Vanier College, Continuing Education

Programming in Java

Winter 2015, Assignment-3

Teacher: Shamima Mithun   **Due Date: March 13, 2015**

Objectives

- Decision Structures

Question 1:

In a right triangle, the square of the length of one side is equal to the sum of the squares of the lengths of the other two sides.

Write a Java program that does the following:

- prompts the user to enter the lengths of three sides of a triangle
- outputs a message indicating whether the triangle is a right triangle

Sample runs of your program should generate the following outputs (user input is shown in blue text):

```
Input#1                                   Input#2
Enter the length of the first side: 3     Enter the length of the first side: 5
Enter the length of the second side: 4    Enter the length of the second side: 7
Enter the length of the third side: 5     Enter the length of the third side: 2
It is a right triangle.                   It is not a right triangle.
```

Question 2:

Write a Java program that prompts the user to input an integer between 0 and 35. If the number is less than or equal to 9, the program should output the number; otherwise, it should output A for 10, B for 11, C for 12, ..., and Z for 35. (Hint: Use the cast operator (char)(), for numbers >=10).

Sample runs of your program should generate the following outputs (user input is shown in blue text):

```
Input#1
Enter a number: 7
Output: 7
```

```
Input#2
Enter a number: 15
Output: F
```

Question 3:

Write a Java program that mimics a calculator. The program should take as input two integers and an arithmetic operation (+,-,*, or /) to be performed. It should then output the numbers, the operator, and result. (For division, if the denominator is zero, output an appropriate message.)

Sample runs of your program should generate the following outputs (user input is shown in blue text):

```
Input#1
Enter numerator : 3
Enter denominator: 4
Enter Operator: +
Output: 7
```

```
Input#2
Enter numerator : 13
Enter denominator: 5
Enter Operator: *
Output: 65
```

Question 4:

Write a Java program that calculates the monthly paycheck of a salesperson at a local department store.

Every salesperson has a base salary. The salesperson also receives a bonus at the end of each month, based on the following criteria:

- if the salesperson has been with the store for five years or less, the bonus is $10 for each year that he or she has works there
- if the salesperson has been with the store for more than five years, the bonus is $20 for each year that he or she has worked there
  (Simson, 2000)

The salesperson can earn an additional bonus as follows:
- if the total sales made by the salesperson for the month are greater than or equal to $5,000 but less than $10,000, he or she receives a 3% commission on the sale

- if the total sales made by the salesperson for the month are at least $10,000, he or she receives a 6% commission on the sale

Sample runs of your program should generate the following outputs (user input is shown in blue text):

```
Enter the base salary: 4000

Enter the number of years the employee is with the company: 4

Enter total sale amount for the month: 7000

This month salary: $4250.00
```

Question 5:

Write a Java program that has variables to hold three test scores. The program should ask the user to enter three test scores and then assign the values entered to the variables. The program should display the average of the test scores and the letter grade that is assigned for the test score average. Use the grading scheme in the following table:

Test Score Average	Letter Grade
90-100	A
80-89	B
70-79	C
60-69	D
Below 60	F

Sample runs of your program should generate the following outputs (user input is shown in blue text):

```
Enter test score #1:78

Enter test score #2: 65

Enter test score #3: 87

Average score: 76.66666666666667

Letter grade: C
```

Question 6:

An Internet service provider has three different subscription packages for its customers:

Package A: For $9.95 per month 10 hours of access are provided. Additional hours are $2.00 per hours.

Package B: For $13.95 per month 20 hours of access are provided. Additional hours are $1.00 per hours.

Package C: For $19.95 per month unlimited access is provided.

Write a Java program that calculates a customer's monthly bill. It should ask the user to enter the letter of the package the customer has purchased (A, B, or C) and the number of hours that were used. It should then display the total charges.

Sample runs of your program should generate the following outputs (user input is shown in blue text):

```
Enter the customer's package: B

Enter the number of hours used: 32

The charges are $26.95
```

--End--