WEEK NO.		PROBLEMS WITH DESCRIPTION.
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.

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.
	4	Input the distance between two cities (in km.) through the keyboard and write a shell script program to convert and print this distance in meters, feet, inches and centimeters.
	5	The length and breadth of a rectangle and radius of a circle are input though the keyboard. Write a shell script program to calculate the area and perimeter of the rectangle and the area & circumference of the circle.
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.
	4	If a five-digit number is input through the keyboard, write a shell script program to calculate the sum of its digits. (Hint: use the modulus operator '%')
	5	Write a shell script which will receive either the filename or the filename with its full path during execution. This script should obtain information about this file as given by ls -l and display it in proper format.
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.
	4	In a company, an employee is paid as follows: his basic salary is less than Rs. 1500, then HRA = 10% of basic salary and DA = 90% of basic. If his salary is either equal to or above Rs. 1500, then HRA = Rs. 500 and DA = 98% of basic salary. If the employee's salary is input through the keyboard write a program to find his gross salary.
	5	If cost price and selling price of an item is input through the keyboard, write a shell script program to determine whether the seller has made profit or incurred loss. Also determine how much profit was made or loss incurred.

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.
	5	Write a shell script which receives any year from the keyboard and determines whether the year is a leap year or not. If no argument is supplied the current year should be assumed.
	6	Write a shell script which receives two filenames as arguments. It should check whether the two file's contents are same or not. If they are same the second file should be deleted. (Hint: Use the cmp command to compare files)
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 modeling.
	5	A shell script can receive an argument 'one', 'two', or 'three'. If the argument supplied is 'one' display it in bold, if it is 'two' display it in reverse order and if it is 'three' make it blink on the screen. If a wrong argument is supplied report it. (Hint: Use an elif statement)
	6	Write a shell script to display the message "Good Morning" / "Good Afternoon" / "Good Evening" depending upon the current time.
	7	Write a shell script program to calculate overtime pay of 10 employees. Overtime is paid at the rate of Rs. 12.00 per hour for every hour worked above 40 hours. Assume that the employees do not work for fractional part of an hour.
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.
	5	Write a program to find the factorial value of any number entered through the keyboard.
	6	Two numbers are entered through the keyboard. Write a program to find the value of one number raised to the power of another.
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.

	5	Write a shell script program to count and report the number of entries present in each sub directory mentioned in the path which is supplied as command line argument.
	6	Write a shell script program to generate all combinations of 1, 2 and 3 using for loops.

13.	1	Write a shell script to demonstrate basic file-related commands in Linux.
	2	Write a shell script to demonstrate file creation and deletion.
	3	Write a shell script which deletes all lines containing the word unix in the files supplied as arguments to this shell script.
	4	Write a shell script which displays a list of all files in the current directory to which you have read, write and execute permission.
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.
	4	Write a shell script which will receive any number of filenames as arguments. The shell script should check whether every argument supplied is a file or a directory. If it is a directory it should be approximately reported. If it is a filename then name of the file as well as number of lines present in it should be reported.