Simon - TDD

By George-Thomas Beazley

Development Environment

IDE - Microsoft Visual Studio 2017 (Community Edition)
Source Control - Using Git Repositories to store the updated game and Github Desktop as the client interface
Language - C++
Libraries - AIEs Bootstrap
Project Management Tool - Trello https://trello.com/b/uNbVhytZ/simon-board

Summary

This game is a 2d, show and response game. The game Simon, is based on Lenny Cotes toy, Simon, where a sequence of lights is played and the player has to press on the buttons that correspond to the sequence. The game is played in rounds and the higher the round, the more points scored.

Controls

In the start of the running application the user needs to press **SPACE** in order to start the game.
The **ARROW KEYS** correspond to the on screen buttons.

Control Scheme

Control	**Impact**
Space	Restart Game
Up Arrow/ W	Up Button
Left Arrow/ A	Left Button
Right Arrow/ D	Right Button
Down Arrow/ S	Down Button
Escape	Quit Game

Objective

Reach the highest round without making a mistake by pressing the correct corresponding buttons to the button animation before the timer runs out.

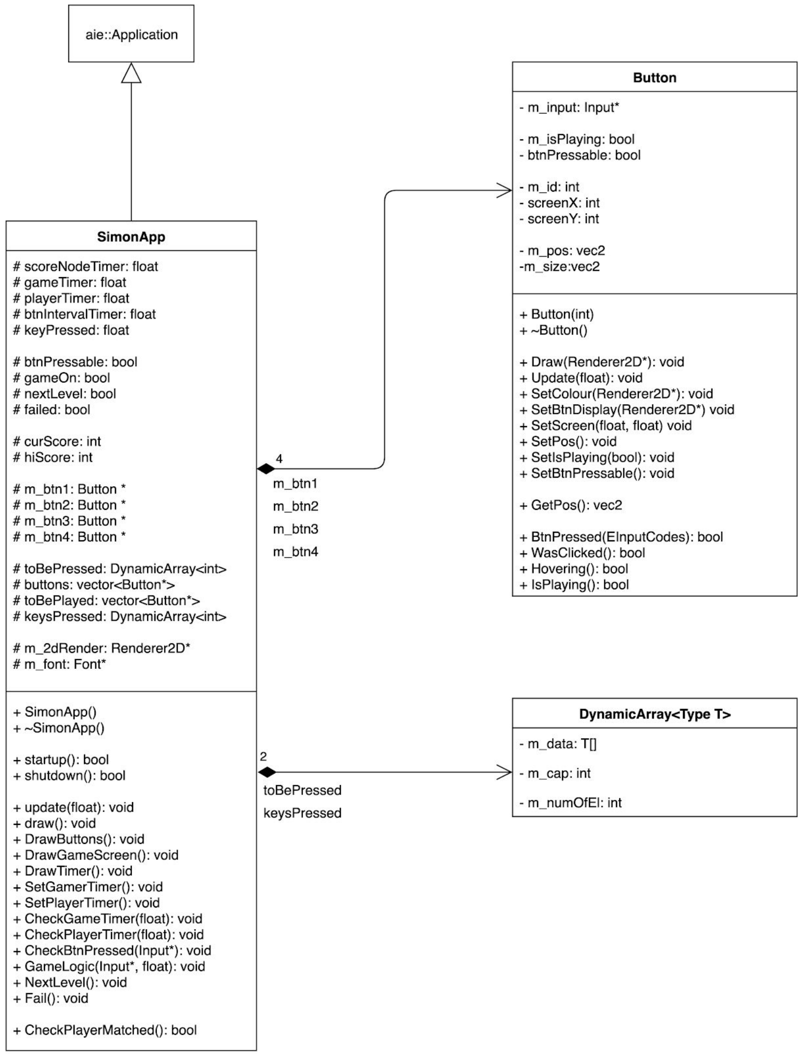
Fail

When a key is pressed that was not queued to be pressed, or the timer is up, the game ends the round.

Game States

State	Description	Exit
Start	Prints on screen to tell the user to start the game by pressing “Space”. Also prints to the screen text telling the player that they can exit the game by pressing the “ESC” Key.	Main Game - Player presses Space. Exit Game - Player presses the “ESC” Key.
Main Game	Game starts with a timer. For however long the timer goes on, the buttons share the timer in playing the sequence. Another timer starts and waits for the players input. If the player does not press the correct sequence of buttons, the game goes into fail state.The user can also get to the exit state by pressing the escape key.	Exit Game - Player presses the “ESC” Key. Fail State - Player does not press the correct sequence of buttons within the time limit.
Fail	The score is tallied by how many rounds had been successfully completed. The Player can proceed to the exit state by pressing the escape key. The Player is also prompted to press space to restart the game at round 1.	Main state - Player presses the spacebar. Exit State - Player presses the escape key.
Exit	Quits the application.	No getting out of this one.

