

DEPARTMENT OF HUMANITIES AND SCIENCES

Subject: PROGRAMMING FOR PROBLEM SOLVING LAB

Batch:R18

S.No	Name of the Experiment
1	<p>Practice sessions:</p> <p>a. Write a simple program that prints the results of all the operators available in C (including pre/ post increment , bitwise and/or/not , etc.). Read required operand values from standard input.</p> <p>b. Write a simple program that converts one given data type to another using auto conversion and casting. Take the values form standard input.</p>
2	<p>Simple numeric problems:</p> <p>a. Write a program for fiend the max and min from the three numbers.</p> <p>b. Write the program for the simple, compound interest.</p> <p>c. Write program that declares Class awarded for a given percentage of marks, where mark <40%= Failed, 40% to <60% = Second class, 60% to <70%=First class, >= 70% = Distinction. Read percentage from standard input.</p> <p>d. Write a program that prints a multiplication table for a given number and the number of rows in the table. For example, for a number 5 and rows = 3, the output should be:</p> <p style="padding-left: 40px;">5 x 1 = 5</p> <p style="padding-left: 40px;">5 x 2 = 10</p> <p style="padding-left: 40px;">5 x 3 = 15</p> <p>e. Write a program that shows the binary equivalent of a given positive number between 0 to 255.</p>
3	<p>Expression Evaluation:</p> <p>a. A building has 10 floors with a floor height of 3 meters each. A ball is dropped from the top of the building. Find the time taken by the ball to reach each floor. (Use the formula $s = ut + (1/2)at^2$ where u and a are the initial velocity in m/sec (= 0) and acceleration in m/sec^2 (= 9.8 m/s^2)).</p> <p>b. Write a C program, which takes two integer operands and one operator from the user, performs the operation and then prints the result. (Consider the operators +,-</p>

	<p>, *, /, % and use Switch Statement)</p> <ul style="list-style-type: none"> c. Write a program that finds if a given number is a prime number d. Write a C program to find the sum of individual digits of a positive integer and test given number is palindrome. e. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of the sequence. f. Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user. g. Write a C program to find the roots of a Quadratic equation. h. Write a C program to calculate the following, where x is a fractional value. $1-x/2 + x^2/4 - x^3/6$ i. Write a C program to read in two numbers, x and n, and then compute the sum of this geometric progression: $1+x+x^2+x^3+\dots+x^n$. For example: if n is 3 and x is 5, then the program computes $1+5+25+125$.
4	<p>Arrays and Pointers and Functions:</p> <ul style="list-style-type: none"> a. Write a C program to find the minimum, maximum and average in an array of integers. b. Write a functions to compute mean, variance, Standard Deviation, sorting of n elements in single dimension array. c. Write a C program that uses functions to perform the following: <ul style="list-style-type: none"> i. Addition of Two Matrices ii. Multiplication of Two Matrices iii. Transpose of a matrix with memory dynamically allocated for the new matrix as row and column counts may not be same. d. Write C programs that use both recursive and non-recursive functions <ul style="list-style-type: none"> i. To find the factorial of a given integer. ii. To find the GCD (greatest common divisor) of two given integers. iii. To find x^n e. Write a program for reading elements using pointer into array and display the values using array. f. Write a program for display values reverse order from array using pointer. g. Write a program through pointer variable to sum of n elements from array.
5	<p>Files:</p> <ul style="list-style-type: none"> a. Write a C program to display the contents of a file to standard output device. b. Write a C program which copies one file to another, replacing all lowercase

8	<p>Sorting and Searching:</p> <ul style="list-style-type: none">a. Write a C program that uses non recursive function to search for a Key value in a given list of integers using linear search method.b. Write a C program that uses non recursive function to search for a Key value in a given sorted list of integers using binary search method.c. Write a C program that implements the Bubble sort method to sort a given list of integers in ascending order.d. Write a C program that sorts the given array of integers using selection sort in descending ordere. Write a C program that sorts the given array of integers using insertion sort in ascending orderf. Write a C program that sorts a given array of names
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