**Practical 2**

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

The program should display the values entered using the following formats:

1. The integer number should be displayed as a decimal, hexadecimal and octal value, left justified within the field, the width of which is 6;
2. 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.
3. 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.
4. Write a C++ program that uses manipulator setw() to print the diamond shape as follows:

\*

\* \*

\* \*

\* \*

\*

1. 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.
2. 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** |

1. 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**

1. 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 |