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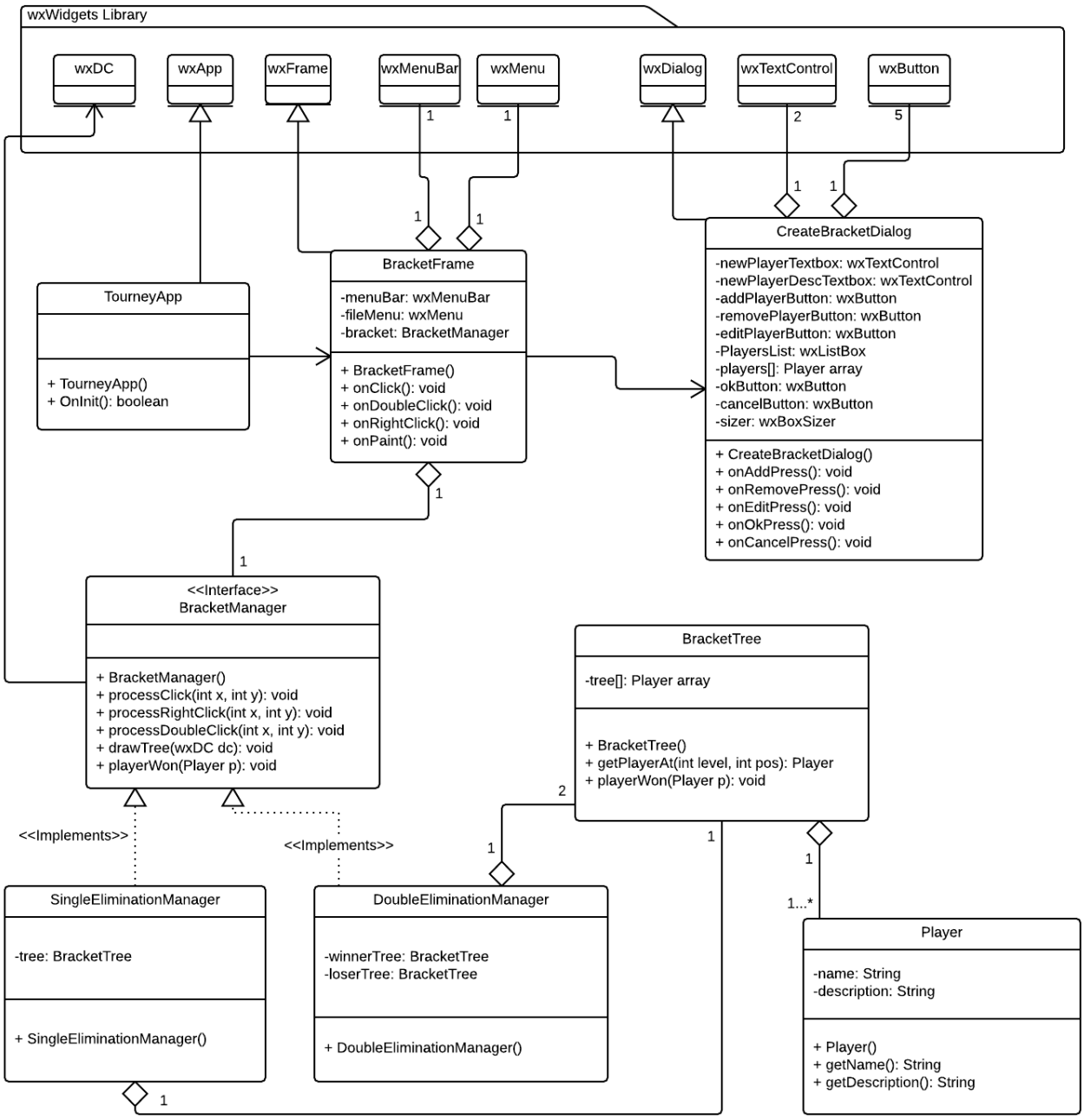
CSC 415
March 31, 2015