Classes



Graphical User Interface

Buttons

Using the Bootstrap library's Renderer2D class the buttons are able to be drawn to the screen using squares as their main body and different renderer colours based on their IDs. Since there are no triangles in the, the squares are used once again to make it look like an arrow was drawn.

Score System

For a visual representation of the scores, green circles show how many buttons the player had pressed correctly and red circles the buttons that weren't pressed just yet. For every round passed a red circle is added.

Timer

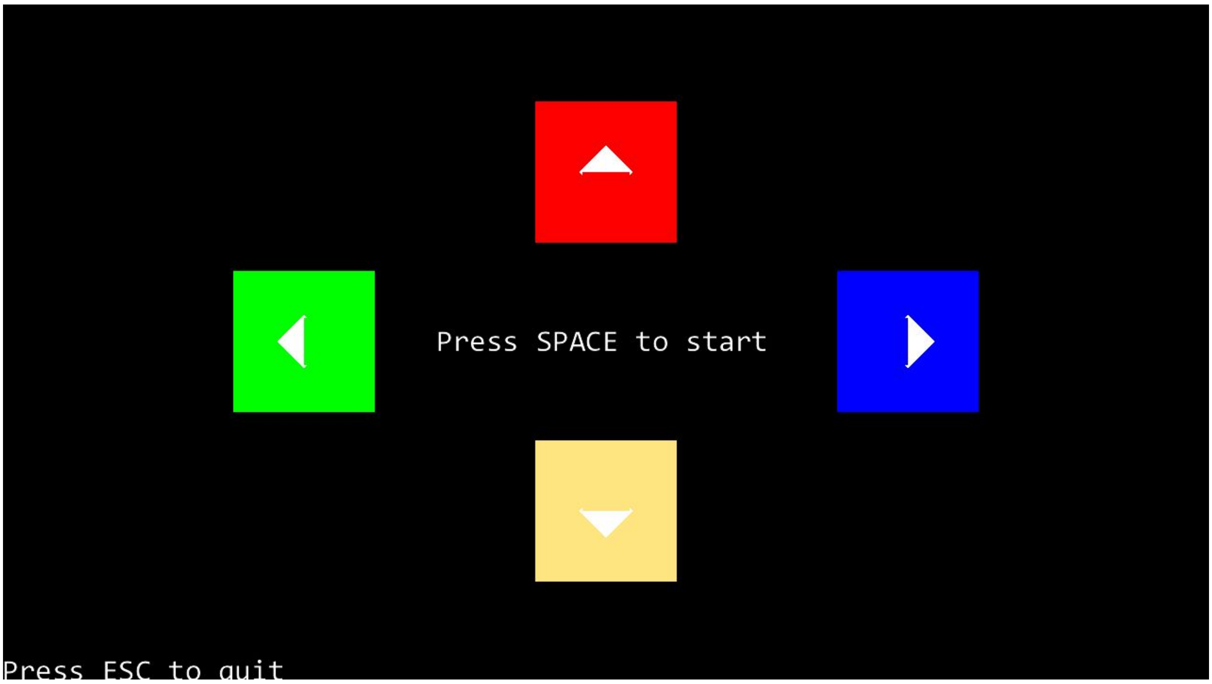
The timer is a box that shrinks over game time. It starts off filling the whole xAxis of the top part of the screen in a green colour, then begins to shrink as the time depletes, changing into a red colour.

Information

This will be telling the player what is able to happen at the current moment and information relevant to their experience of the game.

