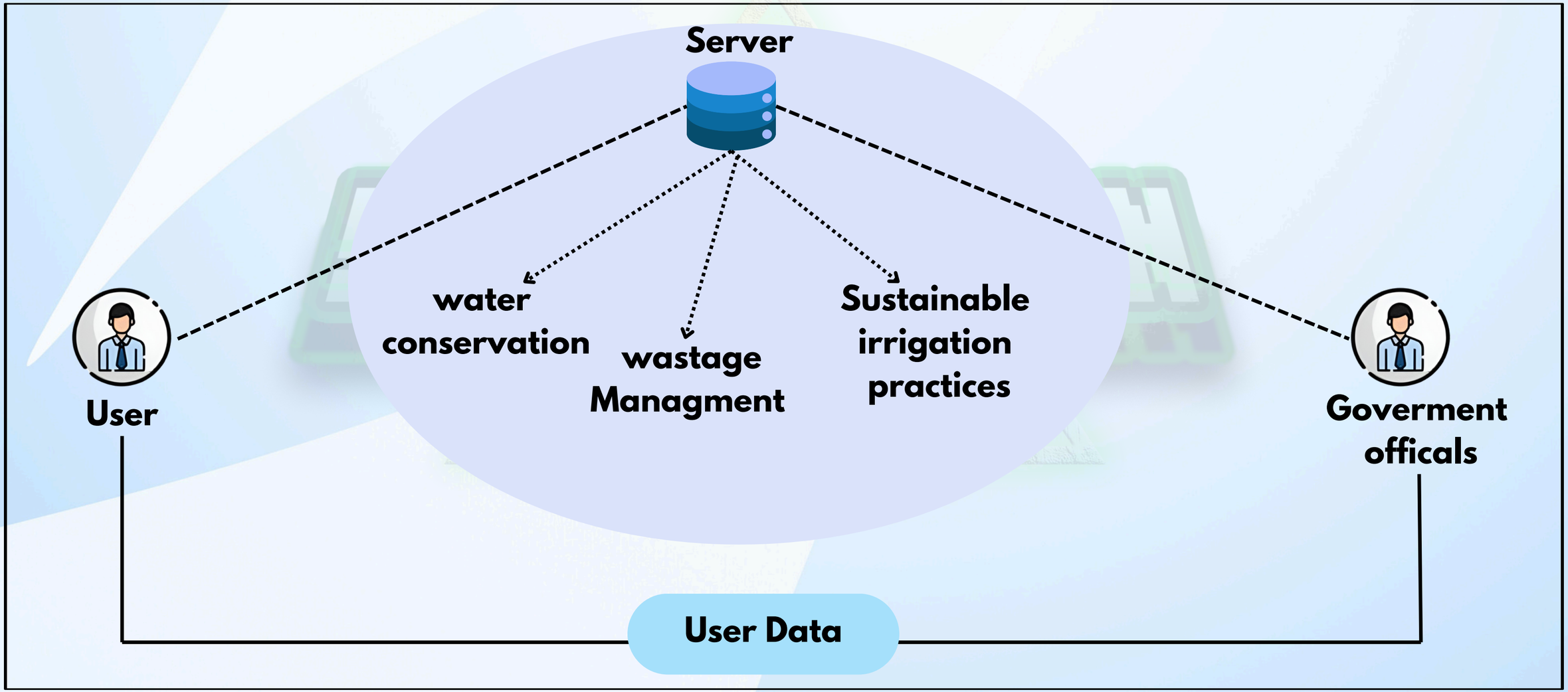
Description of Problem Statement :

- The solution should reduce water waste, optimize irrigation practices, and promote sustainable agriculture for both small-scale and large-scale operations.
- Water scarcity and inefficient irrigation threaten agriculture. Farmers need tools to manage water use efficiently, promoting sustainable farming practices and organizing farming through better water conservation.
- Key Areas of Concern: Water scarcity, inefficient irrigation, lack of real-time data, sustainability, and waste water management.
- Line of Action: Enhance water conservation, optimize irrigation, provide real-time insights, promote sustainable practices, and manage excess water effectively.

Objectives:

1. Efficient water use, increased crop yields, sustainable practices, and effective wastewater management. Approach: Use real-time monitoring, optimize irrigation, design user-friendly tools, and manage excess water.
2. Power BI and SQL, with a web interface developed in HTML, CSS, and JavaScript.

Usecase Diagram: {Optional}



Idea Approach and Tackling:

- **Overview**: We are developing a tool that optimizes agricultural water use by analyzing inputs like farming method, location, crop type, and irrigation system. It calculates precise water needs, suggests sustainable practices, and manages additional water requirements for pesticides and cleaning.

- **Vision**: Our vision is to provide farmers with a user-friendly, data-driven solution that enhances water conservation, boosts productivity, and supports sustainable farming practices, making water management more efficient and eco-friendly.

Solution of the problem:

- User Inputs: Collect information on farming method, location, crop type, area, irrigation system, and planting date.
- Water Requirement Calculation: Determine the precise amount of water needed based on weather conditions and user inputs.
- Sustainable Irrigation Recommendations: Suggest suitable sustainable irrigation practices tailored to the user's area.
- Water Conservation Techniques: Provide specific techniques for conserving water based on the user's location and conditions.
- Additional Water Needs: Account for extra water required for pesticides, fertilizers, and cleaning, aiming to minimize waste and optimize usage.

Basic Details of the Team and Problem Statement

Name of your Institute: JDCOEM

Team Name: Codepulse

Problem Statement Code: SM24-05

Problem Statement Title: Water Conservation Tools