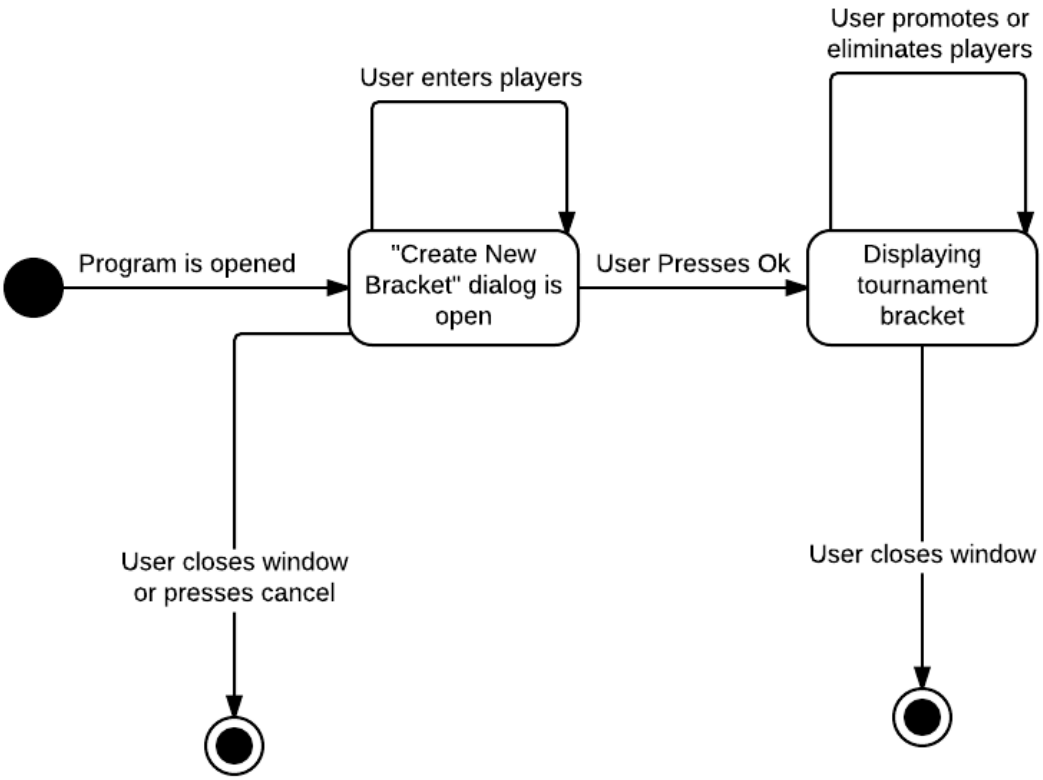
Assignment 4 – Open Source Software: Analysis and Design

