Institute of Geographical Information Systems

CS-212 - Object Oriented Programming LAB

Semester: Fall 2025	**Class: SCEE-IGIS - 2024**
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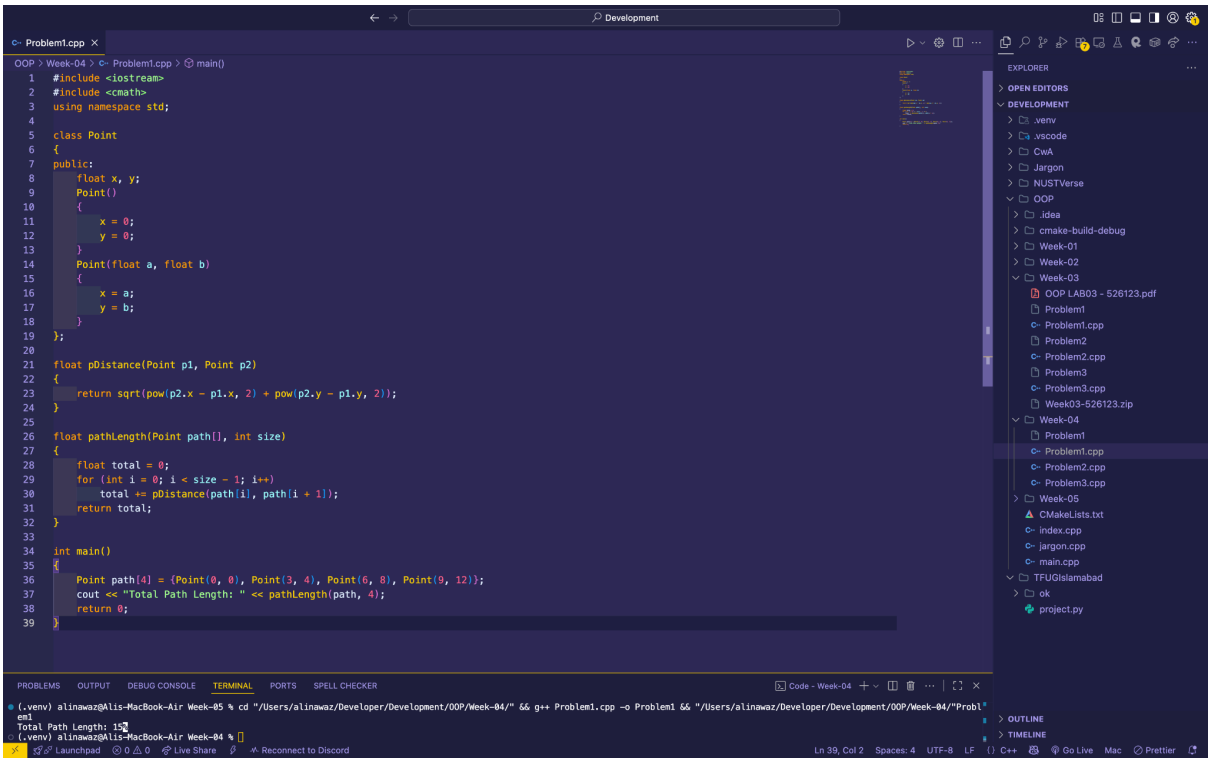
LAB 04: Constructors & Destructors

Task # 1:

Define a Point class with x and y coordinates. Write a function **pDistance(Point, Point)** that computes the distance between two points. Write a function **pathLength(Point[], int)** that takes an array of Point (representing a path) and its size as input parameters and compute the path length by using the **pDistance** function. Write a main program to test your class and functions.

