**Practice Exercises - Chapter: 04**

**\* Exercise 4.1:**

Write a program to print the positive number entered by the user. If the user enters a negative number, it is skipped.

Example 1:

Enter an integer: 5

You entered a positive number: 5

This statement is always executed.

Example 2:

Enter a number: -5

This statement is always executed.

**\* Exercise 4.2:**

Write a program that asks the user to enter a number within the range of 1 through 10. Use a switch statement to display the Roman numeral version of that number. If the user input a number less than 1 or greater than 10, the program displays a message “Error”.

**\* Exercise 4.3:**

The date June 10, 1960, is special because when we write it in the following format (m/d/yy), the month times the day equals the year (6/10/60).

Write a program that asks the user to enter a month (in numeric form), a day, and a two-digit year. If the month times the day is equal to the year, the program should display a message” The date is magic”. Otherwise, it should display a message” The date is not magic”.

Example:

Enter a month (1-12): 6 [Enter]

Enter a day (1-31): 10 [Enter]

Enter a two-digit year: 60 [Enter]

**\* Exercise 4.4:**

Write a program to input three angles of a triangle and check whether the triangle is valid or not by using the if-else statement.

**\* Exercise 4.5:**

The area of a rectangle is the rectangle’s length times its width. Write a program that asks for the length and width of two rectangles. The program should tell the user which rectangle has the greater area, or if the areas are the same.

**\* Exercise 4.6:**

Write a program to find all roots of a quadratic equation ax2+bx+c=0. This program accepts coefficients of a quadratic equation from the user and displays the roots.

**\* Exercise 4.7:**

Write a program to convert the US Dollar into different currencies:

1. Euro.
2. Japanese Yen.
3. British Pound.
4. Vietnamese Dong.

Use a switch statement to display the menu of currencies.

*Input Validation: Only accept a number greater than 0.*

**\* Exercise 4.8:**

Write a program that determines a student’s grade. The program will read three types of scores (quiz, mid-term, and final scores). The grade point average (GPA) be calculated as GPA =0.2\* quiz score + 0.3\*mid-term score +0.5\*final score. Determine the grade based on the following rules:

* if the average score >=8.5 then grade A;
* if the average score >=7.0 and <8.5 then grade B;
* if the average score >=5.5 and <7.0 then grade C;
* if the average score >=4.0 and <5.5 then grade D;
* if the average score <4.0 then grade F.

**\* Exercise 4.9:**

Write a program that asks the user to enter the month (letting the user enter an integer in the range of 1 through 12) and the year. The program should then display the number of days in that month. Use the following criteria to identify leap years:

1. Determine whether the year is divisible by 100. If it is, then it is a leap year if and only if it is divisible by 400. For example, 2000 is a leap year but 2100 is not.

2. If the year is not divisible by 100, then it is a leap year if and if only it is divisible by 4.

For example, 2008 is a leap year but 2009 is not.

Example:

Enter a month (1-12): 2 [Enter]

Enter a year: 2008 [Enter]

29 days

**\* Exercise 4.10:**

Write a program that accepts three integers a, b, c (-999999999<=a, b, c<=999999999) from the user and prints them out in ascending order.

Example:

|  |  |
| --- | --- |
| Input | Output |
| 0 9 3  -1000000000 0 9999 | 0 3 9  Not valid |

**\* Exercise 4.11:**

Write a program to input all sides of a triangle and check whether the triangle is an equilateral (E), isosceles (I) or scalene (S) triangle using if-else statement. If the user input a number less than 0, the program displays a message “Not triangle”.

Example:

|  |  |
| --- | --- |
| Input | Output |
| 66 66 7  12 19 0 | I  Not triangle |

**\* Exercise 4.12:**

Write a program to check whether a character is alphabet (A), digit (D) or special character (S).

Example:

|  |  |
| --- | --- |
| Input | Output |
| b  \* | A  S |