

Lab 8

You are required to write the C++ programs of the following questions. Please make sure to submit a zipped folder(.zip) named *yourRollNumber (23xxxx)*. Please note that there is NO dash(-) and alphabet(i) in the folder name. The folder should contain only .cpp files.

Q1- Create a program which takes 10 values from the user using a loop. Your program should count the total number of positive numbers, total number of negative numbers and total number of zeros.

Q2- Write a program to print the table of a number entered by the user using a while loop.

Sample output:

Enter a number? 3

3x1=3

3x2=6

3x3=9

.....

3x12=36

Q3- Write a program to print out all Armstrong numbers between 100 and 999. If the sum of cubes of each digit of the number is equal to the number itself, then the number is called an Armstrong number.

For example, $153 = (1 * 1 * 1) + (5 * 5 * 5) + (3 * 3 * 3)$

Q4- Create a program to find whether the number entered by the user is prime or not? Prime number is a number which is only divisible by 1 and itself. For Example (1,3,5,7,11,13.....)

Sample output

Enter a number? 11

you have entered a prime number

Q5- Create a C++ program that takes integer input (let's say n) from the user and computes the sum of its digits. For example, if input is 1214 the result will be 8 ($1+2+1+4 = 8$). Notably, the input number can be of any length.

Q6- In mathematics, the factorial of a positive integer n , denoted by $n!$, is the product of all positive integers less than or equal to n . For Example

$$5! = 5 * 4 * 3 * 2 * 1$$

Write a C++ program using While loop that can compute the factorial of an integer entered by the user.

If the number is less than zero display "invalid Input" else display the resulting factorial. Note : $0! = 1$

```
hp@hp-HP-15-Notebook-PC:~/Desktop/FAST Job/PF/Lab7 G1$ ./p
Enter a positive integer: 5
Factorial of 5 = 120
hp@hp-HP-15-Notebook-PC:~/Desktop/FAST Job/PF/Lab7 G1$ ./p
Enter a positive integer: 0
Factorial of 0 = 1
hp@hp-HP-15-Notebook-PC:~/Desktop/FAST Job/PF/Lab7 G1$ ./p
Enter a positive integer: -9
Error! Factorial of a negative number doesn't exist.
```

Q7. Take a positive integer as input, and print the square of sterics using a while loop. Following are the sample outputs for input = 5, 7 & 10.

```

      ****
      ****
      ****
      ****
      ****

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      ****
      ****

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      ****
  
```

Q8- Create a C++ program that takes integer input (let's say n) from the user and displays the reverse number. For example, if input n = 1214 the displayed result will n = 4121. Notably, the input number can be of any length.