

ARCHER INFOTECH, PUNE

F-12, DIVYADARSHAN SOCIETY, BEHIND KOTHRUD BUS STAND, KOTHRUD, PUNE,
MAHARASHTRA 411029

C PROGRAMMING PRACTICAL PROBLEM STATEMENTS TO SOLVE IN LAB SESSIONS

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Certainly! When students are engaged in programming training and practical work in a lab setting, it's important to follow certain rules to ensure a productive and conducive learning environment.

Here's a list of rules for students in a programming lab:

- Students should not install any software on the lab computers without explicit permission from the instructor or lab supervisor.
- Treat computers, peripherals, and other lab equipment with care. Report any malfunction or damage to the instructor immediately.
- Maintain a clean and organized workspace. Dispose of any trash appropriately.
- Save your work frequently to avoid losing progress in case of unexpected system failures.
- Food and drinks should not be consumed near computers to prevent spillage and potential damage.
- Set mobile phones to silent mode to minimize disruptions during lab sessions.
- Do not attempt to access files, programs, or data belonging to other students without permission.
- Adhere to the designated lab hours and start and finish your work within the specified time.
- Follow the instructor's guidelines regarding collaboration on assignments and projects. Respect individual work when required.
- If you encounter difficulties or have questions, ask the instructor or teaching assistant for assistance. Avoid disruptive behavior that may disturb others.
- Regularly back up your code and project files to prevent data loss. This is especially important before making significant changes.
- Always log off from computers when you finish your work to ensure the security of your files and protect your privacy.
- Adhere to any coding standards or guidelines provided by the instructor. This promotes consistency and readability in code.
- Report any technical issues, malfunctions, or concerns with the lab environment to the instructor or lab supervisor promptly.
- Be considerate of your peers by maintaining a quiet and focused atmosphere in the lab. Avoid distracting behavior.
- Access only websites relevant to the programming task at hand. Avoid visiting unauthorized or non-educational websites during lab sessions.
- Refrain from playing online games or engaging in any form of online entertainment during lab hours.
- Refrain from using social media platforms, instant messaging, or any non-educational communication tools during lab hours.

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List of basic Operator Programs

- Write a C program to perform input/output of all basic data types.
- Write a C program to enter two numbers and find their sum.
- Write a C program to enter two numbers and perform all arithmetic operations.
- Write a C program to enter length and breadth of a rectangle and find its perimeter.
- Write a C program to enter length and breadth of a rectangle and find its area.
- Write a C program to enter radius of a circle and find its diameter, circumference and area.
- Write a C program to enter length in centimeter and convert it into meter and kilometer.
- Write a C program to enter temperature in Celsius and convert it into Fahrenheit. 9.
Write a C program to enter temperature in Fahrenheit and convert to Celsius
- Write a C program to convert days into years, weeks and days.
- Write a C program to find power of any number x^y .
- Write a C program to enter any number and calculate its square root.
- Write a C program to enter two angles of a triangle and find the third angle.
- Write a C program to enter base and height of a triangle and find its area.
- Write a C program to calculate area of an equilateral triangle.
- Write a C program to enter marks of five subjects and calculate total, average and percentage.
- Write a C program to enter P, T, R and calculate Simple Interest.
- Write a C program to enter P, T, R and calculate Compound Interest.

List of bitwise operators exercises

- Write a C program to check Least Significant Bit (LSB) of a number is set or not.
- Write a C program to check Most Significant Bit (MSB) of a number is set or not.
- Write a C program to get nth bit of a number.
- Write a C program to set nth bit of a number.
- Write a C program to clear nth bit of a number.
- Write a C program to toggle nth bit of a number.
- Write a C program to get highest set bit of a number.
- Write a C program to get lowest set bit of a number.
- Write a C program to count trailing zeros in a binary number.
- Write a C program to count leading zeros in a binary number.
- Write a C program to flip bits of a binary number using bitwise operator.

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- Write a C program to count total zeros and ones in a binary number.
- Write a C program to rotate bits of a given number.
- Write a C program to convert decimal to binary number system using a bitwise operator.
- Write a C program to swap two numbers using a bitwise operator.
- Write a C program to check whether a number is even or odd using a bitwise operator.

List of conditional operators programming exercises

- Write a C program to find maximum between two numbers using conditional operator.
- Write a C program to find maximum between three numbers using conditional operator.
- Write a C program to check whether a number is even or odd using conditional operator.
- Write a C program to check whether year is leap year or not using conditional operator.
- Write a C program to check whether character is an alphabet or not using a conditional operator.

