



SCHOOL OF TECHNOLOGY
PANDIT DEENDAYAL ENERGY UNIVERSITY
GANDHINAGAR, GUJARAT, INDIA

Computer Science & Engineering
LAB File (2023-24)
Computer Programming with C LAB
(20CP101P)



Student Name: _____

Enrollment No.: _____ **Course with Semester:** _____

Division: _____

Group: _____

Instructor: Dr. Meera Thapar Khanna



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CERTIFICATE

This is to certify that Mr. /Miss _____

Enrolment no _____ of 1st Semester degree course in **Computer Science and Engineering** has satisfactorily prepared and presented his / her Term Work in **Computer Programming with C LAB (20CP101P)** within four walls of the laboratory of this Institute during August 2023 to November 2023.

Date of Submission:

Dr. Shakti Mishra
Head of Department

Dr. Meera Thapar Khanna
Assistant Professor

List of Practical

Exp. No.	Experiment Title	Date	Signature
1	<p>C basics on Input, Output constructs and different data types</p> <p>(a) Write a program that will print your mailing address in the following form: First line : Your Name Second line : Door No, Street Third line : City, Pin code</p> <p>(b) Write a program add, subtract, multiply, divide two numbers by asking inputs from the user.</p> <p>(c) Write a program to convert hours into minutes and minutes to hours.</p> <p>(d) Write a program to convert dollars into rupees from the user's input.</p> <p>(e) Write a program to convert Celsius to Fahrenheit and Fahrenheit to Celsius</p> $C = \frac{F - 32}{1.8}$ <p>(f) Write a program to find the Simple Interest from the user principal and time with fixed rate of interest as 10%.</p> <p>(g) Write a program to read the price of an item in decimal form (like 15.95) and print the output in paise (like 1595 paise).</p> <p>(h) A point on the circumference of a circle whose centre is (o, o) is (4,5). Write a program to compute the perimeter and area of the circle.</p> <p>(i) The price of one kg of rice is Rs. 16.75 and one kg of sugar is Rs. 15. Write a program to get the quantity to be bought from the user and display the total bill in a formatted manner as we get from the supermarket.</p>		
2	<p>Types of Operators, Precedence and associativity of Operators</p> <p>(a) Given the values of the variables x, y and z, write a program to rotate their values such that x has the value of y, y has the value of z, and z has the value of x.</p> <p>(b) The total distance travelled by a vehicle in t seconds is given by distance = ut + (at²)/2 where u is the initial velocity (metres per second), a is the acceleration (metres per second²). Write a program to evaluate the distance travelled at regular intervals of time, given the values of u and a. The program should provide the flexibility to the user to select his own time intervals and repeat the calculations for different values of u and a.</p>		

3	<p>Control Statements</p> <p>(a) Write a program that determines whether a given integer is odd or even and displays the number and description on the same line.</p> <p>(b) Write a program to find the largest number among the inputted four numbers using:</p> <p>(i) Nested if</p> <p>(ii) Logical operators</p> <p>(c) Admission to a professional course is subject to the following conditions:</p> <p>Marks in Mathematics ≥ 60</p> <p>Marks in Physics ≥ 50</p> <p>Marks in Chemistry ≥ 40</p> <p>Total in all three subjects ≥ 200 or Total in Mathematics and Physics ≥ 150</p> <p>Given the marks in the three subjects, write a program to process the applications to list whether the candidate is eligible or not.</p>		
4	<p>Loop Statements</p> <p>(a) Write a program to calculate the average of a set of N numbers.</p> <p>(b) Write a program to count all the prime numbers that lie between 100 and 200.</p> <p>(c) Write a program to output the following multiplication table for any number and display the output in the following format:</p> <p>5 * 1 = 5</p> <p>5 * 2 = 10</p> <p>5 * 3 = 15</p> <p>..</p> <p>..</p> <p>5 * 10 = 50</p> <p>(d) Write a program to print all integers that are not divisible by either 2 or 3 and lie between 1 and 100. Program should also count the number of such integers and print the result.</p> <p>(e) Write a program to compute and display the sum of all integers that are divisible by 6 but not divisible by 4 and lie between 0 and 100. The program should also count and display the number of such values.</p>		
5	<p>Arrays</p> <p>(a) Write a program to count and print the number of negative and positive numbers in a given array from the user.</p>		

	<p>(b) Write a program to read 10 numbers and calculate sum and mean of the numbers, calculate variance, and calculate standard deviation.</p> $s = \sqrt{\text{variance}}$ $\text{variance} = \frac{1}{n} \sum_{i=1}^n (x_i - m)^2$ $m = \text{mean} = \frac{1}{n} \sum_{i=1}^n x_i$ <p>(c) Write a program to read two matrices A and B and print the following:</p> <p>(j) A + B; and (ii) A – B.</p>		
6	<p>User Defined Functions</p> <p>(a) Given two integers 20 and 10, write a program that uses a function add() to add these two numbers and sub() to find the difference of these two numbers and then display the sum and difference in the following form:</p> <p>20 + 10 = 30 20 – 10 = 10</p> <p>(b) Write a program to find the Simple Interest (SI) and compound interest (CI) of the user principal amount and time with fixed rate of interest as 10%. The program should ask the user his choice to compute the SI or the CI and based on the given choice appropriate function should be used.</p>		
7	<p>Strings</p> <p>(a) An electricity board charges the following rates for the use of electricity:</p> <p>For the first 200 units: 80 P per unit For the next 100 units: 90 P per unit Beyond 300 units: Rs 1.00 per unit All users are charged a minimum of Rs. 100 as meter charge. If the total amount is more than Rs. 400, then an additional surcharge of 15% of total amount is charged. Write a program to read the names of users and number of units consumed and print out the charges with names.</p> <p>(b) Write a program that will compute the length of a given character string.</p> <p>(c) Write a program that will count the number occurrences of a specified character in a given line of text.</p>		
8	<p>Pointers</p> <p>(a) Write a program to print the address of a variable along with its value.</p> <p>(b) Write a program using pointers to compute the sum of all elements stored in an array.</p>		

9	Structures (a) Define a structure type, struct personal that would contain person name, date of joining and salary. Using this structure, write a program to read this information for one person from the keyboard and print the same on the screen. (b) Create a structure RoomCondition with members {humidity, temperature and AQI}. Write a program to scan five readings of room condition and display the average room condition based on these readings.		
10	Files (a) Write a program to read data from the keyboard, write it to a file called INPUT, again read the same data from the INPUT file, and display it on the screen. (b) Write a program to append additional data to a pre-existing file and print the total contents of the file.		

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