1. Introduction to C++

LAB EXERCISES:

3. POP vs. OOP Comparison Program

o Write two small programs: one using Procedural Programming (POP) to calculate the area of a rectangle, and another using Object-Oriented Programming (OOP) with a class and object for the same task

o Objective: Highlight the difference between POP and OOP approaches.

Ans-

In POP:

```
#include <stdio.h>

float calculateArea(float length, float breadth) {
    return length * breadth;
}

int main() {
    float length, breadth, area;

    printf("Enter length: ");
    scanf("%f", &length);

    printf("Enter breadth: ");
    scanf("%f", &breadth);

    area = calculateArea(length, breadth);
```

```
    printf("Area of Rectangle = %.2f\n", area);


    return 0;
}
```

In OOP:

```cpp
#include <iostream>
using namespace std;


class Areaofrectengle
{
public:
    float lenght, breadth, area;
};


int main()
{
    Areaofrectengle obj;
    cout << "Enter the length of rectengle:";
    cin >> obj.lenght;


    cout << "Enter the breadth of rectengle:";
    cin >> obj.breadth;


    obj.area = obj.breadth * obj.lenght;
    cout << "The area of rectengle is: " << obj.area;
}
```

Feature	POP (C)	OOP (C++)
Focus	Functions & procedures	Objects & classes
Data handling	Global/shared variables	Data is encapsulated inside objects
Code structure	Linear and top-down	Modular and object-based
Reusability	Difficult	Easy via inheritance and polymorphism
Example	calculateArea(length, breadth)	rect.calculateArea()