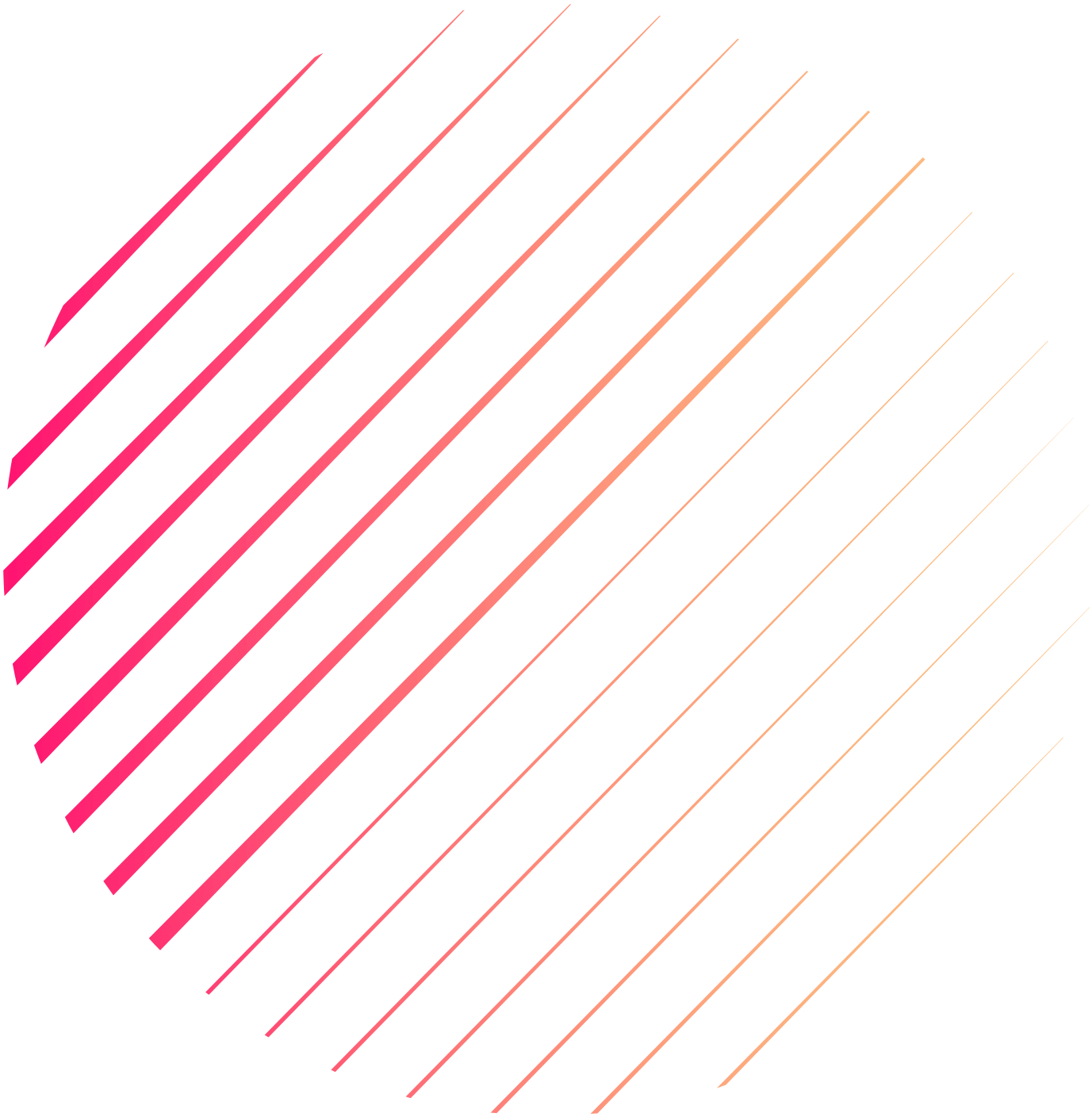
Maze Game

User Guide



HSC Software Design & Development 2022

Major Project Stage 3 – Implementation

36238194 IS1201

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About

The Maze Game is a very simple game based around pathfinding and speed. The goal is to navigate from the starting cell through the maze to the finish cell. There is a single correct path between the start/finish cells, and the goal of the game is to make it through the maze as fast as possible.

System Requirements

Minimum Hardware Specifications

- CPU: 2 Cores, 4 Threads, 1.5GHZ
- RAM: 1GB
- Storage: 1GB
- Graphics: 500MB Integrated Graphics System supporting DirectX 10
- Monitor: 1920x1080px resolution, 100% display scaling

Recommended Hardware Specifications

- CPU: 4 Cores, 12 Threads, 2.8GHz
- RAM: 4GB
- Storage: 10GB
- Graphics: 2GB Discrete GPU supporting DirectX 10
- Monitor: 1920x1080px resolution, 100% display scaling

Software Requirements

- Windows 10, latest stable release
- Visual Studio 2022 Community Edition, latest stable release
- .NET Framework 5, latest stable release
- An internet connection (to download the game initially)

Installation Guide

Extracting the Compressed Archive (ZIP) File

1. Download the ZIP file named *Bashford Jack Stage 3.zip* from the developer's website.
2. Locate the ZIP file using the File Explorer program (it is likely in the Downloads folder), and then right-click and select 'Extract All...'

