AP Computer Science Homework 10

Due date: Sunday, November 27, 2016
Instructor: Mr. Alwin Tareen

Part A: Create a `BowlScores` Class

- Write a class called `BowlScores` that can be used to handle the scoring for each player, in the game of bowling.
- A `BowlScores` object keeps track of a bowler's name, number of games bowled, and the scores for those games. The class should have the following properties:
- Instance variables:
  - `private String name;` This is the name of the bowler.
  - `private int numGames;` This is the number of games bowled.
  - `private int[] gameScores;` This is the array of scores for the bowler.
- The constructor: `public BowlScores(String nm, int nGames)`
  - The parameter `nm` is used to establish the bowler's name.
  - The parameter `nGames` is used to initialize the number of games bowled.
  - The array `gameScores` should be set up to have the size `nGames`.
- Accessor methods:
  - `public String getName()` This returns the name of the bowler.
  - `public int getNumGames()` This returns the number of games.
  - `public int[] getBowlScores()` This returns an array containing all of the bowling scores.
  - `public int getScore(int n)` This returns the bowling score `n` from the array `gameScores`.
  - `public int getTotal()` This returns the total of all the scores in the array `gameScores`.
  - `public double getAverage()` This returns the average of all the scores in the array `gameScores`.
- Mutator methods:
  - `public void setName(String nm)` This sets the instance variable `name` to the value in `nm`.
  - `public void setGameScore(int gameNum, int newScore)` This sets the game `gameNum` in the array `gameScores` to the score `newScore`.
- The `toString()` method
  - This returns a string containing the object's data. It has been provided for you.
- You are provided with the files `BowlScores.java`, `BowlScoresTest.java`, and `BowlScoresJUnitTest.java` to develop this program.
- Write your code in the file `BowlScores.java`, in the area indicated by `// YOUR CODE HERE`.
- When you have finished writing the `BowlScores` class, you may run the `BowlScoresTest.java` test bench. Your output should look like the following:

```
Bowler: Chuck
Game 0: 178
Game 1: 192
Game 2: 185
Game 3: 183
Total: 738
Average: 184.5
```

- On your `BlueJ` project window, you should see a button labelled `Run Tests`. Press this button to run the `JUnit` tests.
- You should see a `BlueJ: Test Results` window pop up. If everything is correct, you should see a green bar that indicates that your code has passed the `JUnit` tests. If your program is incorrect, you will see a red bar. You can click on the method name to get more information about the problem. Otherwise, just click on the `Close` button, and you can go ahead and upload this program to `Web-CAT`.

Part B: Submission

- Submit your Java program `BowlScores.java` by uploading it to the Web-CAT automated grading platform.