

1. Class Summary

| Interface, Class, or Enum | Type Name | Description |
|---------------------------|-------------|---|
| JavaFX Class | Main | This class runs the final GUI. It initializes a Gridpane object. The columns are filled with Labels for each challenger, TextFields to submit scores, and Buttons to submit a challenge. All of these objects will function to allow the user to complete the bracket. Displays the top three teams when the bracket is complete. |
| Class | sampleMain | The class that starts the program. This class is used for testing purposes to run a basic version of a bracket in text format. |
| Class | Challenger | Stores challenger rank, and current score. |
| Class | BracketNode | Stores two challengers(cOne and cTwo), and can compare their current scores to return winner or loser. |
| Class | Bracket | Stores an array of BracketNodes, called challengers, that is initialized when a Bracket object is created. Can return this array, and update this array as challenges are completed. The method to update challenge requires (int) challenge number input. |

2. Class Diagrams

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|-------------|--|----------------|----------------------------|
| Bracket | | | |
| Fields: | Bracketnode[] challenges - stores a list of all the bracket nodes that contain challengers int numChallenges - stores the number of challenges that will take place int numChallengers - stores the number of challengers in the bracket | | |
| Return Type | Method Name | Parameter List | Description |
| | getNumChallenges | None | Getter method that returns |

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| int | | | number of challenges for the bracket object. |
| BracketNode[] | getChallenges | None | Getter method that returns the array that stores the multiple challenges for the bracket object. |
| BracketNode[] | updateChallenge | int cNum | Determines who is the winner between two challengers and moves the winner on to the next round. |
| String | printBracket | None | Returns a print out of who the winner is for each round of the bracket. (used for testing purposes) |
| Challenger[] | getTopThree | None | Checks if the bracket has been completed. If it has, it returns an array containing [Winner, Second, Third]. |

| BracketNode | | | |
|-------------|--|-----------------|---|
| Fields | Challenger cOne - represents challenger one in the bracket node Challenger cTwo - represents challenger two in the bracket node | | |
| Return Type | Method Name | Parameter List | Description |
| void | setCOne | Challenger cOne | Sets the first challenger to face off. |
| void | setCTwo | Challenger cTwo | Sets the second challenger to face off. |
| Challenger | getCOne | none | Returns the first challenger. |
| Challenger | getCTwo | none | Returns the second challenger. |
| Challenger | getWinner | none | Returns the winner of the bracket. |
| Challenger | getLoser | none | Returns the loser of the bracket. |

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| Challenger | | | |
| Fields | int rank - stores the rank of a specific challenger int currScore - stores the current score of a specific challenger String name - stores the name of a specific challenger | | |
| Return Type | Method Name | Parameter List | Description |
| int | getCurrScore | None | Getter method that returns the current score for the challenger object being called. |
| None | setCurrScore | int | Accessor method that allows you to update the score for a challenger object. |
| String | getName | None | Getter method that returns the name of a challenger object. |

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|----------------------------|--------------------------------|----------------|--|
| sampleMain(temporary file) | | | |
| Fields | This class contains no fields. | | |
| Return Type | Method Name | Parameter List | Description |
| None | main | None | Runs a very basic version of the bracket that does not have a GUI component. |

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|-------------------------|---|----------------|-------------|
| Main extend Application | | | |
| Fields: | Bracket bracket - A new bracket object to get both the names of teams as well as scores to print out to the GUI | | |
| Return Type | Method Name | Parameter List | Description |

| | | | |
|------|-------|---------------|---|
| void | start | Stage | This starts up and updates the GUI for the user. |
| void | main | String args[] | Calls to process the text file of challengers as well as start the GUI. |

3. Object Diagram

| Objects | Relationships between Other Objects |
|-------------|---|
| Bracket | The bracket stores eight bracket nodes initially. |
| BracketNode | Eight bracket nodes are stored within the bracket, each of which contain two challengers. |
| Challenger | Each challenger represents a team that will face off against another in a bracket node. |

*Bracket is not final and rough design and may change for final project.