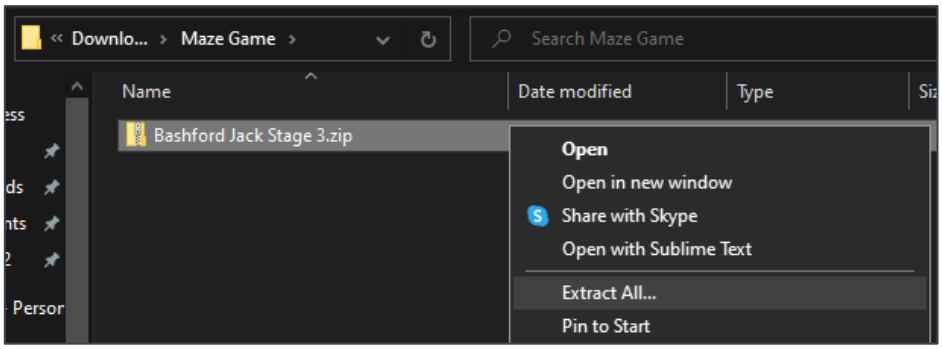


Figure 1: Extract All files from the compressed archive

3. In the popup window that opens, select the box labelled 'Show extracted files when complete' and then click 'Extract'

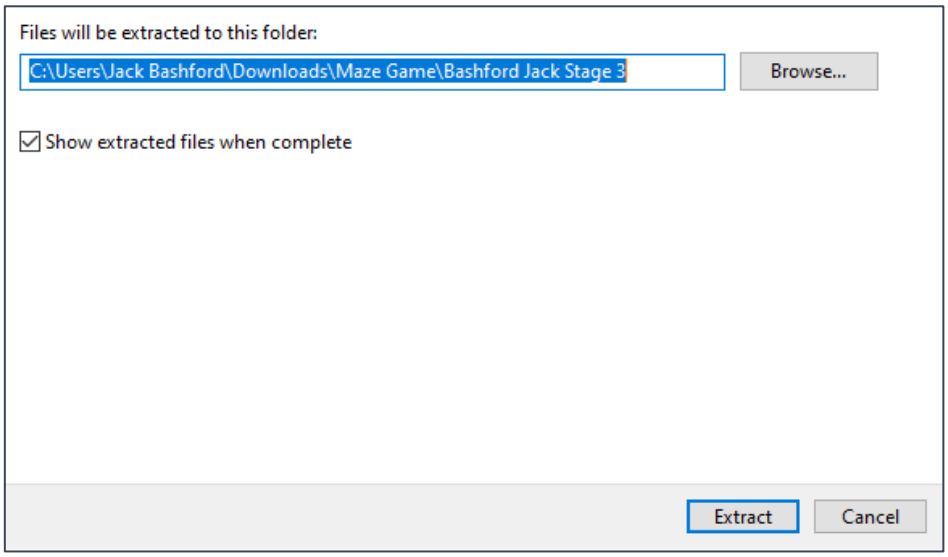


Figure 2: Extracting the compressed archive

4. The ZIP file should have now extracted into a new folder with the same name and location as the ZIP file.

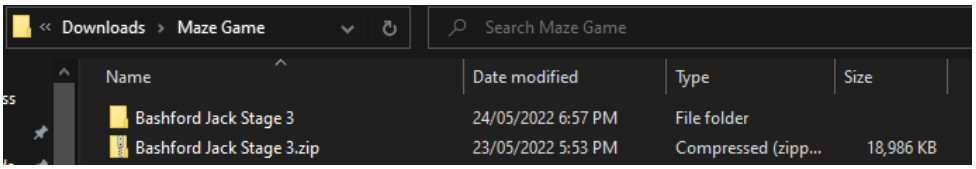


Figure 3: The original ZIP file and the expanded folder

Installing Fonts

1. Navigate into the expanded ZIP folder and the sub-folder 'MazeGame'.

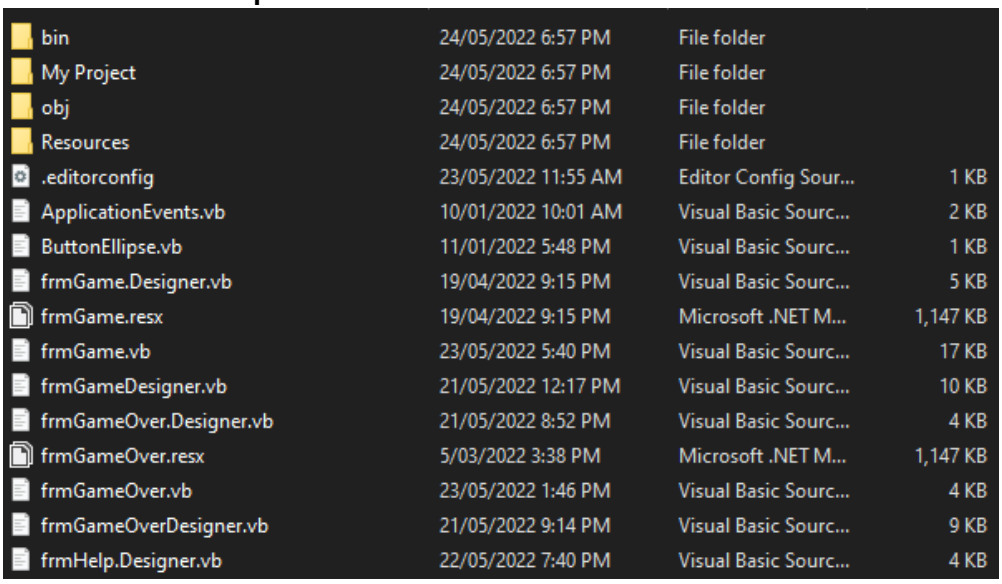


Figure 4: Some of the contents of the 'MazeGame' subdirectory

2. Navigate from this folder into the 'Resources' folder.
3. There are three files in this folder – one image (a png file) and two fonts (ttf files). Double-click on one of the two fonts to bring up the installer:

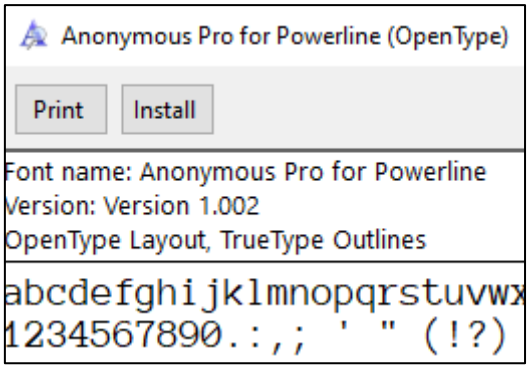


Figure 5: The installer window of the 'Anonymous Pro' font

4. Click on the 'Install' button in the top left, then close the installer window.
5. Repeat steps 3 and 4 with the second font.

