05.03 Assignment Instructions: Family Composition

Instructions: Write a program to calculate the probability that a family with two children will consist of two boys, a boy and a girl, or two girls.

1. Create a new project called 5.03 File Input in the Mod05 Assignments folder.
2. Download the MaleFemaleInFamily.txt file to the newly created project folder.
3. A screen shot of a subset of the data file is shown here. Notice that the file consists of Strings of two letters on each row. B and G indicate boy and girl, respectively.
4. If the sample data only consisted of the five combinations shown, you would conclude that a family with two girls occurred two in five times; a family with a girl and a boy, occurred three in five times; and that there were no families with two boys. (These results are clearly skewed, due to the small sample size.)
5. Examine the full file. Could you manually process this file? It is obviously too big for you to manually count the frequency of boys and girls. So, make two smaller test files (call them test1.txt and test2.txt) with a subset of the data, in order to evaluate the accuracy of your program. Just copy and paste with your text editor.
6. Create a class called Family in the newly created project folder.
7. For a family of two, calculate the percentage occurrence of the three combinations: two boys, two girls, or one boy and one girl.
8. Your program should print the sample size, the percent of all boys, all girls, and one boy and one girl.
9. When your program works for the two test files, run it with the MaleFemaleFamily.txt file.
10. Do you get the same results each time you run the program?
11. Do you think the sample data set in the text file is representative of the actual probability of a family with two children consisting of two boys, a boy and a girl, or two girls?
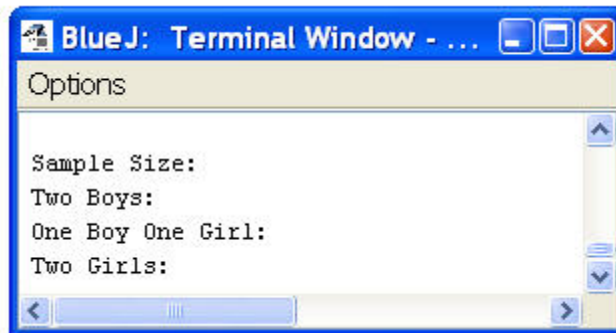
Expected Output: When your program runs correctly, values should appear for each of the four fields of information shown below.