Javascript Golf Tournament Leaderboard (45%)

Golf is an individual competitive sport where a player plays multiple *rounds* (typically 4) in a *tournament*. In each round, a player plays 18 *holes*, where each hole has an expected score, called *par*. Score is tracked during the round with respect to par, so for example a score of -2 after 10 holes means the player has taken 2 less shots than expected (which is good). Likewise, a score of +3 would indicate taking 3 shots more than par (which is not so good). At the conclusion of the round the score is officially recorded in the aggregate sum of the holes. The player with the lowest score after all rounds in the tournament are completed wins the tournament.

The sample code has a collection of Javascript functions and manipulate Javascript objects to implement a scoreboard (or what is called in golf the *leaderboard*).

a. A function to parse the JSON string below into objects of type *Tournament* and *Player*. It should be obvious that a Tournament will have many Players. The JSON string is to be the argument to the Tournament constructor.
b. A function named *leaderboard* on Tournament that returns a JSON string back except with the player entries sorted first by score (lowest score first), then by hole (later holes first). This function should be named *leaderboard*.
c. A function on Tournament named *projectScoreByIndividual* that accepts as parameters the lastname and first initial of a Player and returns a projected score for the player when the round is completed. Project the player's final score based on his current score and hole (individual rate of progress). For example, if the player has a score of -2 after 12 holes, then project that he has a final score of -3 at the end of the round. For the example JSON below, the projected score would be (-3/17*(18-17) + -3) = -3.176, rounded to -3.
d. A function named *projectScoreByHole* that accepts as parameters the lastname and first initial of a Player and returns a projected score for the player at the end of the round by projecting the player's final score based on his current score and hole plus the collective rate of progress (the average score per hole for all Players in the Tournament). For example, if the player's score is -2 on he has finished the 9th hole, and on average golfers are scoring +0.11 per hole then add -2 plus 9 * +0.11 to get a projected score of -1. For the example above, the returned score would be -3 + (1 * 0.11) = -2.89, which rounded is -3.
e. A function named *projectedLeaderboard* that does exactly what *leaderboard* does except it takes another argument representing a function (*projectScoreByXXX*) and uses this function to determine a leaderboard based on each player's projected finishing score. If you are really clever you can reuse the leaderboard function.
f. Modified the prototype of the *Tournament* object by adding a function *printLeaderboard* that prints the leaderboard (sorted from best score to worst then by hole (later holes first)) to the console using console.log().
g. A function to Player named *postScore(s, tourn)* where *s* is a score with respect to par (e.g. -1, 0, 1, 2) that represents the Player's score on the next hole. Update the Player's score and hole properties based on *s* and return a Boolean indicating if the Tournament *t* is completed.

Note: *to pass object functions as parameters, even to other functions on the same object, you need to use a .bind() call*

JSON example:

```
{ "tournament": {
        "name": "British Open",
        "year": "1998",
        "award": 840000,
        "yardage": 6905,
        "par": 71,
        "round": 1,
        "players": [
           {"lastname": "Montgomerie", "firstinitial": "C", "score": -3, "hole": 17 },
          {"lastname": "Fulke", "firstinitial": "P", "score": -5, "hole": "finished"}
   ]
  }
}
```