Programming Fundamentals

BS (CS) _Fall_2025

Lab_14 Tasks

Learning Objectives:

1. Recursion
2. Pointer

Lab Tasks

Submission Instructions

1. Name each Task question as **i25XXXX_Task<NO>** **e.g.** i250000_Task1.cpp
2. Compress all **.cpp** files into a **.zip** file, and name it as *ROLLNO_SEC_LAB14* **e.g. i25XXXX_A_LAB14.**
3. Now you have to submit this zipped file on Google Classroom.
4. If you don't follow the above-mentioned submission instruction, you will be marked **zero.**
5. Plagiarism in the Lab Task will result in **zero** marks in the whole category.

Zero Tasks

Q1. Dry Run the code

```
#include <iostream>
using namespace std;
int sum(int  n)
{
    if (n == 1){return 1;}

    return n+sum(n-1);
}

int main() {
    int n = 4 ;
    int result=sum(n);
    cout<<result<<endl;
}
```

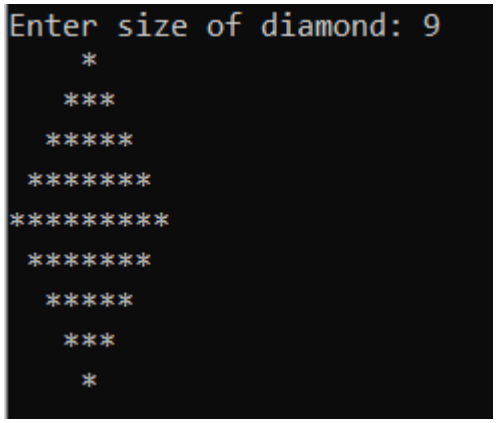
Q2. Write a program to display the address of integer variable by using pointer and without using pointer. Also display value in integer variable by using pointer.

Lab Tasks

Q3. Write a C++ program that computes the base raised to the power of the exponent using recursion only (no loops allowed).

Q4. A user wants to generate a list of even numbers within a specific interval. The user enters a starting number and an ending number. Write a program that finds and displays all even numbers within this range

Q5. A pattern-drawing tool requires the user to input an odd number that will represent the height of a diamond shape. Write a C++ program that asks the user for an odd number and then draws a diamond pattern of that height.



Q6. You are given an integer array of size 10, along with an integer variable n = 0 and a pointer that stores the address of n. Using only this pointer, write a program to compute the sum of all elements in the array and store the result in n.