csTask19 Assignment

The activities in this assignment require you to create and modify Java programs using BlueJ. Create a new BlueJ project named csTask19.

All programs (class files) must be in your new project, and the project must be copied to your shared Dropbox.

When questions are posed, write your responses as full sentences in the Readme.txt file in your project.

There are two parts to this assignment:

I. Baseball Statistics
II. Election Day

I. Baseball Statistics

The local Kids' League coach keeps some of the baseball team statistics in a text file organized as follows: each line of the file contains the name of the player followed by a list of symbols indicating what happened on each at bat for the player. The letter h indicates a hit, o an out, w a walk, and s a sacrifice fly. Each item on the line is separated by a comma. There are no blank spaces except in the player name. So, for example the file could look as follows:

```
Sam Slugger,h,h,o,s,w,w,h,w,o,o,o,h,s
Jill Jenks,o,o,s,h,h,o,o
Will Jones,o,o,w,h,o,o,o,o,w,o,o
```

The class `BaseballStats` contains the skeleton of a program that reads and processes a file in this format. Study the program and note that three Scanner objects are declared.

- One scanner (*scan*) is used to read in a file name from standard input.
- The file name is then used to create a scanner (*fileScan*) to operate on that file.
- A third scanner (*lineScan*) will be used to parse each line in the file.

Also note that the main method throws an `IOException`. This is needed in case there is a problem opening the file.

Complete the program as follows:

1. First add a while loop that reads each line in the file and prints out each part (name, then each at bat, without the commas). For help with this, refer to the URLDissector program (included in the csTask20 BlueJ project). In particular inside the loop you need to
    a. Read the next line from the file.
    b. Create a comma delimited scanner (*lineScan*) to parse the line.
    c. Read and print the name of the player, and finally,
    d. Have a loop that prints each at bat code.

2. Compile and run the program to be sure it works.

3. Now modify the inner loop that parses a line in the file so that instead of printing each part it counts (separately) the number of hits, outs, walks, and sacrifices. Each of these summary statistics, as well as the batting average, should be printed for each player. Recall that the batting average is the number of hits divided by the total number of hits and outs.

4. Test the program on the file *stats.txt* and *stats2.txt* .

II. Election Day

It's almost election day, and the election officials need a program to help tally election results. There are two candidates for office—Polly Tichen and Bill Rider. The program's job is to take as input the number of votes each candidate received in each voting precinct and find the total number of votes for each. The program should print out the final tally for each candidate—both the total number of votes each received and the percent of votes each received. Clearly a loop is needed. Each iteration of the loop is responsible for reading in the votes from a single precinct and updating the tallies. A skeleton of the program is in the class `Election` in the csTask20 BlueJ project.

Modify the program to do the following:

1. Add code to control the loop. You may use either a while loop or a do...while loop. The loop must be controlled by asking the user whether or not there are more precincts to report (that is, more precincts whose votes need to be added in). The user should answer with the character y or n though your program should also allow uppercase responses. The variable *response* (type String) has already been declared.

2. Add the code to read in the votes for each candidate and find the total votes. Note that variables have already been declared for you to use. Print out the totals and the percentages after the loop.

3. Test your program to make sure it is correctly tallying the votes and finding the percentages AND that the loop control is correct (it goes when it should and stops when it should).

4. The election officials want more information. They want to know how many precincts each candidate carried (won). Add code to compute and print this. You need three new variables: one to count the number of precincts won by Polly, one to count the number won by Bill, and one to count the number of ties. Test your program after adding this code.