	SVKM's NMIMS **Mukesh Patel School of Technology Management & Engineering / School of Technology Management & Engineering**	
B. Tech/MBA Tech	**Workbook**	**Academic Year- 2024-25**
Year:-First	**Subject:-** Programming for Problem Solving	**Semester:- First**

Experiment: 4

PART B

(PART B: TO BE COMPLETED AND SUBMITTED BY STUDENTS)

Students must execute all the programs, write executed code in the workbook, and submit part B of experiment 4 on the student portal. The filename should be PPS_batch_rollno_experimentno. Example: PPS_A1_A001_P4

Roll No.:	**Name:**
Prog/Yr/Sem:	**Batch:**
Date of Experiment:	**Date of Submission:**

Aim: Programming using looping and unconditional statements

Tasks:

Sr. No.	Problem Statement	Flow chart
1	Write program to find the sum of the following series using while loop $1^2 + 2^2 + 3^2 + \ldots. N^2$	
2.	Write a program to find the sum of all numbers between M and N, where N>M, using for loop.	
3.	Write a program to accept a number from the user. Find and print the sum of digits of the number. (using do-while loop)	✓
4.	Write a program that prints the first n Fibonacci numbers using a for loop.	
5.	Write a program to accept a number from user and display if the number is Armstrong number. (Armstrong number is the number in any given number base, which forms the total of the same number, when each of its digits is raised to the power of the number of digits in the number.)	
6.	Write an algorithm to find a given number is palindrome or not. Example of Palindrome number: 12321 565	

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	Note:- Its number not string/character array…	
7.	Write a program to check whether the entered number is prime or not. (make use of **break**)	✓
8.	Write a program to print the entire uppercase and lowercase letters using a loop (use continue). Hint: - ASCII values of A-65, a-97 there are not alphabets from 91 to 96, these values can be continued	
9.	Write a program using loop to find the Greatest Common Divisor (GCD) and Least Common Multiple (LCM) of two numbers.	

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Executed Code, Input and Output

1.	Write program to find the sum of the following series using while loop $1^2 + 2^2 + 3^2 + \ldots N^2$

Executed Code: -
// Paste the executed code here
 	
Input Output: -
// Paste the input/output of executed code	

2.	Write a program to find the sum of all numbers between M and N, where N>M, using for loop.

Executed Code: -
// Paste the executed code here
 	
Input Output: -
// Paste the input/output of executed code	

3.	Write a program to accept a number from the user. Find and print the sum of digits of the number. (using do-while loop)

Executed Code: -
// Paste the executed code here
 	
Input Output: -
// Paste the input/output of executed code	

4.	Write a program that prints the first n Fibonacci numbers using a for loop.

Executed Code: -
// Paste the executed code here
 	
Input Output: -
// Paste the input/output of executed code	

5.	Write a program to accept a number from user and display if the number is Armstrong number. (Armstrong number is the number in any given number base, which forms the total of the same number, when each of its digits is raised to the power of the number of digits in the number.)

Executed Code: -
// Paste the executed code here
 	
Input Output: -
// Paste the input/output of executed code	

6.	Write an algorithm to find a given number is palindrome or not. Example of Palindrome number: 12321 565 **Note:- Its number not string/character array…**

Executed Code: -
// Paste the executed code here
 	
Input Output: -
// Paste the input/output of executed code	

7.	Write a program to check whether the entered number is prime or not. (make use of **break**)

Executed Code: -
// Paste the executed code here

Input Output: -
// Paste the input/output of executed code

8.	Write a program to print the entire uppercase and lowercase letters using a loop (use continue). Hint: - ASCII values of A-65, a-97 there are not alphabets from 91 to 96, these values can be continued

Executed Code: -
// Paste the executed code here

Input Output: -
// Paste the input/output of executed code

9.	Write a program using loop to find the Greatest Common Divisor (GCD) and Least Common Multiple (LCM) of two numbers.

Executed Code: -
// Paste the executed code here

Input Output: -
// Paste the input/output of executed code

Observation and Learning: -

- Write your observation and learning

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Additional Questions

1. Write a program to display the sum of N terms of even natural numbers.
   Hint:-Suppose value of N=6, then first N terms are 2+4+6+8+10+12
2. Write a program in C++ to find the number and sum of all integers between 100 and 200 which are divisible by 9.
3. Implement a program to print all Leap Years from 1 to N using C++ program.(Using - for)
4. Write a program to print the sum of the last and the first digit of a number the user gives. (Uisng-While)
5. Write a program to find the power of a number X^Y; here, X is base and Y is exponent (using for loop)
6. Write a program in C++ to check the perfect number
7. Write a program to count +ve number, -ve number and zeros until user want, make use of do while loop. (using do-while)
8. Write a C++ program that asks the user to enter positive integers in order to process count, maximum, minimum, and average or terminate the process with -1.

Nested Loop Question: -

1. Write a program to check whether a number is a strong number or not.
2. Write a program in C++ to calculate the series (1) + (1+2) + (1+2+3) + (1+2+3+4) + ... + (1+2+3+4+...+n).