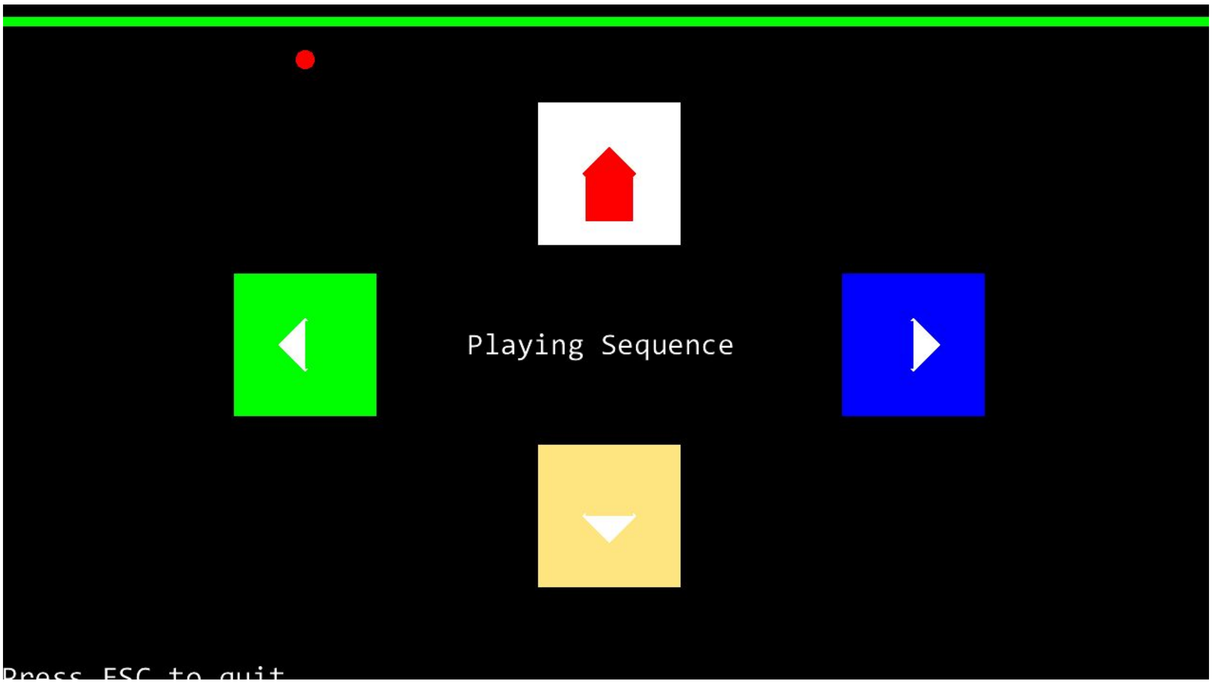
Information	**How it's represented**
Start the next round by pressing the 'Space' key	"Press SPACE to start'
Quit the game by pressing the 'Escape' key	'Press ESC to quit'
A sequence is being played to show what buttons will be added to the queue of buttons to be pressed.	'Playing Sequence...'
All the buttons that the player will press will now be taken into account, determining success or failure in the game.	'Gooooooooo!!'
The players current score shown at the end of the game	'Your score: *x* points'
The players highest score which is compared to the score at the end of the game	'Highest Score: *x* points'
The player just failed the previous round	'Fail' (Red Background)