List of if...else programming exercises

- Write a C program to find the maximum between two numbers.
- Write a C program to find maximum between three numbers.
- Write a C program to check whether a number is negative, positive or zero.
- Write a C program to check whether a number is divisible by 5 and 11 or not.
- Write a C program to check whether a number is even or odd.
- Write a C program to check whether a year is a leap year or not.
- Write a C program to check whether a character is an alphabet or not.
- Write a C program to input any alphabet and check whether it is a vowel or consonant.

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- Write a C program to input any character and check whether it is alphabet, digit or special character.
- Write a C program to check whether a character is uppercase or lowercase alphabet.
- Write a C program to input week number and print week day.
- Write a C program to input month number and print number of days in that month.
- Write a C program to count total number of notes in given amount.
- Write a C program to input angles of a triangle and check whether triangle is valid or not.
- Write a C program to input all sides of a triangle and check whether triangle is valid or not.
- Write a C program to check whether the triangle is equilateral, isosceles or scalene triangle.
- Write a C program to find all roots of a quadratic equation.
- Write a C program to calculate profit or loss.
- Write a C program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade according to following:
 - Percentage $\geq 90\%$: Grade A
 - Percentage $\geq 80\%$: Grade B
 - Percentage $\geq 70\%$: Grade C
 - Percentage $\geq 60\%$: Grade D
 - Percentage $\geq 40\%$: Grade E
 - Percentage $< 40\%$: Grade F
- Write a C program to input basic salary of an employee and calculate its Gross salary according to the following:
 - Basic Salary ≤ 10000 : HRA = 20%, DA = 80%
 - Basic Salary ≤ 20000 : HRA = 25%, DA = 90%
 - Basic Salary > 20000 : HRA = 30%, DA = 95%
- Write a C program to input electricity unit charges and calculate total electricity bill according to the given condition: For the first 50 units Rs. 0.50/unit
 - For next 100 units Rs. 0.75/unit
 - For next 100 units Rs. 1.20/unit
 - For unit above 250 Rs. 1.50/unit
 - An additional surcharge of 20% is added to the bill

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List of Loop programming exercises

- Write a C program to print all natural numbers from 1 to n.
- Write a C program to print all natural numbers in reverse (from n to 1).
- Write a C program to print all alphabets from a to z.
- Write a C program to print all even numbers between 1 to 100.
- Write a C program to print all odd numbers between 1 to 100.
- Write a C program to find the sum of all natural numbers between 1 to n.
- Write a C program to find the sum of all even numbers between 1 to n.
- Write a C program to find sum of all odd numbers between 1 to n.
- Write a C program to print multiplication table of any number.
- Write a C program to count number of digits in a number.
- Write a C program to find first and last digit of a number.
- Write a C program to find sum of first and last digit of a number.
- Write a C program to swap first and last digits of a number.
- Write a C program to calculate sum of digits of a number.
- Write a C program to calculate product of digits of a number.
- Write a C program to enter a number and print its reverse.
- Write a C program to check whether a number is palindrome or not.
- Write a C program to find frequency of each digit in a given integer.
- Write a C program to enter a number and print it in words.
- Write a C program to print all ASCII character with their values.
- Write a C program to find power of a number using for loop.
- Write a C program to find all factors of a number.
- Write a C program to calculate factorial of a number.
- Write a C program to find HCF (GCD) of two numbers.
- Write a C program to find LCM of two numbers.
- Write a C program to check whether a number is Prime number or not.
- Write a C program to print all Prime numbers between 1 to n.
- Write a C program to find sum of all prime numbers between 1 to n.
- Write a C program to find all prime factors of a number.
- Write a C program to check whether a number is Armstrong number or not.
- Write a C program to print all Armstrong numbers between 1 to n.
- Write a C program to check whether a number is Perfect number or not.
- Write a C program to print all Perfect numbers between 1 to n.
- Write a C program to check whether a number is Strong number or not.

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- Write a C program to print all Strong numbers between 1 to n.
- Write a C program to print Fibonacci series up to n terms.
- Write a C program to find one's complement of a binary number.
- Write a C program to find two's complement of a binary number.
- Write a C program to convert Binary to Octal number system.
- Write a C program to convert Binary to Decimal number system.
- Write a C program to convert Binary to Hexadecimal number system.
- Write a C program to convert Octal to Binary number system.
- Write a C program to convert Octal to Decimal number system.
- Write a C program to convert Octal to Hexadecimal number system.
- Write a C program to convert Decimal to Binary number system.
- Write a C program to convert Decimal to Octal number system.
- Write a C program to convert Decimal to Hexadecimal number system.
- Write a C program to convert Hexadecimal to Binary number system.
- Write a C program to convert Hexadecimal to Octal number system.
- Write a C program to convert Hexadecimal to Decimal number system.
- Write a C program to print Pascal triangle upto n rows.

Star pattern programs – Write a C program to print the given star patterns.

Number pattern programs – Write a C program to print the given number patterns

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