**Interview Answer: Borewell Water Consumption Monitoring System**

"**One of the key projects I worked on was the automation of water consumption monitoring across 35 borewells in multiple plant locations. Each borewell had a maximum capacity of 65 kiloliters per hour, and earlier, water usage tracking was done manually, which led to inaccuracies and delays.**

To automate this, I implemented **flow meters** on each borewell to accurately measure real-time water flow. These meters were connected to **IoT edge devices** that collected and transmitted the data every minute. We used **Azure IoT Hub** to receive this data in the cloud.

The data was processed using **Azure Stream Analytics** and stored in **Azure SQL** and **Data Lake** for reporting and long-term analysis. I built a **real-time dashboard using Power BI** to monitor daily water usage for each borewell, and we also added alerting through **Azure Functions** if usage exceeded the expected range.

Additionally, we used **Azure Machine Learning** for basic forecasting of future water demand, and **Power Automate** for daily reporting workflows. The system helped reduce water wastage, improved visibility, and ensured better compliance with usage policies.

Overall, the project gave me strong hands-on experience with IoT integration, real-time data processing, cloud architecture, and dashboarding—all using Microsoft Azure technologies."

**🧰 Technologies Used (Simple Explanation)**

| **Technology** | **Purpose** |
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| **Flow Meters (Ultrasonic/Electromagnetic)** | Measure water flow from each borewell. |
| **IoT Devices (e.g., Raspberry Pi / IoT Gateway)** | Read flow meter data and send it to the cloud. |
| **Azure IoT Hub** | Cloud service that receives data from all IoT devices. |
| **Azure Stream Analytics** | Real-time data processing and filtering. |
| **Azure SQL / Data Lake** | Store historical and structured data for reporting. |
| **Azure Functions** | Auto-triggered code for sending alerts or notifications. |
| **Power BI** | Create dashboards to visualize water usage. |
| **Azure Machine Learning (optional)** | Predict future water usage trends. |
| **Power Automate** | Automate daily reports or trigger actions. |