Emergency Response Simulation - OOP Concepts Report
Overview
This simulation models how emergency units (Police, Firefighters, Ambulances)
respond to incidents. Units
gain or lose points depending on their ability to handle random incidents.
Applied OOP Concepts
1. Abstraction
The EmergencyUnit class is an abstract class.
- It defines common properties (Name, Speed) and behaviors (CanHandle,
RespondToIncident).
- Details are hidden from the main program, showing only relevant actions.
2. Inheritance
Police, Firefighter, and Ambulance classes inherit from EmergencyUnit.
- They share common structure and behavior, but each defines specific handling based
on incident type.
3. Polymorphism
The RespondToIncident and CanHandle methods are overridden differently in each
subclass.
- In the main program, emergency units are treated uniformly (EmergencyUnit type),
but at runtime, the
correct specialized method is called based on the object type.
4. Encapsulation
Properties like Name, Speed, Type, Location, and Difficulty are encapsulated inside
their respective classes**Emergency Response Simulation - OOP Concepts Report**
with public getters and setters.
- The main program interacts with these objects without directly altering their internal
structure.