# SDA MID LAB GUL-E-NARJIS

## PATTERN AND PRINCIPLE USED:

#### **Selected Business Use Case:**

### **Detect Noise**

#### **Design Pattern Used:**

## Observer Pattern

#### Why?

In the system, different types of sensors (e.g., noise sensors) act as observers. When a noise sensor detects a sound above a certain threshold, it **notifies the Monitoring System**, which then **notifies the parent/guardian**.

So, the Observer Pattern is perfect here because:

- Sensors act as subjects
- Monitoring system acts as observer
- Real-time notification is triggered on events

#### **Design Principle Used:**

# Separation of Concerns (SoC)

#### Why?

The system is divided into layers:

- 1. **Sensor Layer** → Detects input (e.g., noise)
- 2. **Processing Layer** → Analyzes and decides whether it's dangerous
- 3. **Notification Layer** → Sends alerts to stakeholders (parents)

#### **Final Answer:**

**Selected Use Case:** Detect Dangerous Noise

**Design Pattern:** Observer Pattern – to notify the monitoring system whenever the sensor

detects noise.

**Design Principle:** Separation of Concerns – separate responsibilities for detection, processing, and notification for better maintainability and modularity.

## **USE CASE DIAGRAM:**

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GUL-E	-NARJIS	
	Kids Monitoring App	
	(Detect Motion)	
0	(Detect Heat)	
parent	(Detect Noise)	2
	Detection of crying	Adm
	Analyze the sensor data (Manage sensors)	
	(Record Inciclent)	Tot sense
ią(	(Notify Parent) (Receive Notifications	
	View Live Camera Feed)	20

# COMMUNICATION DIAGRAM:

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