Running the program

Visual Studio not installed

1. Navigate into the expanded ZIP folder and the sub-folder ‘MazeGame’.
2. Navigate from this folder to the path ‘bin\Debug\net5.0-windows’.

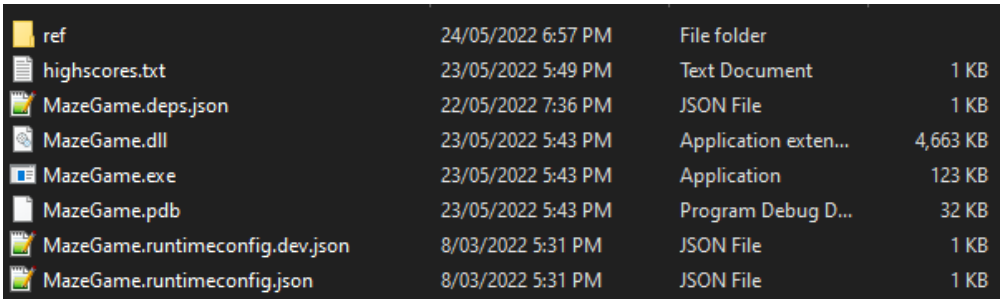


Figure 6: The contents of ‘MazeGame\bin\Debug\net5.0-windows’

3. The following prompt will then be displayed if you do not have .NET installed. Click ‘Yes’ and a page in your web browser will open.

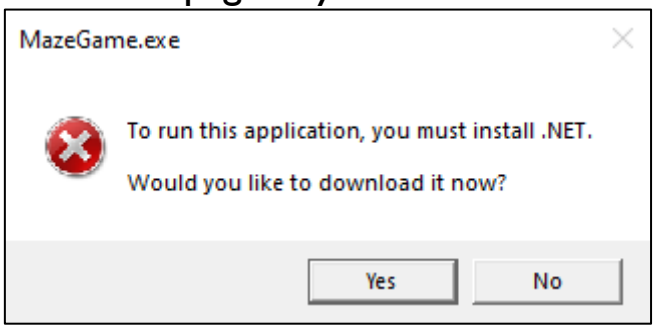


Figure 7: This prompt means you do not have .NET installed

4. Locate the ‘Run desktop apps’ option and select your system architecture (Check ‘System Information’ in Windows Search to see what architecture your system uses). This will download an exe file.

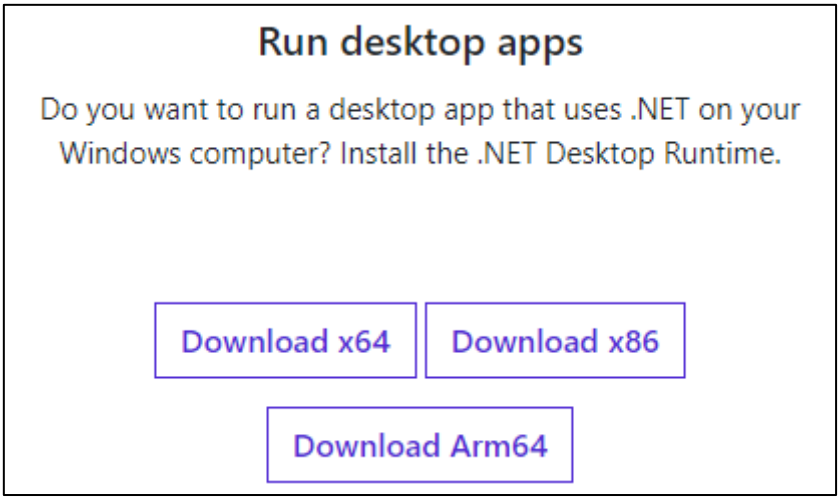


Figure 8: Select the appropriate architecture to download

5. In your downloads folder, locate and run the downloaded exe file.

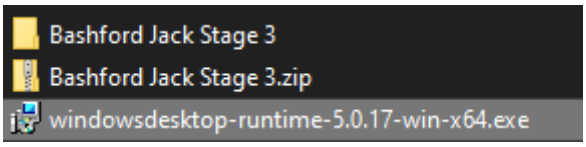


Figure 9: Run the newly downloaded exe file to install the .NET 5.0 Runtime

6. The installer will now launch – select the 'Install' option in the bottom right, and the installation should proceed after administrator approval. Once .NET has been installed, you should see the below screen:

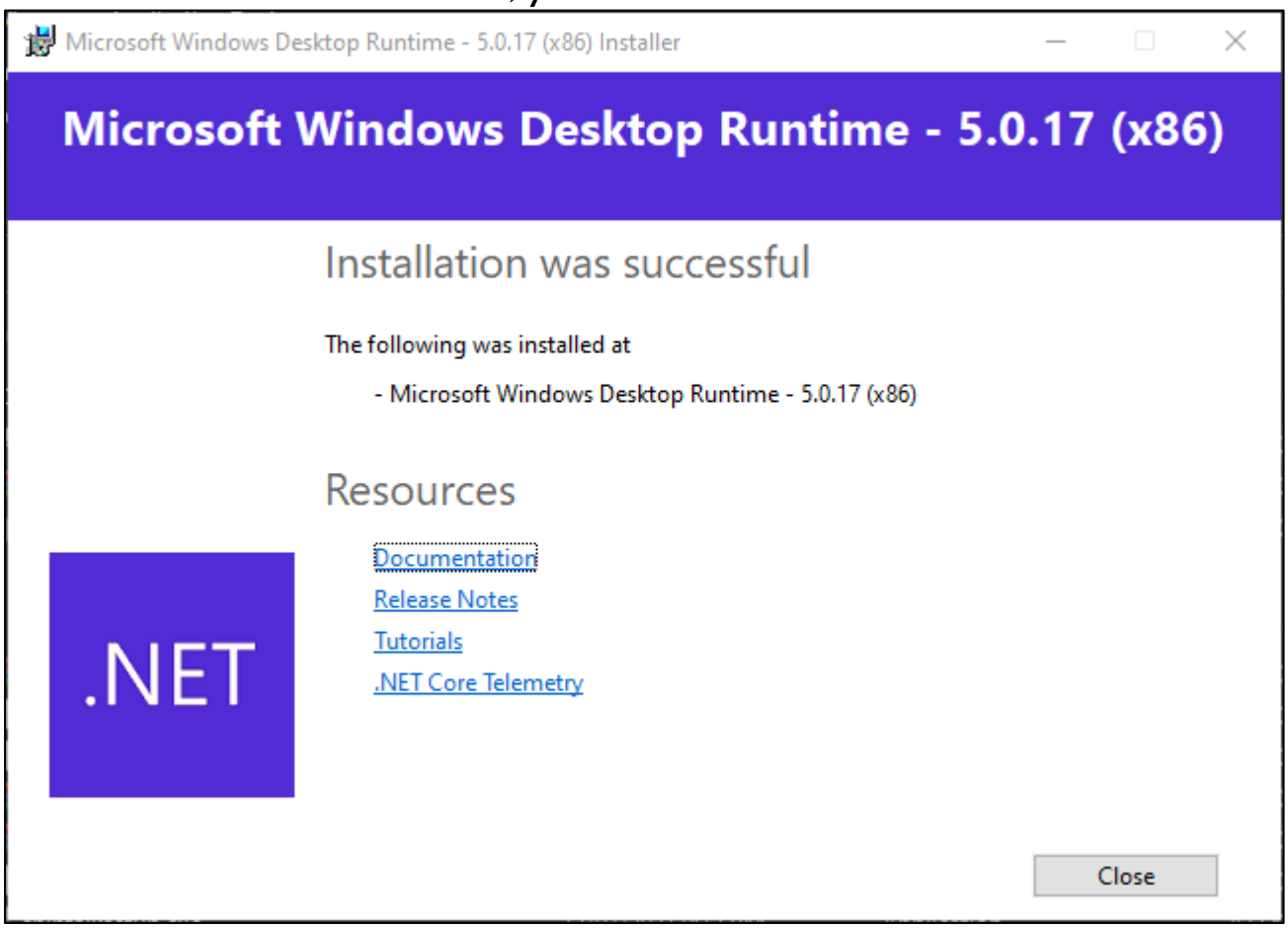


Figure 10: The success screen shown once .NET 5.0 has been installed

7. Follow steps 1 and 2 again to re-locate the MazeGame.exe file. This should now start the game once you run it. See 'How to Play'.
    a. If the game does not start and still prompts you to install .NET, ensure that you've selected the appropriate architecture for your system. Your computer may require a restart for the changes to take effect.

Running the program with Visual Studio installed

1. Navigate into the expanded ZIP folder and the sub-folder 'MazeGame'. See *Figure 4* for the contents of the directory.
2. Right-click the file named 'MazeGame.sln' and choose 'Open With → Microsoft Visual Studio 2022'.

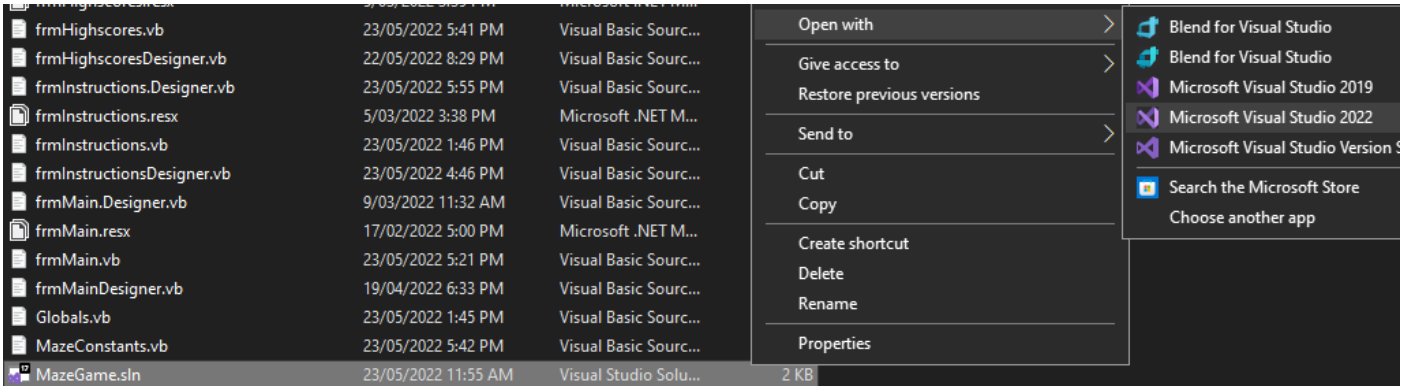


Figure 11: Open the 'MazeGame.sln' file with Microsoft Visual Studio 2022

3. Once Visual Studio 2022 opens, look at the toolbar at the top of the screen. There should be either one or two green arrows, along with the text 'MazeGame'.