Project Design

Design Class Diagram

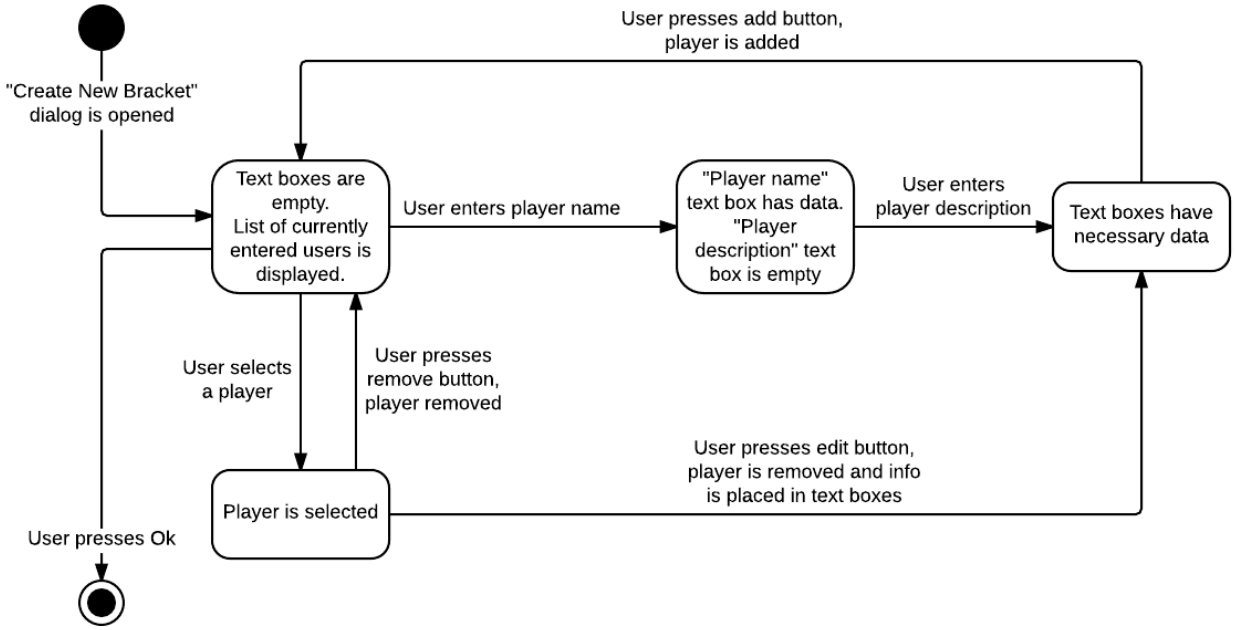


Overall Statechart

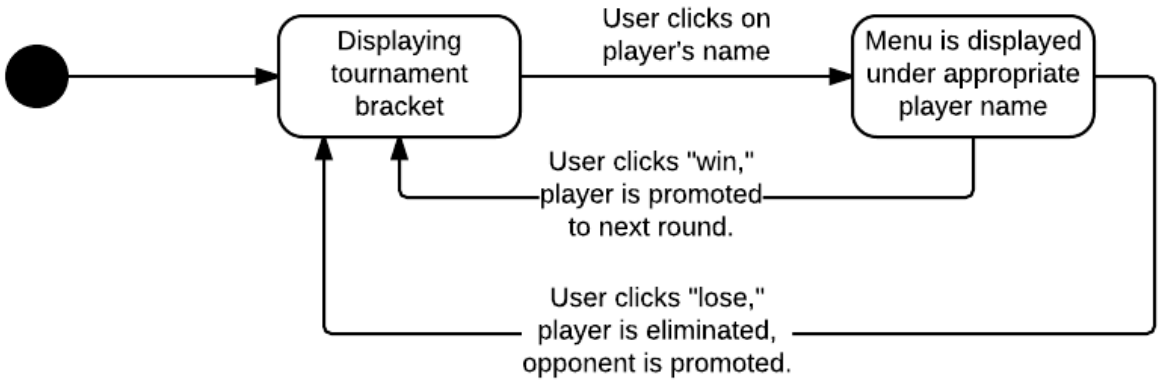


Specific Statecharts

Entering new players

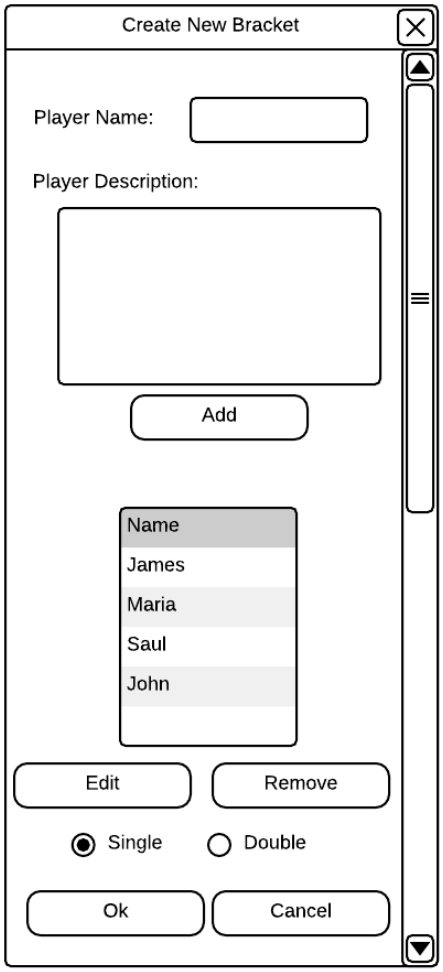


Promoting/eliminating players

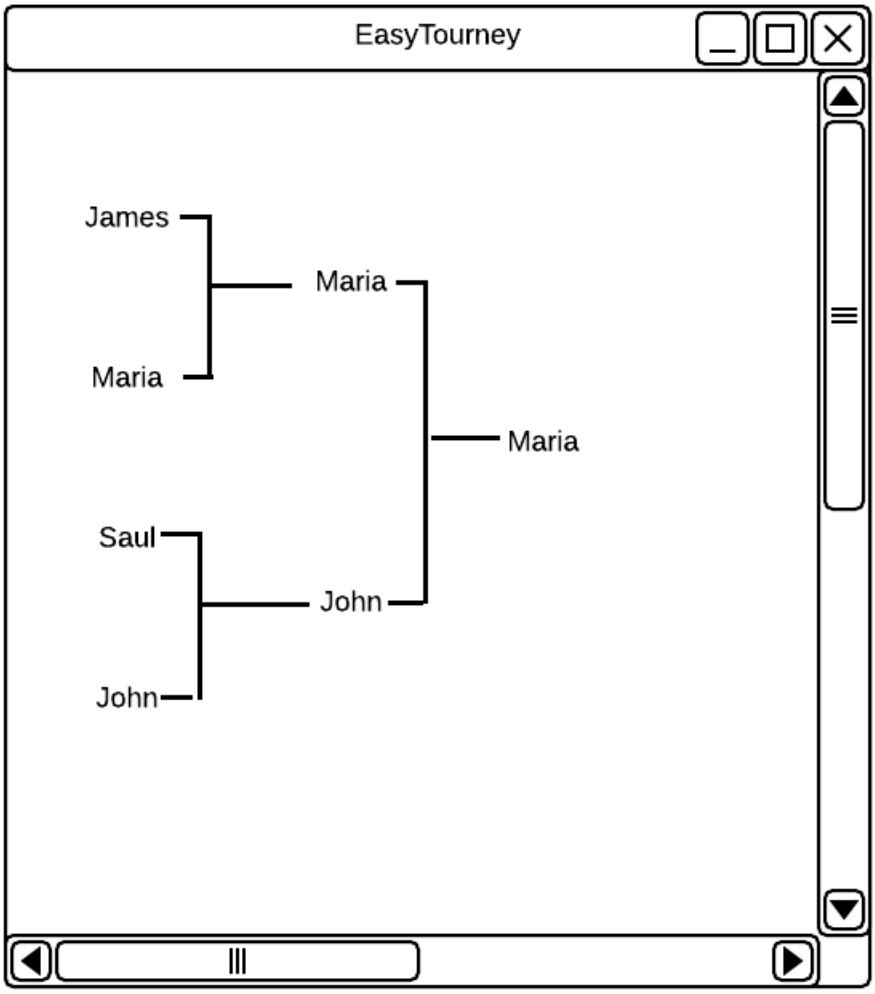


User Interface

Create New Bracket Dialog



Main Window where bracket is displayed



The User Interface will abide by the “Eight golden rules” in the following ways:

- Consistency—The program will maintain the same look and feel in all windows, and will keep the native look and feel of the OS platform
- Shortcuts—Standard keyboard shortcuts will be available anywhere there is text
- Informative feedback—When the user clicks on a button, it will change appearance.
- Simple Error Handling—When something goes wrong, a simple popup box will show with the error
- Easy Reversal of Actions—When entering players, the user can remove/edit players already entered.
- Internal Locus of control—Window will be resizable to whatever size the user wants
- Reduce short-term memory load—All of the relevant information is displayed on the screen, so there is no need to memorize anything

Test Case Design

A lot of my program's functionality depends on GUI elements, which cannot be easily tested with unit and integration testing. In order to test these graphical elements, the program (or at least part of it) must be able to compile and run in order to visually confirm that they are operating correctly. I have not found many easy-to-use GUI testing tools, and since my program does not have a very complicated GUI, I can do the user interface testing manually.

During unit testing, I will test all of the individual classes that do not depend on GUI elements, such as Player and BracketTree. The BracketTree class is what manages the binary tree structure, so this class will probably receive the most unit testing. Then once I confirm that all the classes work separately, I can start integration testing by piecing them together one by one and testing them together.

