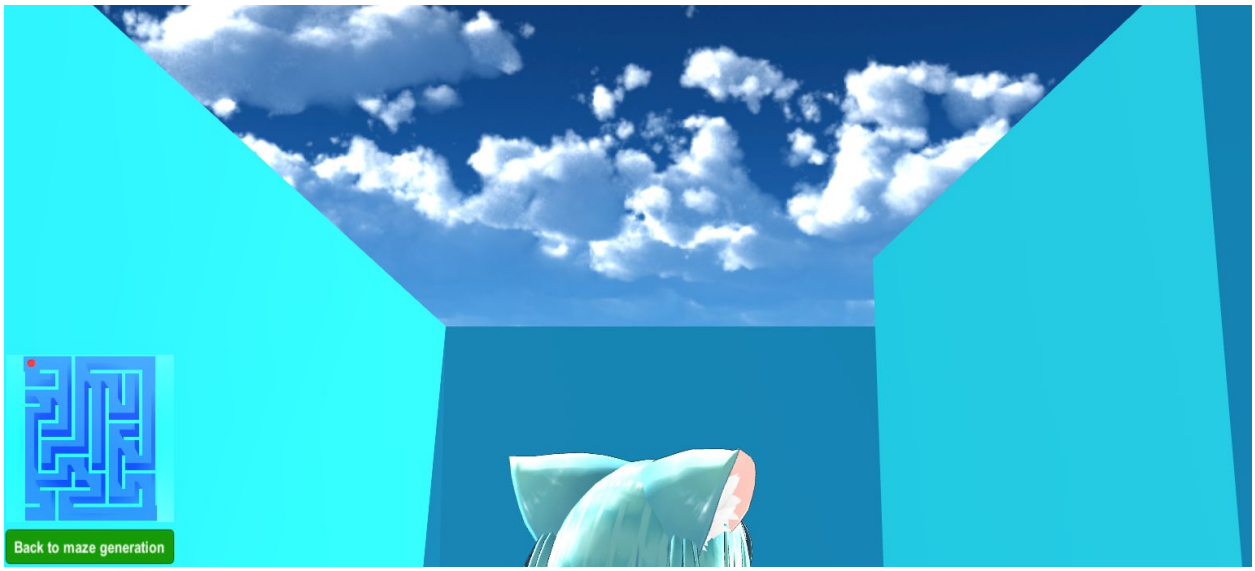
The new button is the exploration button that once pressed will lead players to the maze exploration scene. Apart from its green color, the exploration button will have “Want to explore it” as text. The height and width is kept below 21 because bigger mazes will become too tedious to traverse. It’s also recommended to not create mazes with heights and widths bigger than 100 because it can make the game really slow.

3. Maze Exploration Scene

The new scene is going to start with the playable character already in the maze.

Picture 6: Exploration Scene

As for gaze manipulation, players are able to change their gaze using the mouse to look up and down.



Picture 7: Exploration Scene - look up

Picture 8: Exploration Scene - look down

The player is also able to rotate to left or right depending on the key pressed. Pressing “A” will have the player rotate to the left and pressing “D” will have the player rotate to the right.

Pressing the “W” key will have the player run forward:

Picture 9: Exploration Scene - running forward

Pressing the “S” key will have the player run backwards:

Picture 10: Exploration Scene - running backwards

As seen in the previous pictures there is a small map in the bottom left corner of the screen. The small red orb represents the player’s location in the maze. Below the map, there is a green button that when pressed will lead players back to the maze generation scene. This button can be pressed anytime.

To finish the maze, players need to traverse it from the upper left corner to the bottom right corner where the exit will be.

In the bottom right corner, a new floor type will appear. It will be colored in yellow and will have a green point at the center.

