PLC: Mini-Project 1: Bracketology [140 points]

Due date: Friday, March 13th by midnight

About This Mini-Project

You will implement functions related to assembling, scoring, and comparing brackets for the NCAA Division 1 Men's Basketball Tournament, which will begin (with "Selection Sunday") March 15th and conclude with the championship game April 6th, 2020. In case you are not familiar with it: this tournament is a popular collegiate sporting event in the United States, referred to as "March Madness" because of the rather large number of exciting basketball games played in a pretty short time. A popular way to enjoy the game is to fill out a "bracket", which is a graph of the tournament games with their outcomes starting from an initial selection of teams. This is a prediction of how you think the tournament will proceed. Brackets can be compared and scored.

How to Turn In Your Solution

Please submit your solution via ICON. The required files for this assignment are:

- `BracketBuilding.hs`
- `Transform.hs`
- `Scoring.hs`

Please use exactly the file names we are requesting. We will require you to resubmit your homework with a 5-point penalty if the names are not exactly as we are requesting. This is for purposes of grading scripts. It is ok if ICON adds a number to your file name on multiple submission (which is allowed up to the deadline).

Partners Allowed

You may work alone or with one partner. You should both turn in your solution to the assignment, which we expect will be the same (but is allowed to be different, if you worked together but then you decided to add to your solution – or whatever the scenario). Also, you need to turn in a file called `partner.txt` which lists your partner's Hawkid. This will let us know that you worked with that person (lest we incorrectly think you plagiarized another student's similar submission).

How To Get Help

You can post questions in the `mini-projects` section on Piazza.

You are also welcome to come to our office hours. See the course's Google Calendar, linked from the github page for the class, for the locations and times for office hours.

1 `BracketBuilding.hs` [80 points]

This file is concerned with assembling a bracket from a ranklist, which gives an initial ranking from 1 to 64 of teams chosen to play in the tournament (we are ignoring the so-called "First Four" games which were added to the tournament to increase the number of teams to 68). There is also a function to change from a tree-structured bracket to just a list of `FlatGames`, which record the region, round, etc. of the game.

Fill in the undefined functions in this file. You will want to consult `Bracket.hs` for definitions of the bracket data structures.

[Point values for the various problems will be specified during finalization of the assignment.]

2 `Transform.hs` [20 points]

There are several functions to implement here, to transform Brackets into other formats.

3 `Scoring.hs` [40 points]

Define `scoreBracket` to score a bracket. I am not giving a lot of hints about how to go about this. You are free (as always) to write whichever helper functions you find useful.