Purpose

* Practice reading and writing text data to/from a file.
* Learn how to divide a string into several pieces of data.
* Follow the programming guidelines that are listed in the 1st module of this class.
* Grading Rubric for this Final Project:
  + 50 points - if the program compiles, builds and runs.
  + 30 points - if program runs properly.
  + 15 points - programming style guidelines.
  + 5 points - for a proper comment header in the main .CPP file.

Read in Data from a Text File

1. Make your own data file, of baseball stats, using the format listed below.
2. If you do not specify a path, the text file needs to be stored in the project’s folder.
3. Format of the input text file is:
   1. Line 1 – The players name (i.e. Bryce Harper)
   2. Line 2 – Line ??: Have the players stats for a single game.
      1. Sample stats for a line in the text file. 🡪 5, 3, 0, 0, 1, 2
      2. The data is: AtBats, Hits, Double, Triples, Homeruns, Walks.
      3. You can have as many rows of stats as you want. Each row represents one game the player played in.

Calculations Needed

1. **Batting Average** = **(Hits / AtBats) \* 1000. Truncate any decimal value.**
2. **Slugging Pct** = **((#Homeruns \* 4) + (#Triples \* 3) + (#Doubles \* 2) + #singles ) / (AtBats)**
3. **On Base Pct** = Look this calculation up.
4. Plate Appearances = AtBats and Walks, combined.
5. Note: You’ll have to calculate the number of singles, based on #Double, #Triples, and #Homeruns.

Requirements

1. Create a C++, Windows, Console app named **CmpSc330\_BaseballStats.**
2. You will not be creating a Class.
3. You only need one main() function. You may create other functions if you so desire.
   1. All functions will reside in the main .CPP file.
4. Allow user to enter a filename of the baseball stats text file.
5. Open the text file. If the text file does not open properly, display an error message and exit the program.
6. Once open, read the first line, which is the player’s name.
7. Read all of other lines in, one at a time. Keep reading the data until reached the End Of File (EOF).
8. Take each string and split the string.
9. Convert the data into integers so can perform the calculations.
10. Must validate each input line of statistics. If any of these validations fail the test, display an error, and exit the program.
    1. # of Hits cannot be exceeded the # of At Bats.
    2. Singles, Doubles, Triples, and Home runs cannot exceed # of Hits.
    3. All of the stats must be a single numerical digit.
11. After gathering all of the integer data, do the calculations listed above.
12. Before exiting the program at the end of the main(), close both the input file.
13. Keep a total of the AtBats, PlateApp, Hits, Doubles, Triples, HomeRuns, and Walks.
14. Displaying the Output
    1. Make the output readable and spaced below any input that was entered.
    2. Use either COUT or PRINTF formatting to align data.
    3. Display all of the data that was read in, plus PlateApp and Singles.
    4. Display the 3 calculations that were performed.

Deliverables

* Compress (zip) the entire project and submit to Canvas.
* I will use my own input baseball stats file to test your program.