Day 9

Lab Assignments

1. WAP to print a number in letters.
   Input: Enter a number: 97
   Output: 97 → Nine seven
2. WAP to calculate sum of the following series:
   Sum = $1 - x^2/2! + x^4/4! - x^6/6! + x^8/8! - x^{10}/10!$
   Input: Enter the value of x: 2
   Output: Sum of the given series: -0.4169
3. WAP to convert a decimal number into its equivalent binary number.
   Input: Enter a Decimal number: 25
   Output: Binary equivalent of Decimal number 25 = 11001
4. WAP to find out the prime factors of a number entered through keyboard.
   Hints: A prime number is any number with no divisors other than itself and 1, such as 2 and 5. Any number can be written as a product of prime numbers in a unique way (except for the order). These are called prime factors of a number. In other words, in number theory, the prime factors of a positive integer are the prime numbers that divide that integer exactly, without leaving a remainder. The process of finding these numbers is called integer factorization, or prime factorization.
   Input: Enter a number: 100
   Output: The prime factors of 100 are: 2 2 5 5
5. WAP to find the numbers, which are divisible by the sum of its digits. (e.g. 12 is divisible by 1+2=3) between 1 to 100
   Output: 1 2 3 4 5 6 7 8 9 10 12 18 20
   21 24 27 30 36 40 42 45 48 50 54 60 63
   70 72 80 81 84 90 100

Home Assignments

1. WAP to convert a binary number into its equivalent decimal number.
   Input: Enter a Binary Number: 101010
   Output: Decimal equivalent of Binary Number 101010 = 42
2. WAP to check whether an input integer is strong number or not.
   Hint: If the sum of factorials of all digits of a number are equal to the number are equal to the number, it is called a strong number.
   Input 1: Enter a Number: 145
   Output 1: 145 is a strong number.
   Input 2: Enter a Number: 45
   Output 2: 45 is not a strong number.
3. WAP to print numbers between 10 to 1000 where the digits of the numbers are equal. (e.g. 22, 33, 111, 555 or 999)
   Output: 11 22 33 44 . . . 111 222 …999
4. WAP to find out sum of series up to n terms.
   (1+1/2+1/3+……)
   Input: Enter a Number: 5
   Output: Sum of the series up to 5 numbers: 2.28333
5. WAP to find out sum of series up to n terms
   $1 + 2^2 + 3^3 + \ldots\ldots + n^n$
   Input: Enter a Number: 5
   Output: Sum of the series up to 5 numbers: 3413

Book Exercises

1. WAP to compute the value of Euler's number e, that is used as the base of natural logarithms. Use the following formula: [Page No: 209, Exercise 7.10]

$$e = 1 + \frac{1}{1!} + \frac{1}{2!} + \frac{1}{3!} + \cdots + \frac{1}{n!}$$

   Use a suitable loop construct. The loop must terminate when the difference between two successive values of e is less than 0.0001. Print the last calculated value of e.

2. WAP to evaluate the following functions to 0.001% accuracy: [Page No: 209, Exercise 7.11]

$$\sin x = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \cdots$$