Screen Samples



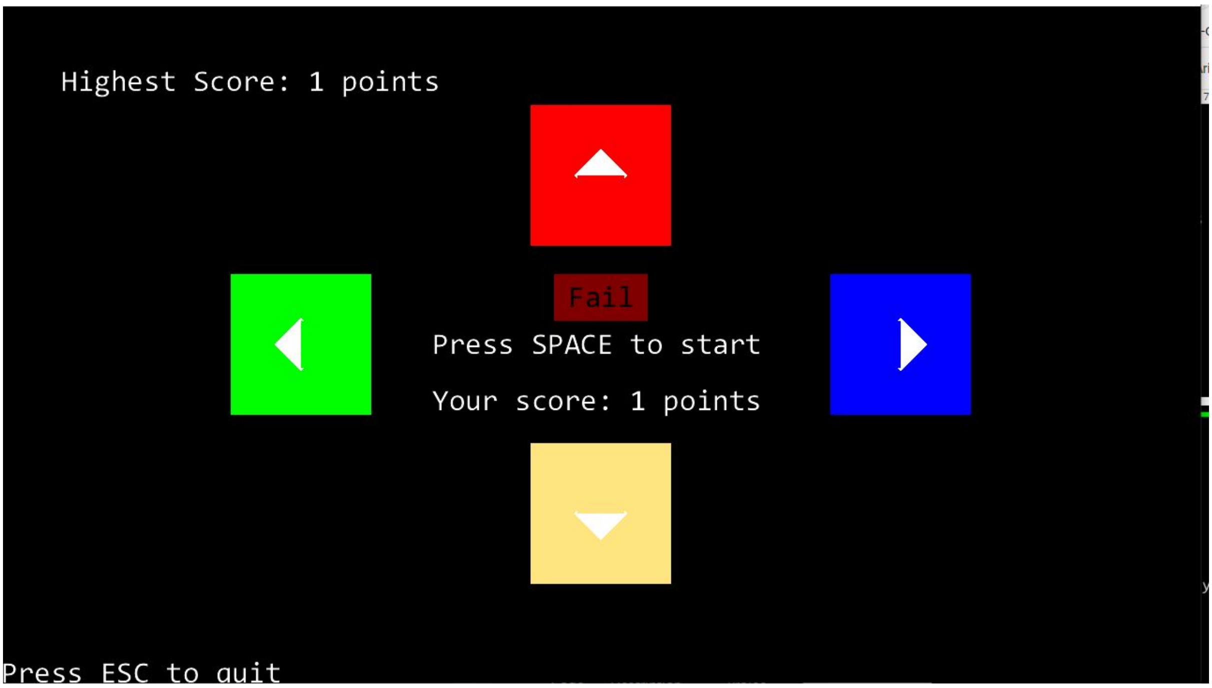
Press SPACE to start

Press ESC to quit



Playing Sequence

Press ESC to quit



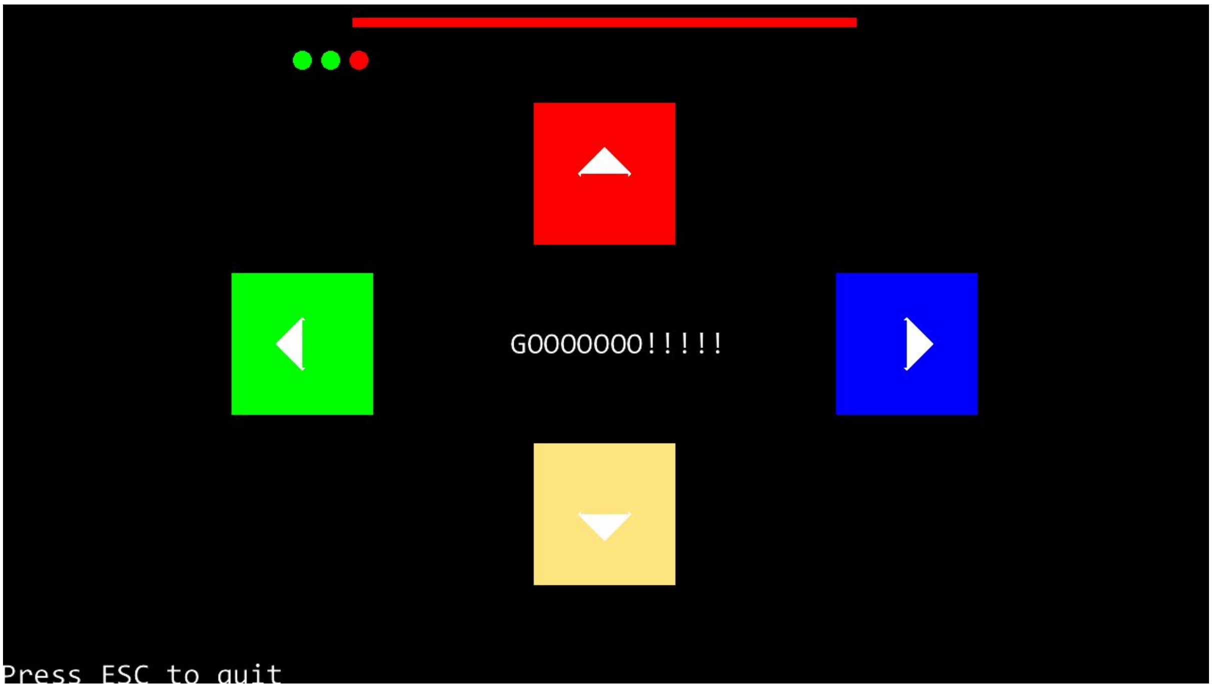
Highest Score: 1 points

Fail

Press SPACE to start

Your score: 1 points

Press ESC to quit



GOOOOOOO!!!!!

Press ESC to quit

Implementation Plan & Actual Times

	UI	Coding	UI(Actually Finished)	Coding (Actually Finished)
Start State	04-05-2019 17:00	05-05-2019 17:00	07-05-2019 17:00	07-05-2019 17:00
Main State	20-05-2019	20-05-2019	29-05-2019	29-05-2019

	17:00	17:00	17:00	17:00
Fail State	20-05-2019 17:00	20-05-2019 17:00	29-05-2019 17:00	29-05-2019 17:00
Exit State	04-5-2019 17:00	04-05-2019 17:00	04-05-2019 17:00	04-05-2019 17:00

Playtesting

My Game

Planned: 29-05-2019 || 17:00
Actual: 16-03-2020 || 15:47

Someone’s game

Planned: 29-05-2019 || 17:00
Actual: 09-06-2020 || 11:05