Tools: Google Test for testing and Valgrind for debugging

Test Cases

Functionality Tested	**Inputs**	**Expected Output**	**Actual Output**
Adding player	Player name in text box, player description in text box, press "add" button	Text boxes will clear and player name will appear in list	
Editing player	Player selected, press "edit" button	Player disappears from list, player info appears in text boxes	
Removing player	Player selected, press "remove" button	Player disappears from list	
List scrolling	When multiple players are added, the list can be scrolled so that all players can be viewed		
Cancel button	Cancel button is pressed	Program will close	
Initial bracket creation	OK button is pressed after players have been entered	Bracket creation dialog will close, main bracket window will become focused, all players are in the bracket, there are no duplicates, the whole bracket is viewable, everything is in the right place	
Error handling: no players	OK button is pressed when no players have been entered	Popup error message	
Player menu showing up	Player name is clicked on in main bracket window	Menu appears with win/lose options	
Player menu functionality	Win or lose option is selected	Performs the correct operation to the correct player and updates the bracket accordingly	

BracketTree class: getPlayerAt	getPlayerAt(x, y) is called with any valid position in the tree.	getPlayerAt(0,0) returns Player in bottom left of tree, any other valid position returns the correct Player in that spot in the tree	
BracketTree class: playerWon	playerWon(p) is called with any player currently in the tree	The Player p was correctly promoted to the next level in the tree	

Github:
ID: wulfd1
Repository: EasyTourney