PROPOSAL & DOCUMENTATION

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Description:

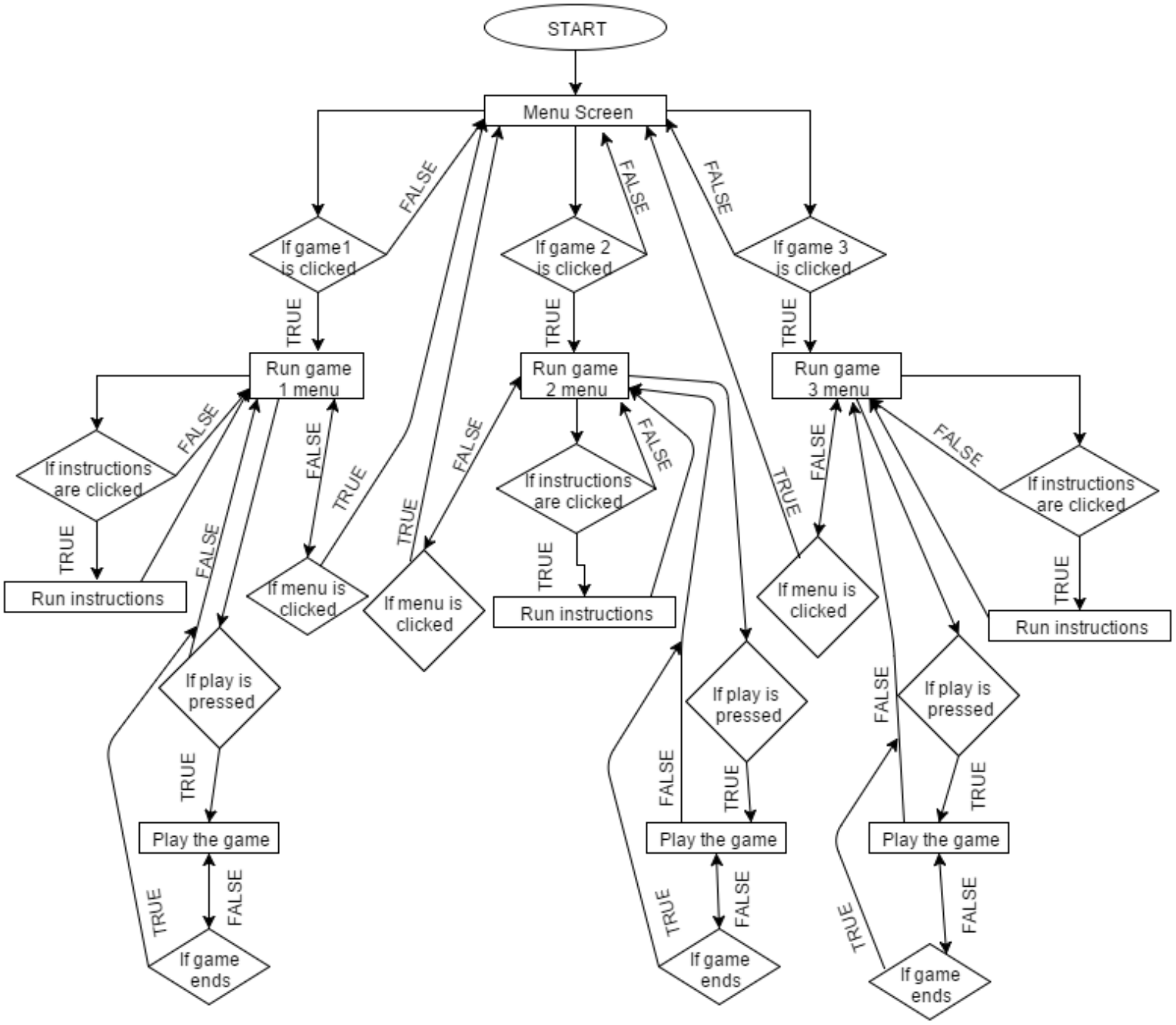
The program I am creating for my culminating activity is called “The Game Box”. The Game Box is a selection of 3 various fun mini-games combined together in one program. This program is created in processing JS and implements arrays, audio, pictures, objects and many other techniques taught to us in grade 12 computer science. The Game Box I am creating includes many different games such as KeepUps, Firing Range, and Fall Down. KeepUps is a soccer based game where you are tasked with keeping the ball in the air for as long as possible. You can kick the ball by hovering over it and left clicking the mouse. The soccer ball bounces off the game boundaries and implements real world physics causing the ball to lose velocity. If the ball bounces on the ground then the score is reset back to 0. The Firing Range is a western based shooting game where you must shoot the randomly appearing targets as fast as possible. In this game you have a pistol with 6 bullets, each time you shoot it costs a bullet and you must reload when you reach 0 bullets. The objective of the Firing Range is to reach the highest score possible before the timer runs out. If you shoot the target in the bulls eye you obtain 2 points instead of the regular 1 point When the timer runs out the game ends and you are prompt with a message that displays your score. The last game I created for my culminating is called Fall Down. This game is a 2D retro like game, where you must roll the ball over the gaps in the platforms and descend down the platforms. The platforms are constantly rising up and you must move the ball using the arrow keys to get to survive as long as possible. When the ball is on top of a platform, the ball rises up at the same pace of the platform it is on. Every 15 points a sound plays and the platforms begin to speed up, this continues infinitely as it makes the game more

challenging as you progress. Once the ball is carried up to the top of the screen, the game ends and a message displays your score. The Game Box has both forward and backward navigation throughout the entire program. It can navigate both ways through the main menu, each game, as well as the instructions for each game.

Details:

The Game Box implements many various programming constructs and data structures to operate. For example, in KeepUps I draw the game using various functions to call, draw the PImages as well as add in the ball physics and gravity. In the Firing Range, I created an object called Target that draws the target, creates the expansion and contraction of the target, as well as the new randomization of the target location. In the third game, FallDown, I used multiple programming structures as well. I used arrays to create a set of 15 platforms that constantly rise up and get set to the bottom of the array when the exit the canvas. On top of that I used multiple for loops in this program to both initialize and call the platforms allowing them to move. Throughout the entire program I utilized a plethora of different data structures. In each game I used many methods, audio files, counters, booleans, and if statements. The entire program is largely based off a integer named gameState, which decides which game or screen the program is displaying and what functions are being called. I included both a flowchart and UML diagram below that describes the process my program takes in order to run.

This flowchart displays the general process that my program is based on when running.



This UML diagram displays the methods, procedures, and classes used throughout my program