Practical 2

1.   Write a C++ program that obtains the following values from the user:
        a.   An integer number (of type **int**)
        b.   A floating point number (of type **double**)
        c.   A string value (of type **string**)

        The program should display the values entered using the following formats:
        a)   The integer number should be displayed as a decimal, hexadecimal and octal value, left
             justified within the field, the width of which is 6;
        b)   The floating point number should be displayed with a +/- sign and four digits after the
             decimal points using the fixed decimal point and scientific notation.
        c)   The string should be displayed right justified in a field, the width of which is 25; unused
             spaces within the field should be filled with a * character.

2.   Write a C++ program that uses manipulator setw() to print the diamond shape as follows:

```
        *
     *     *
   *          *
     *     *
        *
```

3.   Write a C++ program that reads a **floating point number** (of type **double**) to represent a **radius**
        for a circle. Calculate the circumference (**C**) of the circle using the formula **C = 2πr**, where PI(**π)** is
        defined as 3.14159. Use preprocessor directives *#define* for the PI value. Display the result in
        two decimal places.

4.   Write a C++ program that reads a **floating-point number** (of type **double**) from the user. The
        program then separates the number into its integral part and fractional part. For example, if the
        input is **123.456789**:

```
Enter a floating-point number > 123.456789

Its integral part   : 123
Its fractional part : 0.456789
```

5.   Write a C++ program that reads a character (A-Z, a-z) from the user and produce a decimal value
        for it. Use **static cast** in your program. Sample output is shown below:

```
Enter a character : A
The decimal value for A is 65
```

6.   The loan entitlement for students in the library is up to 3 books and they must be returned within a maximum loan period of 14 days. Fines are imposed on overdue items at the rate of RM0.20 per book per day. Create a program to calculate the fine. Example of program (your design can be different) is shown below. User input is underlined:

```
----------------
BOOK LOAN SYSTEM
----------------
Enter the number of books  : 3
Enter the days of the loan : 17
-------------------------------------
Days overdue               : 3
Fine                       : RM 1.80
```