

# Assignment 1

## **Ques 1 : Self Driving Numbers**

Write a program to print all the self-driving numbers in that range. Self driving numbers are those which is divisible by every digit it contains.

Given two integers left and right, return a list of all the self-dividing numbers in the range [left, right].

Example 1 :

Left = 1 , Right = 22

Output : 1,2,3,4,5,6,7,8,9,11,12,15,22

Example 2 :

Left = 47, Right = 85

Output : 48,55,66,77

## **Ques 2 : Print all palindromes in given range**

Given a range of numbers, print all palindromes in the given range.

For example if the given range is {10, 115}, then output should be {11, 22, 33, 44, 55, 66, 77, 88, 99, 101, 111}

We can run a loop from min to max and check every number for palindrome. If the number is a palindrome, we can simply print it.

## **Ques 3 : Program to print all the prime factors for a given number**

Given a number  $n$ , write a function to print all prime factors of  $n$ .

For example, if the input number is 12, then the output should be "2 2 3".

And if the input number is 315, then the output should be "3 3 5 7".

#### **Ques 4 : Check if a given number is a perfect number or not**

For a given number, check whether a given number is perfect or not.

A number whose sum of factors (excluding the number itself) is equal to the number is called a perfect number. In other words, if the sum of positive divisors (excluding the number itself) of a number equals the number itself is called a perfect number. Let's understand it through an example.

Let's take the number 496 and check if it is a perfect number or not.

First, we find the factors of 496 i.e. 1, 2, 4, 8, 16, 31, 62, 124, and 248. Let's find the sum of factors ( $1 + 2 + 4 + 8 + 16 + 31 + 62 + 124 + 248 = 496$ ). We observe that the sum of factors is equal to the number itself. Hence, the number 496 is a perfect number.

#### **Ques 5 : Write a program to print the factorial of a given number.**

What is the factorial of a number?

Factorial of a non-negative integer is the multiplication of all positive integers smaller than or equal to  $n$ . For example factorial of 6 is  $6*5*4*3*2*1$  which is 720.

Example 1 :  $4! = 4*3*2*1 = 24$

Example 2 :  $10! = 10*9*8*7*6*5*4*3*2*1 = 3628800$

#### **Ques 6 : Write a program to check if a given number is a strong number.**

A strong number is the one whose sum of factorial digits is equal to the original number.

Example 1 :  $n = 145 = 1! + 4! + 5! = 1 + 24 + 120 = 145$