

1. Write class **Name** to be used with the class **LettersInYourName** shown below. **LettersInYourName** will read your first and last names from an already existing text file, will analyze your names as shown below, and will append the result of your analysis to the same text file as well as show the results on the screen.

```
public class LettersInYourName
{
    public static void main( String[] args )
    {
        ?
        Name myName = new Name( firstName, lastName );
        System.out.print("\nHello " + myName.getFullName() + "." +
            " What a nice name you have!!");
        myName.analyzeName();
    }
}
```

OUTPUT

Your first name: **Spongebob**
Your last name: **Squarepants**

Hello Spongebob Squarepants. What a nice name you have!!

Your name contains:

```
2   a's
2   b's
2   e's
1   g
2   n's
1   o
2   p's
1   q
1   r
3   s's
1   t
1   u
```

2. Write a program that reads the **paragraph.txt** file shown below

paragraph.txt

there were lots of flies in the kitchen. the cook didn't know what to do. the principal made an inspection. he swatted some flies with his shoe. now there are no flies in the kitchen. the cook's in a very good mood. the flies are not quite so delighted. they died after eating the food.

...and generates a different text file — call it **caps_paragraph.txt** — where the first letter of each word is capitalized.

caps_paragraph.txt

There Were Lots Of Flies In The Kitchen. The Cook Didn't Know What To Do. The Principal Made An Inspection. He Swatted Some Flies With His Shoe. Now There Are No Flies In The Kitchen. The Cook's In A Very Good Mood. The Flies Are Not Quite So Delighted. They Died After Eating The Food.

3. The area of an arbitrary triangle can be computed using the formula

$$area = \sqrt{s(s - a)(s - b)(s - c)}$$

where a , b , c are the lengths of the sides, and s is the *semiperimeter*.

$$s = (a + b + c) / 2$$

Write a program that uses a class **Triangle** (to be written by you) that computes the area and perimeter (not the *semiperimeter*) of any rectangle given its three sides. Note that not all combinations of a , b , and c produce a triangle. Your program should check for the possibility that, given the lengths of three sides, a triangle may not be possible.

4. Write static class **LCM** to be used with the class **LCM_Driver** shown below. **LCM** will determine the Least Common Multiple of any two integers.

```
public class LCM_Driver
{
    public static void main( String[] args )
    {
        int number;
        int num1, num2;
        System.out.print("\nEnter first integer: ");
        num1 = SavitchIn.readLineInt();
        System.out.print("\nEnter second integer: ");
        num2 = SavitchIn.readLineInt();
        System.out.print("\nThe LCM of " + num1 + " and " +
            num2 + " is " + LCM.findLCM(num1, num2));
    }
}
```

OUTPUT

Enter first integer: 6785

Enter second integer: 654

The LCM of 6785 and 654 is 4437390

5. Write a program that converts Standard time to Military time. You have to write both a class, call it `TimeConversion`, as well as a driver to try your class. It is up to you how you design your program.

SAMPLE OUTPUT

Enter one of the following:

- 1 to convert from Standard Time to Military Time.
- 2 to convert from Military Time to Standard Time.
- 3 to quit.

?2

Enter a time in Military format: 0002

```
*****
*           Military Time: 0002           *
*           Standard Time: 00:02 AM      *
*****
```

Enter one of the following:

- 1 to convert from Standard Time to Military Time.
- 2 to convert from Military Time to Standard Time.
- 3 to quit.

?2

Enter a time in Military format: 0002

```
*****
*           Military Time: 2315           *
*           Standard Time: 11:15 PM      *
*****
```

Enter one of the following:

- 1 to convert from Standard Time to Military Time.
- 2 to convert from Military Time to Standard Time.
- 3 to quit.

?4

```
*****
* ERROR:INVALID ENTRY! *
*****
```

Enter one of the following:

- 1 to convert from Standard Time to Military Time.
- 2 to convert from Military Time to Standard Time.
- 3 to quit.

?1

Enter a time in Standard format:

Hour: 5
Minutes: 67
Seconds: 4
AM or PM ?a

* ERROR: INVALID INPUT! *

Enter a time in Standard format:

Hour: 9
Minutes: 38
Seconds: 45
AM or PM ?p

* Standard Time: 9:38:45 PM *
* Military Time: 2139 *

Enter one of the following:

- 1 to convert from Standard Time to Military Time.
 - 2 to convert from Military Time to Standard Time.
 - 3 to quit.
- ?3

Good Bye!