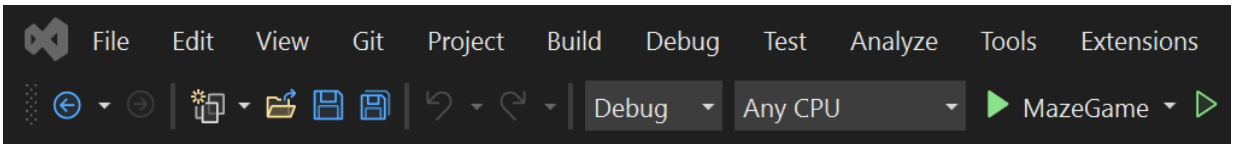


Figure 12: The toolbar of Visual Studio 2022, and the green Build buttons

4. If you see two buttons, click the hollow / unfilled one (the rightmost button in Figure 7), but if you only see one button, click the dropdown and select the green arrow again.

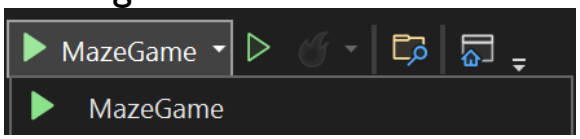


Figure 13: The dropdown to run the game from within Visual Studio 2022

5. The game will now start up – see 'How to Play'.

How to Play

Gameplay Instructions

The objective of Maze Game is to make it from the starting cell of the maze (the top left) to the ending cell of the maze (the bottom right) in the least amount of time. On the Main Screen (pictured under 'Main Screen') then you can see the three input fields and three buttons available to use. You must enter a valid name (alphanumeric characters and underscores, 1-16 characters in length) and choose one of the four difficulties on the left-hand side (10x10, 20x20, 30x30, or a random choice of those three) in order to play.

If you play a non-random difficulty, you have the option to enter a maze seed. This seed is what makes your maze unique (think of it like a unique ID assigned to each maze). If you wish to, you can enter a maze seed (a hexadecimal number up to 10 digits in length), noting the same maze seed/maze size combination produces the same maze to play through. The maze is also displayed on the left during playthrough (see 'Game Screen') and shown after you've completed the game (see 'Game Over Screen'). You can copy this seed (by double-clicking it in the 'Game Over Screen') and paste it back into the 'Main Screen' field if you would like to try playing the same maze again (just make sure you select the same maze size).

A simplified, in-game set of these instructions is available from the 'Main Screen' if you click the 'Instructions' button (see 'Instructions Screen'), and an online help screen is accessible on every form through the F1 key (see 'Help Screen').

Once you've selected the difficulty and entered a name (and optionally chosen a seed) you can play the game. Click 'Play' and use the arrow keys or your on-screen gamepad to navigate through the maze. Once you complete the game, you'll be provided with a game summary, and the option to view the highscores for each maze size (see 'Highscores Screen') and the option to quit the game (if you'd like to play again, copy the seed if desired, then quit and restart the game as detailed in 'Running the Program with/without Visual Studio Installed' as required.

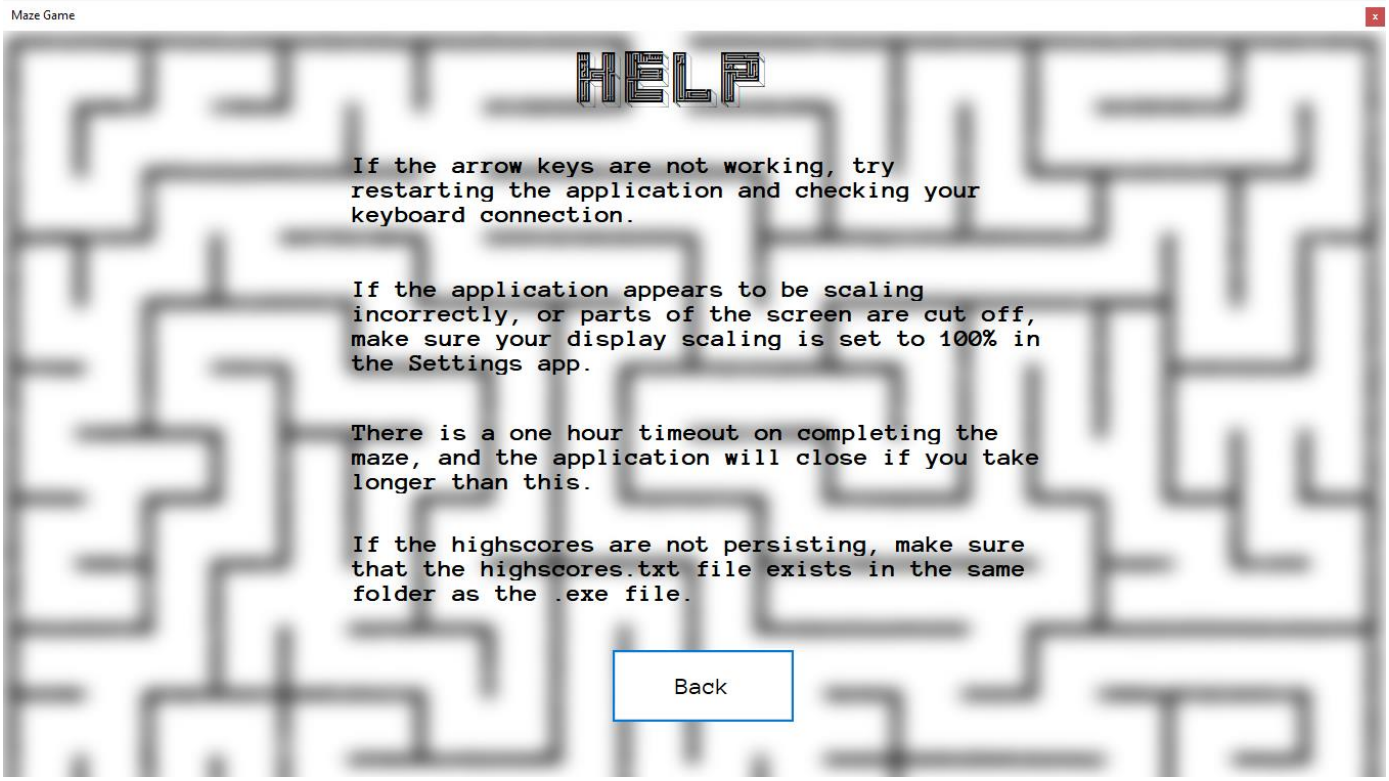
Note you cannot take longer than 1 hour to complete the maze, so if you cannot complete a hard difficulty, perhaps try an easier/smaller maze.

