Emergency Response Simulation - Report

Project Title: Emergency Response Simulation

Language: C# (.NET Console Application)

Description:

Simulates emergency incidents (Crime, Fire, Medical) at various locations. The user selects a unit to respond.

Key Classes:

- EmergencyUnit (abstract)
- Police
- Firefighter
- Ambulance
- Incident
- Program

Simple Class Structure:

EmergencyUnit (abstract)

- Police
- Firefighter
- Ambulance

Incident

Program (Main method)

Scoring:

Correct response +10 points

Wrong or unavailable response -5 points

Object-Oriented Programming (OOP) Concepts Used:

1. Abstraction:

- 'EmergencyUnit' is an abstract class defining common properties and behaviors for all units.

- Specific unit types (Police, Firefighter, Ambulance) implement their own handling logic.

2. Inheritance:

- 'Police', 'Firefighter', and 'Ambulance' inherit from 'EmergencyUnit', reusing common features.

3. Polymorphism:

- Different units override 'CanHandle' and 'RespondToIncident' methods based on their role.

4. Encapsulation:

- 'Incident' class groups data (Type, Location) together.

- Unit details (Name, Speed) are encapsulated inside each object.

Overall, the design cleanly separates concerns and promotes reusable, extendable code.