Picture 11: Looking at the exit

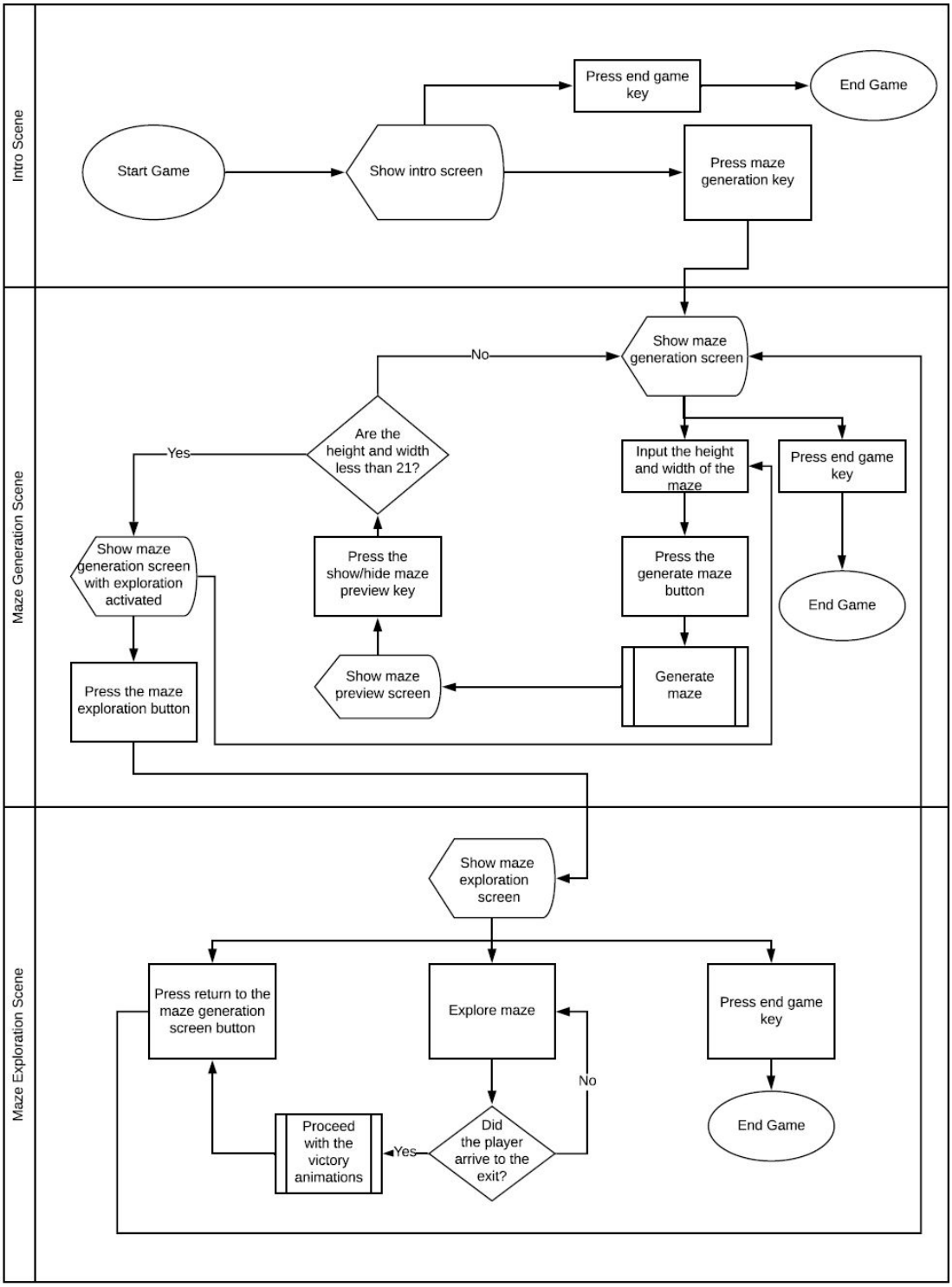
After stepping that green point, the player will achieve victory and a special animation will play.

Picture 12: Victory achieved

Once the player has got to the end, the only way forward is to go back to the maze generation scene using the green button in the bottom left corner of the screen.

The game flow can also be seen in the next image:

Maze Time!'s Game Flow



Picture 13: Game flow

Some important terms in the flow chart presented before are the following:

- Maze generation key: The “E” key.
- End game key: The “Esc” key.
- Show/hide maze preview key: The “E” key.

Notable Game Objects

There are some game objects that hold more importance in the game as a whole. Starting from the Intro scene:

- **Canvas**: This game object contains the title and the script needed to go to the next scene. This script is called Intro Controller. Additionally, contains the audio source of the background music.

In the case of the maze generation scene:

- **Maze**: The game object that contains all elements of maze including floors, walls and the orthographic camera needed for the preview. It also contains the Maze Controller script which is responsible for the creation of the maze itself.
- **Input canvas**: Contains all the UI elements like input fields and buttons necessary for the maze generation and to go to the exploration scene.

Finally, for the maze exploration scene:

- **Shaon**: The player character game object. Contains the Shaon Controller script which has all the code for character animations and movement.
- **Checkpoint**: Contains the Maze Events script which has the option to go back to the maze generation scene. Also has the audio source for the background music.
- **Map canvas**: Contains the UI options for this scene and the companion map that shows the maze from above.

Extra information

When starting the game from the editor, always go for the Intro or Maze generator scenes. Starting from the Maze exploration scene will produce an error.

The Maze generation algorithm

The maze generation algorithm is called Hunt and Kill and it's explained in the following website: http://weblog.jamisbuck.org/2011/1/24/maze-generation-hunt-and-kill-algorithm**.** Its details and how it was implemented is explained in the comments in the code.

Additionally, I used the following guide to get started with the maze generation:

https://www.youtube.com/watch?v=u8UbHJCDJjY (First link out of 4 videos)

Assets used

- Standard Unity assets for the water.
- Shaon by Kutsushita (playable character).
- Model animations from Mixamo.
- Royalty free game music from heatleybros.

Version of Unity used

- Unity 2018.4.22.f1