See Figures 14-19 below for each of the six game screens.

Main Screen

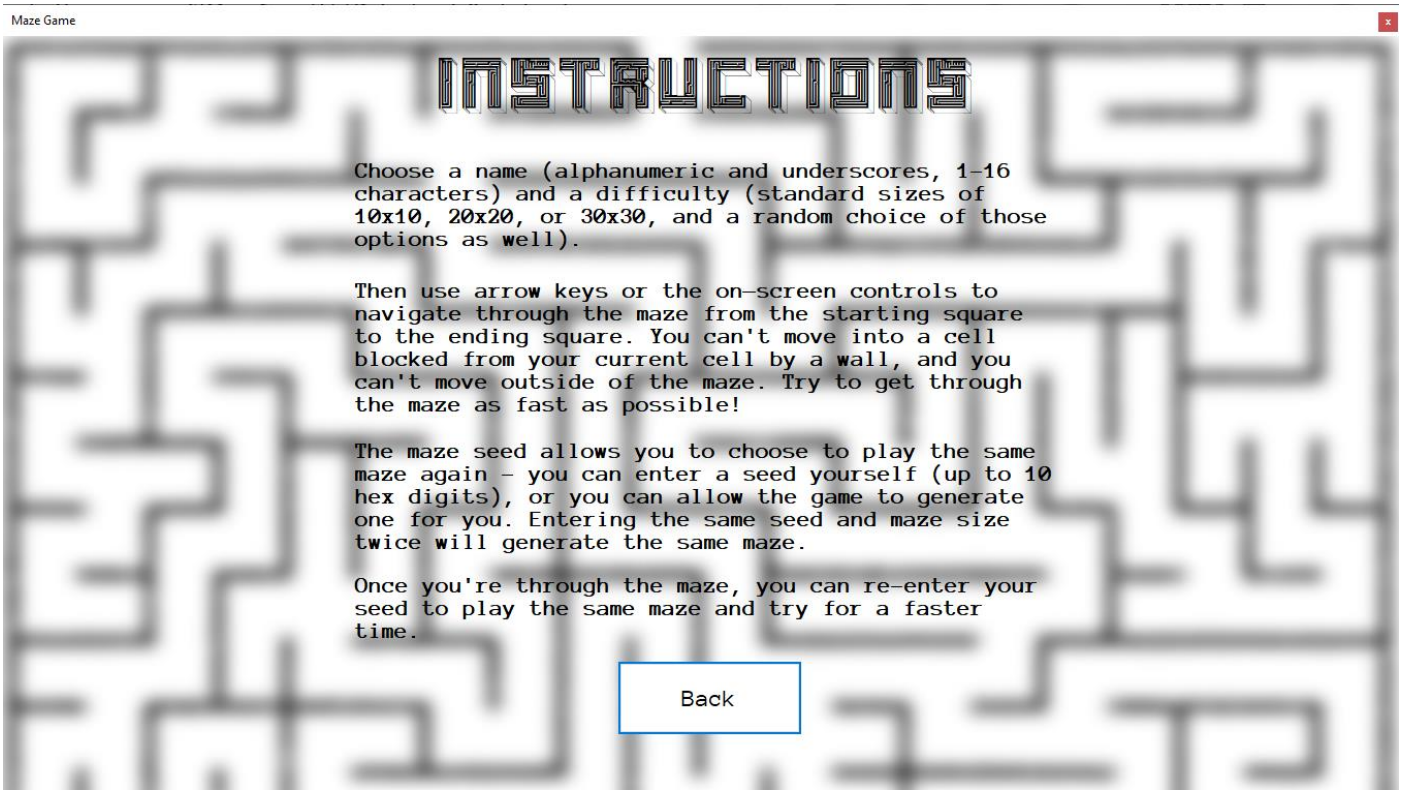
This form is shown to you when you first start the game.

