CS102

PROGRAMMING EXERCISES (Lab_Chapter 4)

Q.1:

Write a program that prompts the user to input a number. The program should then output the number and a message saying whether the number is positive, negative, or zero.

Q.2:

Write a program that prompts the user to input three numbers. The program should then output the numbers in non-descending order.

Q.3:

Write a 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.)

Q.4:

The statements in the following program are in incorrect order. Rearrange the statements so that it prompts the user to input the shape type (rectangle, circle, or cylinder), and the appropriate dimension of the shape. The program then outputs the following information about the shape: For a rectangle, it outputs the area and perimeter; for a circle, it outputs the area and circumference; and for a cylinder, it outputs the volume and surface area. After rearranging the statements, your program should be properly indented.

Q.5:

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 program that prompts the user to enter the lengths of three sides of a triangle and then outputs a message indicating whether the triangle is a right triangle.

Q.6:

The roots of the quadratic equation $ax^2 + bx + c = 0, a != 0$ are given by the following formula:

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

In this formula, the term $b^2 - 4ac$ is called the discriminant. If $b^2 - 4ac = 0$, then the

equation has a single (repeated) root. If $b^2 - 4ac > 0$, the equation has two real roots. If $b^2 - 4ac < 0$, the equation has two complex roots. Write a program that prompts the user to input the value of a (the coefficient of x^2), b (the coefficient of x), and c (the constant term), and outputs the type of roots of the equation. Furthermore, if $b^2 - 4ac >= 0$, the program should output the roots of the quadratic equation.(Hint :Use the method pow or sqrt from the class Math to calculate the square root. Chapter3 explain show to use these methods.)

Q.7:

Write 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 the result. (For division, if the denominator is zero, output an appropriate message.) Some sample outputs follow:

3 + 4 = 7

13 * 5 = 65

(Hint : Use switch case and if statement)

Q.8:

Write a Java program that takes a number from the user between 1 and 7. It displays the weekday name.

(Hint : Use switch case and if statement)

Q.9:

Write a Java program that takes a score number from the user and show grade

score >= 90 "The grade is A"

score >= 80 "The grade is B"

score >= 70 "The grade is C"

score >= 60 " The grade is D "

otherwise " The grade is F "