Programming Project 4 - Popcorn

Point Value – 75 points

Note: When you turn in an assignment to be graded in this class you are making the claim that you neither gave nor received assistance on the work you turned in (except, of course, assistance from the instructor).

Program Name: Popcorn.java

Develop a top-down design and write a program to produce a bar chart of gourmet-popcorn production for a cooperative farm group on a farm-by-farm basis. The input to the program is a series of data sets, one per line, with each set representing the production for one farm.

Each data set consists of the name of a farm followed by a comma and one or more spaces; a decimal number representing acres planted, one or more spaces; and an integer representing the number of pint jars of popcorn produced for that farm.

The output is a bar chart that identifies each farm and displays its production in pints of corn per acre. The output is a single line for each farm, with the name of the farm starting in the first column on a line and the bar chart starting in column 30. Each mark in the bar chart represents 25-pint jars of popcorn per acre.

The production goal for the year is 400 jars per acre. A vertical bar should appear in the chart for farms with production that does not meet this goal, and a special mark (#) is used for farms with production greater than or equal to 400 jars per acre. For example, given the input file

```
Orville's Acres, 114.8  43801
Hoffman's Hills, 77.2  36229
Jiffy Quick Farm,  89.4  24812
Jolly Good Plantation,  183.2  104570
Organically Grown Inc., 45.5  14683
```

the output would be:

```
                    Popcorn Co-op

                                 Production in Hundreds
                                 of Pint Jars per Acre
Farm Name                           1   2   3   4   5   6
                                 ---|---|---|---|---|---|
Orville's Acres                  **************|
Hoffman's Hills                  ***************#***
Jiffy Quick Farm                 **********    |
Jolly Good Plantation            ***************#******
Organically Grown Inc.           ***********   |
```

The program should prompt the user for a text file name. This program, as all others, is to include a call to the **`printHeading()`** method along with the comment block header at the top of your file. Your code should be appropriately documented with comments and make use of self-documenting identifiers.

Your program should follow the following outline in the main method:

- call method **`printHeading()`**
- prompt user for file name
- open file
- output chart title, headings, and chart scale
- until end of file
    - read line from file
    - parse the line of input and output line of data

Each line of the input file should be sent to a separate method that extracts the farm name, acres, and jars of popcorn produced per acre from the string and print the bar chart line for it.

Test your program with different data sets. Make sure your program is well documented (following all previous instructions about file names, etc.). Submit your source code to the assignment link in Blackboard by midnight on the due date.

HINT: The first step of this programming exercise should be to read an entire text file and display it on the monitor, to verify that you are reading in the data from the file correctly.

Rubric for Programming Project 4

Criteria	Possible Points	Earned Points
Files submitted correctly	5	
Comments used appropriately (including comment header information)	5	
Appropriate choice of variable names	5	
Program layout and appearance	5	
Calls printHeading() method from the main method	5	
Prompts for a text file name	5	
Opens and reads input file correctly	10	
Separate methods used appropriately	10	
Correct output	10	
Format of output is correct and readable	5	
Input validation and program robustness	10	
TOTAL	75	