

Indian Institute of Technology Kharagpur
Programming Language Lab (MA49015/MA69003)

Assignment - 5

1. Write a C program that scans a paragraph of letters and counts how many vowels are there.
2. Twenty-five numbers are entered from the keyboard into an array. The number to be searched is entered through the keyboard by the user. Write a program to find if the number to be searched is present in the array or not.
3. Program to input year from user (a 4-digit number) and check whether the given year is leap year or not.
Eg: - 1400,2008,2020,2400 are leap years, but 1450,1000,1900,2500 are not leap years.
4. Write a program that calculates the average of an array of 10 floating point values.
5. Write a program to check whether a given number is Perfect Number or not. A Perfect number is a positive integer that is equal to the sum of its proper divisors.
For example, the smallest perfect number is 6 , i.e. $6 = 1+2+3$.
6. Write a function to check whether the given integer is a Prime or not. Using this function and given two inputs A and B, Count the number of prime numbers between A and B (both inclusive).
Eg: - **Input** - 5 25 **Input** - 10 100
 Output - 7 **Output** - 21
7. Given two inputs n and r, find the value of nCr (number of ways of choosing r objects out of n objects), using the factorial function you made in previous lab.
Eg: - **Input** - 10 4 **Input** - 6 4
 Output - 420 **Output** - 15

8. Take two arrays of five numbers each. Store and print a new array with alternate numbers i.e. 1st of 1st array then 1st of 2nd array then 2nd of 1st array and so on.

Eg: - Input – 7 3 9 1 4 , 2 3 5 8 1

Output – 7 2 3 3 9 5 1 8 4 1

9. Given two inputs x and y. Write two functions to find the GCD and LCM of x and y.

Eg: - Input – 21 14

Output – 7 42

Input – 247 143

Output – 13 2717

10. Write a C program to input a number from user and find reverse of the given number using for loop. Using this function, write another program to check whether a given is Palindrome or not.

Eg: - 12321, 3553, 4444 are palindromes but 1223, 3332, 1234 are not.

11. Write a program using loops to draw the following patterns:

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

Right Triangle Star Pattern

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

Mirrored Right Triangle Star Pattern

12. Write a program to convert a Decimal number into Binary Number.

Eg: - Input - 20

Output – 10100

Input – 15

Output - 1111