Screenshot:



Task # 2:

Create a class Employee that manages employee details for a company. Each employee has:

- Name
- Age
- Salary
- Department

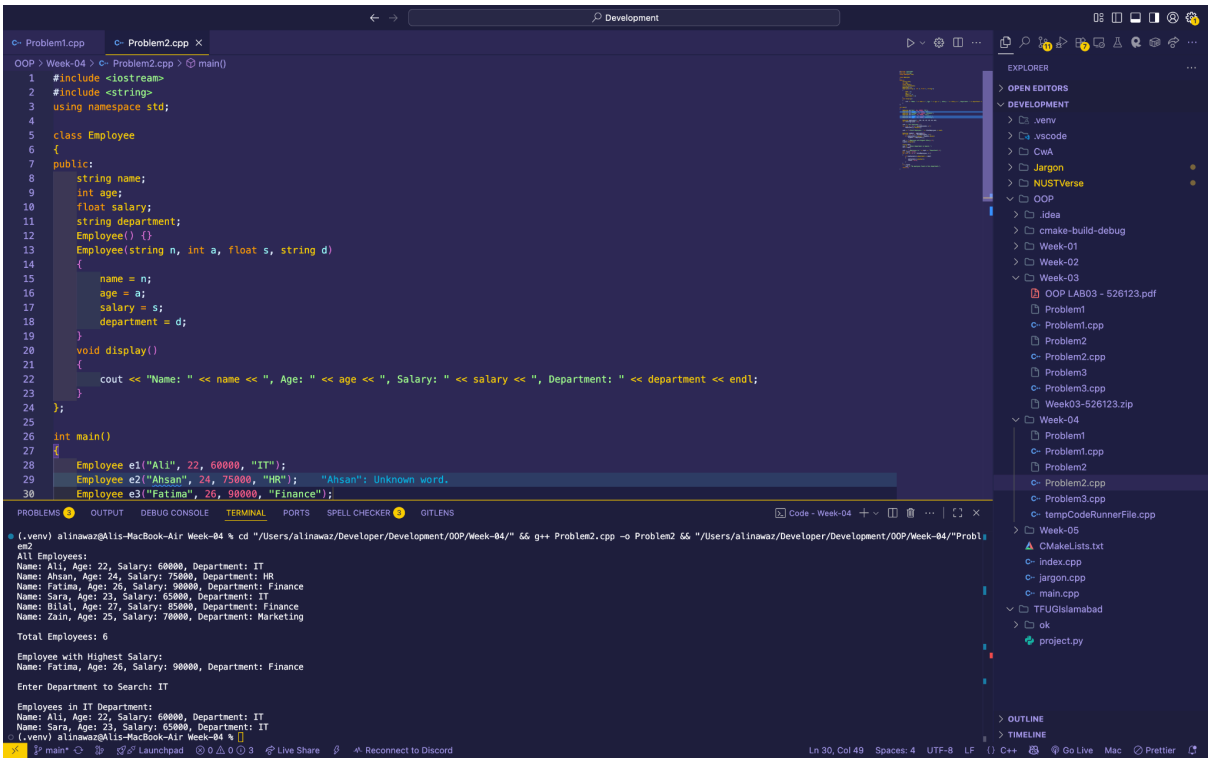
The company should be able to:

1. Hire employees by creating separate objects.
2. Display employee details.
3. Keep track of the total number of employees (using a counter in main, not static).
4. Identify the employee with the highest salary.
5. Search for employees in a given department and display them.

In the main() function:

- Hire at least 5–6 employees as separate objects.
- Display their details.
- Show the total number of employees hired.
- Find and display the employee with the highest salary.
- Allow the user to enter a department name and display employees of that department.

Screenshot:



Task # 3:

Create a class Room that represents a 3D rectangular room.

Requirements:

1. Data members:

- int length
- int width
- int height

2. Constructors & Destructor:

- A default constructor that sets all dimensions
- A parameterized constructor that sets dimensions from arguments.
- A destructor that prints a message like "Room object destroyed".

3. Member functions:

- volume() → returns the volume of the room.
- surfaceArea() → returns the surface area of the room
- canFitInside(Room other) → returns true if the current room can completely fit inside the other room (all three dimensions must be smaller).

4. In main():

- Create a Room r1 with length 10, width 12 and height 8 and for Room r2 take input from the user.
- Print the volume and surface area of both rooms.
- Check if r1 can fit inside r2, and display the result.
- Observe destructor messages at the end.

Screenshot: