**Practical 7: Modeling – Sequence Diagram**

**🎯 Objective:**

To model the **Sequence Diagram** for the **Agriculture Management System** in order to understand the interaction between system objects over time.

**🛠️ Tools Used:**

* Draw.io / Lucidchart / StarUML / Microsoft Visio
* MS Word / Google Docs for documentation

**📚 Theory:**

**✅ Sequence Diagram (UML):**

A **Sequence Diagram** is a type of **UML (Unified Modeling Language)** diagram that shows **how objects interact** in a **specific scenario** of a system. It emphasizes the **time sequence** of messages passed between objects.

**🧩 Main Components of Sequence Diagram:**

* **Actors:** External users or systems (e.g., Farmer, Admin)
* **Objects:** System components (e.g., CropManager, IrrigationScheduler)
* **Lifelines:** Vertical dashed lines that represent the object's existence over time
* **Messages:** Arrows representing communication between objects
* **Activation Bars:** Thin rectangles showing when an object is active

**🌾 Agriculture Management System – Use Case: "Schedule Irrigation"**

**📌 Actors Involved:**

* **Farmer**
* **System**
* **Irrigation Scheduler**
* **Soil Sensor**
* **Notification Service**

**✅ Explanation of Flow:**

* The **Farmer** logs into the system and requests to schedule irrigation.
* The **System** fetches **soil moisture data** from the **Soil Sensor**.
* Based on this, the **Irrigation Scheduler** checks past irrigation records from the **Database**.
* If conditions are met, it schedules irrigation and sends a notification via the **Notification Service**.

**📝 Conclusion:**

In this practical, we created a **Sequence Diagram** for the **Agriculture Management System**, focusing on the **“Schedule Irrigation”** scenario. This helps in understanding the **order of interactions** between various system components, ensuring smooth functionality and planning for implementation.