

| WEEK NO. | PROBLEMS WITH DESCRIPTION. | |
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| 1. | 1# | Sum of Two Numbers: Write a program that takes two integers from the user and prints their sum. |
| | 2# | Even or Odd: Write a program to check whether a given number is even or odd. |
| | 3# | Largest of Three Numbers: Write a program to find the largest of three numbers. |
| | 4# | Simple Calculator: Write a program to create a simple calculator that can add, subtract, multiply, and divide two numbers. |
| | 5# | Leap Year Check: Write a program to check whether a given year is a leap year. |
| 2. | 1# | Fibonacci Sequence: Write a program to print the first 10 numbers of the Fibonacci sequence. |
| | 2# | Factorial of a Number: Write a program to calculate the factorial of a given number. |
| | 3# | Prime Number Check: Write a program to check whether a given number is prime or not. |
| | 4# | Reverse a Number: Write a program to reverse the digits of a given number. |
| | 5# | Palindrome Check: Write a program to check if a given string or number is a palindrome. |
| 3. | 1# | Binary to Decimal Conversion: Write a program to convert a binary number to its decimal equivalent. |
| | 2# | Decimal to Binary Conversion: Write a program to convert a decimal number to its binary equivalent. |
| | 3# | Count Vowels and Consonants: Write a program to count the number of vowels and consonants in a given string. |
| | 4# | Sum of Digits: Write a program to calculate the sum of the digits of a given number. |
| | 5# | Write a program to find the HCF and LCM of two numbers. |
| 4. | 1# | Simple Array Operations: Write a program to perform basic operations like finding the sum, average, maximum, and minimum of elements in an array. |
| | 2# | Matrix Addition: Write a program to add two matrices. |
| | 3# | Matrix Multiplication: Write a program to multiply two matrices. |
| | 4# | Find Largest Element in an Array: Write a program to find the largest element in an array. |
| | 5# | Sort an Array: Write a program to sort an array using the bubble sort algorithm. |

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| 5. | 1# | Merge Two Sorted Arrays: Write a program to merge two sorted arrays into one sorted array. |
| | 2# | Transpose of a Matrix: Write a program to find the transpose of a given matrix. |
| | 3# | Check Prime Numbers in a Range: Write a program to find all prime numbers between two given intervals. |
| | 4# | Implement a Stack: Write a program to implement a stack using an array with push, pop, and display operations. |
| 6. | 1# | Implement a Queue: Write a program to implement a queue using an array with enqueue, dequeue, and display operations. |
| | 2# | Write a C program to implement First-Come-First-Served (FCFS) scheduling. |
| | 3# | Write a C program to implement Shortest Job Next (SJN) scheduling. |
| 7. | 1# | Find the Second Largest Element in an Array: Write a program to find the second largest element in an array. |
| | 2# | Implement a C program to simulate Round-Robin scheduling. |
| | 3# | Write a C program to implement Priority scheduling. |
| 8. | 1# | Find the Missing Number in an Array: Write a program to find the missing number in an array containing n distinct numbers taken from the range 0 to n. |
| | 2# | Write a C program to simulate deadlock conditions. |
| | 3# | Implement a C program using the Banker's Algorithm for deadlock avoidance. |
| 9. | 1# | Write a report on the stages of the system development life cycle. |
| | 2# | Compare and contrast SSAD and OOAD. |
| | 3# | Create a diagram representing the SDLC stages. |
| | 4# | Write a C program to simulate a simple system development task. |
| 10. | 1# | Write a report on the fundamental concepts of object orientation. |
| | 2# | Create a UML class diagram for a simple system. |
| | 3# | Write a C++/Java program to demonstrate inheritance and polymorphism. |
| | 4# | Implement a C++/Java program to simulate object-oriented modelling. |
| 11. | 1# | Write a report on the elements of object-oriented design. |
| | 2# | Create a UML package diagram for a simple system. |
| | 3# | Implement a C++/Java program to demonstrate the use of design patterns. |
| | 4# | Write a C++/Java program to simulate object-oriented design. |
| 12. | 1# | Identify the requirements for a library information system. |
| | 2# | Create a use-case diagram for the library information system. |
| | 3# | Create a class diagram for the library information system. |
| | 4# | Implement a C++/Java program to simulate a part of the library information system. |

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| 13. | 1# | Binary Search: Write a program to perform binary search on a sorted array. |
| | 2# | Write a shell script to demonstrate basic file-related commands in Linux. |
| | 3# | Write a shell script to demonstrate file creation and deletion. |
| 14. | 1# | Write a shell script to change file permissions and ownership. |
| | 2# | Implement a shell script to search for a specific file in a directory. |
| | 3# | Write a shell script to display the contents of a file with line numbers. |