Tic-Tac-Toe Project Report

CPSC 254-03

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Project Summary

Details:

Our project is an improved version of tic-tac-toe based on a basic open source game of tic-tac-toe by Chris Kempson. This open source project is fairly simple and does not have any other controls than clicking to start the game, clicking on your chosen spot, and opening an about page. The open source project also includes sounds for the various actions performed in the game (ie starting the game, placing a token, etc).

Goals:

Our original goals were to modify an open source game of tic-tac-toe and change up the look of the game. We were going to do this by adding different icons for the the users to play with as game pieces. We also wanted to implement an undo function so that a player could undo their opponent's last turn while keeping their turn. We were going to allow each player one use per match. Lastly, we wanted to implement a menu where the user could switch between tic-tac-toe and connect four. At startup the user can choose between either of the game modes before starting.

Open Source Project/Libraries:

Our project took advantage of this open source tic-tac-toe game by Chris Kempson under the MIT License (https://github.com/chriskempson/cpp-tic-tac-toe). We used this open source game and added a few more features to it. Additionally, we used the Simple Direct Media Layer 2 (SDL2) libraries which was included inside the original open source project. The SDL2 library was used to add certain game functionalities like the detection of keypresses.

Achievements:

We were able to implement some of the changes we sought out to complete. For example, we were able to change the look of the game during runtime. This was achieved by adding new functions to handle a value that can be accessed by the entire program. We did this by making two functions, one that changed the value in a file and one that retrieved the value currently in the file. This was used alongside several checks throughout the different state classes of the program. These checks allowed the program to load up custom made images to change up the color scheme for the entire program. The theme can only be changed a the title screen but the theme would be applied to all states of the game (title, about, playtime). We were also able to implement background music that will be played while the game is running. We did this by making the program load a sound file at the start of the program. However, we were also able to implement a mute button so that the background music is turned off when the 'm' key is pressed.

Limitations:

One of our original goals was to allow the user to choose a game mode when the program was started. Unfortunately we were unable to add that functionality to our final version. Another goal we attempted was to add an undo function for each player to use once during each match. This was more difficult than anticipated because of the structure of the source code. The code would have to be built from the ground up to allow the program to store the previous state to call back to.