Help Screen



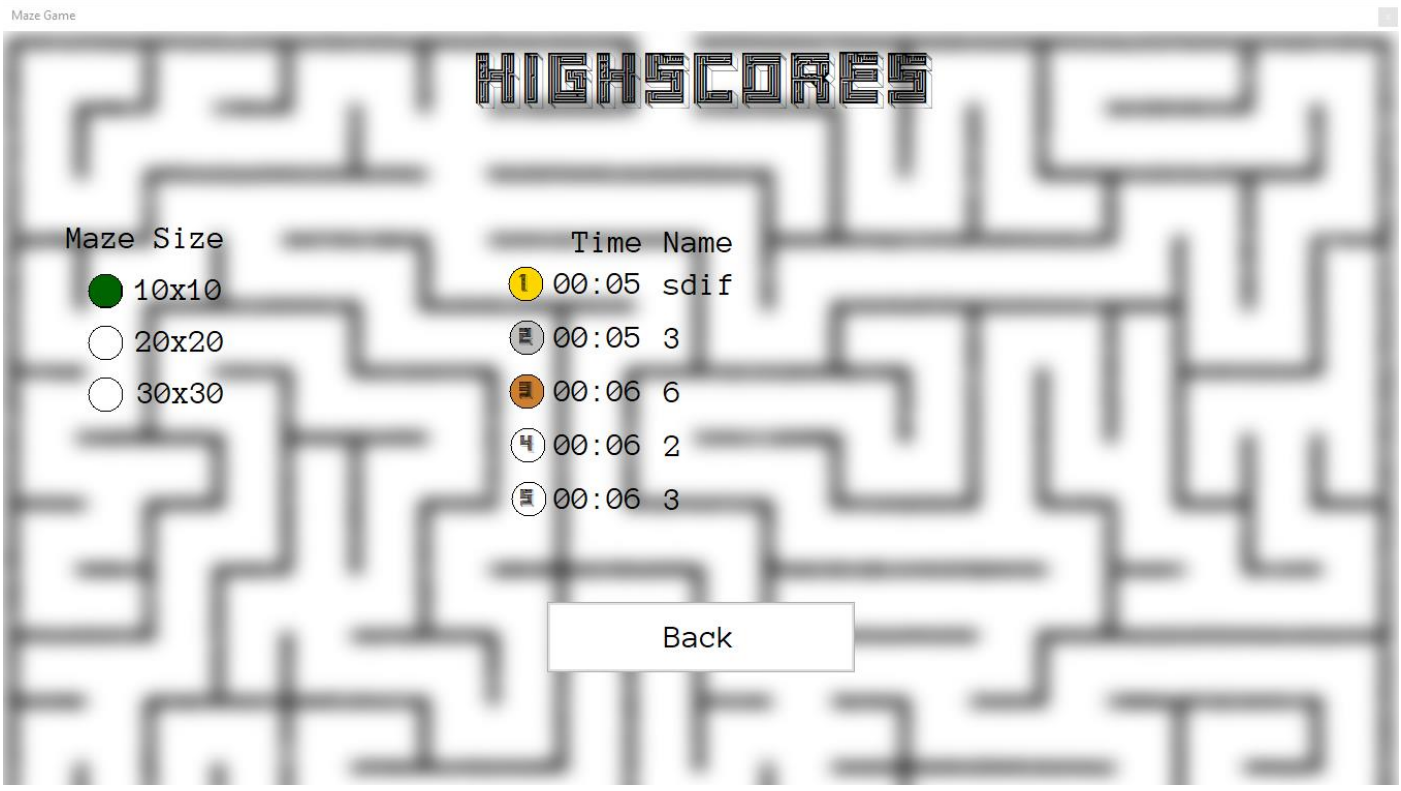
This form will be displayed when you press the F1 (help) key on any of the other screens.

Instructions Screen



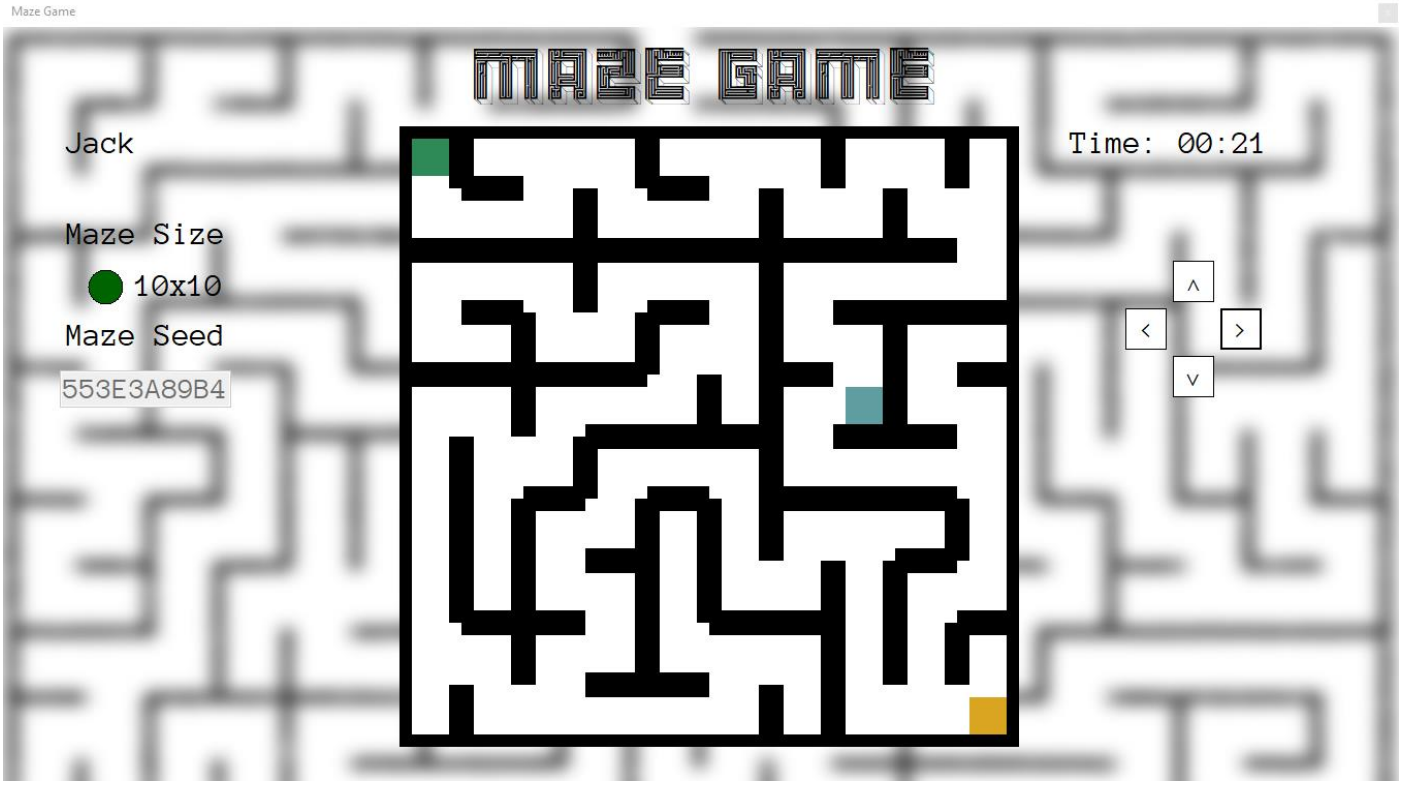
This form is shown when you click the 'Instructions' button on the Main Screen.

