AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH (AIUB)
Faculty of Science and Technology (FST)
Department of Computer Science (CS)
Introduction to Programming [**Task on Array and Loop**]

1. Take N integers as input and display prime and not prime for each of the integer.

2. Take N integers as input and display Perfect and Not Perfect for each of the integer.

3. Calculate the Factorial of a number.
   Sample Output:
   Your input to calculate factorial: 5
   Factorial of 5 is 120

4. Write a program in C++ to display the pattern like right angle triangle using an asterisk.
   Sample Output:
   Input number of rows: 5
   ```
   *
   **
   ***
   ****
   *****
   ```

5. Write a program in C++ to display the pattern like a diamond.
   Sample Output:

   Input number of rows (half of the diamond): 5

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

6. Write a program in C++ to convert a decimal number to hexadecimal number. Sample Output:
   Input a decimal number: 43
   The hexadecimal number is : 2B

7. Write a program in C++ to find the frequency of each digit in a given integer.

Sample Output:
Input any number: 122345
The frequency of 0 = 0
The frequency of 1 = 1
The frequency of 2 = 2
The frequency of 3 = 1
The frequency of 4 = 1
The frequency of 5 = 1
The frequency of 6 = 0
The frequency of 7 = 0
The frequency of 8 = 0
The frequency of 9 = 0

8. Write a program in C++ to create and display unique three-digit number using 1, 2, 3, 4. Also count how many three-digit numbers are there.
Sample Output:
The three-digit numbers are:
123 124 132 134 142 143 213 214 231 234 241 243 312 314 321 324 341 342 412 413 421 423 431 432
Total number of the three-digit-numbers are: 24