

MCKV Institute of Engineering
243, G.T. Road (N), Liluah, Howrah-711204
Lab Assignment
Year: 2024 - 2025

Subject: - Programming for Problem Solving Laboratory
Code: - ES-CS191
Stream: - Computer Science and Engineering (Data Science)
Credit: - 2

Tutorial Topic	Assignment No.	Problem Statement
Basic Input / Output operation and use of operators	1	Write a program to print your name and your roll number in two lines.
	2	Declare an integer a, a float b, a char c, and a double d. Input the values, & print value, address and the size of a, b, c, d.
Use of operators	3	Write a C program to swap two integer numbers without using any 3 rd variable.
	4	Write a program to calculate the maturity amount using simple and compound interest. Take the principal (p), rate of interest (r), and time (t) as integer values.
Branching and logical expressions	5	Write a program to check whether a given year is a leap year or not.
	6	Input three numbers and find the maximum and minimum of them using the Conditional operator (Ternary operator).
	7	Write a program to show the real roots of a quadratic equation.
	8	Write a program to generate a basic calculator which will perform addition, subtraction, division, and multiplication of two integer numbers.
Loops, while and for loops	9	Write a program to calculate $Y = \sum_{x=1}^5 x^x$
	10	Write a program to check whether a number is an Armstrong number.
	11	Write a program to check whether the number is prime or not.
	12	Generate the following patterns: <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="text-align: center;"> i. <pre> * * * * * * </pre> </div> <div style="text-align: center;"> ii. <pre> a b c d e f g h i </pre> </div> </div>
1D Arrays: searching, sorting	13	Write a program to sort the elements of an integer array in descending order. (Use Bubble or Insertion or Selection Sort)
	14	Write a program to find a key value from an integer array.
2D arrays and Strings	15	Write a program to multiply a 3X2 integer matrix by its' transpose.
	16	Calculate the frequency of the vowels (a, e, i, o, u) in a statement, given by the user,
	17	Write a program to show a string whether it is palindrome or not with and without using the string library function.
	18	Write a program to show the abbreviation of a person's name.
Functions call by value and address	19	Write a function swap1() which will perform swapping two integer values using Call by value and another function

MCKV Institute of Engineering
243, G.T. Road (N), Liluah, Howrah-711204
Lab Assignment
Year: 2023 - 2024

Subject: - Programming for Problem Solving Laboratory
Code: - ES-CS191
Stream: - Computer Science and Engineering (Data Science)
Credit: - 2

		swap2() which will perform swapping of two integer values by Call by Address. Show the difference of both the cases.
	20	Write a program to calculate $Y = \sum_{x=1}^5 \frac{1}{fact(x)}$ Where fact () is user-defined function to calculate factorial.
Recursion, structure of recursive calls	21	Write a program to calculate the GCD of two integer numbers using recursion.
	22	Write a program to show the Fibonacci series by recursion up to n- terms.
Pointers, structures and dynamic memory allocation	23	Write a program to create a structure with the field name, roll no and marks (integer). From this create a student database. Display the name of all the students having the highest marks. Use dynamic memory allocation for better memory utilization.
File handling	24	Write a program to create a file name "Profile.txt", write your details in that file and copy the content of that file into another file "myProfile.txt".

Signature of the Faculty Member(s):

Head of The Department
Computer Science and Engineering