Highscores Screen



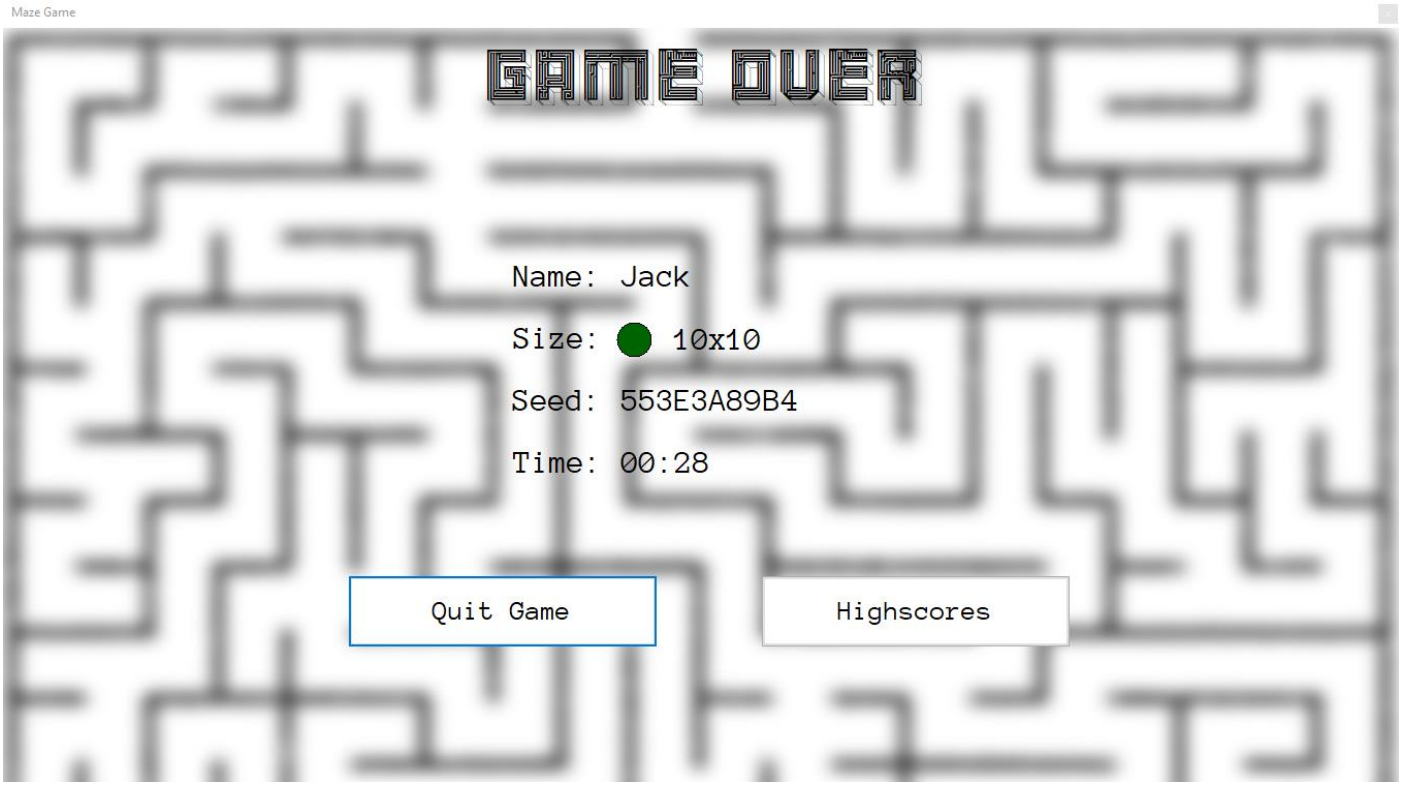
This form can be accessed via the 'Highscores' button on either the Main Screen or the Game Over Screen.

Game Screen



This form is shown when you start playing the game from the Main Screen.

Game Over Screen



This form is shown once you make it through the maze on the Game Screen.

Troubleshooting Guide

Error	Likely Cause of Error	How to Resolve Error
Unable to Start Game	Invalid name or seed entered (this will gray out the Play button).	Ensure your name and/or seed entries match the requirements outlined in the Instructions screen.
	Difficulty not selected (will show a message).	Ensure you have selected a difficulty level.
Unable to Use Arrow Keys	Keyboard incorrectly connected / configured.	Ensure your keyboard is plugged into your computer correctly, and that the keys you are pressing are mapped to the arrow keys.
Highscores Changed or Empty	highscores.txt file moved, deleted, or renamed.	Ensure you have not moved, renamed, or deleted the highscores.txt file from its original location (see Figure 5).
		Redownload and reinstall game if needed.
Screens/Forms Cut Off	Windows scaling incorrectly assigned, or resolution too low.	Ensure your Windows scaling is set to 100% in the Settings application (System → Display), and that your display resolution is at or above 1920x1080px.
Unexpected crash or other error message	Unknown	Contact developer (see 'Technical Support').

Technical Support

Developer contact information.

Jack Bashford

Year 12 Software Design & Development
Class of 2022, Canberra Grammar School
Email: Jack.Bashford@cgs.act.edu.au

Please contact if technical support is required.

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Notes

Feel free to write down (for example) interesting maze seeds or your best times here.