

MCA-1 C programming Lab Assignment

1. Write a program to convert any centigrade temperature value to Fahrenheit and vice-versa. Write a menu driven program.
2. In a banking system, there are the following denomination of notes: Rs. 10, Rs. 20, Rs. 50, Rs. 100. Write a program that will accept an amount and find the minimum number of each note required to pay the amount.
3. In a hotel, a professor lives in a room no. X. The room numbers are sequentially numbered from 1 to n (n can be any integer). The sum of the room numbers left to X is equal to the sum of the room numbers to the right of X. Write a program to find X.
4. Write a program to convert an 8-digit number into words (consider both the Indian and International number system).
5. Write a program to find the value of one number raised to the power of the another number without using the library function pow().
6. Write a program to compute GCD of two numbers. Implement the program using the Euclid Algorithm and the factorization method.
7. Write a program to compute LCM of n integers.
8. Write a program to compute following series
 - A. $1/1! + 2/2! + 3/3! + \dots$ upto 10 terms.
 - B. Sine(x)
 - C. Cos(x)
 - D. Log(1+x)
9. W.A.P. to print all prime numbers between 1 and n. (n will be given as input).
10. Write a program to find the reverse of any number & check whether the number is a palindrome or not.
11. Write a program to generate the n-th Fibonacci number where n will be taken as input. There is a formula for computing the n-th Fibonacci number:
$$F_n = \frac{1}{\sqrt{5}} \left(\frac{1 + \sqrt{5}}{2} \right)^n - \frac{1}{\sqrt{5}} \left(\frac{1 - \sqrt{5}}{2} \right)^n$$
Compute n-th Fibonacci number without using the formula and using the formula, and compare these two. Are they same?
12. Write a program to compute an union of two sorted list of integers so that the resultant list remain sorted.
13. Consider that M is a n x n square matrix whose each row contains real numbers or 0 such that sum of each row is 1. If R is a n-dimensional column vector whose each component is 1/n. Use random number generator to create the matrix M. Write a program to compute: $R = (M^p)R$, where p should be taken as input.

