

Database Project :

Water Supply Management

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Objective :

The goal of the Water Supply Database Management System is to create an efficient database to manage the water supply network. This system helps solve important challenges and ensures a steady and sustainable water distribution.

Users :

1. Municipal Corporations
2. Employee
3. Consumers

Use Cases – Municipal Corporations

1. Retrieve consumer details :

Municipal corporations can retrieve consumer details such as name, address, and connection status. They can monitor individual water consumption patterns and track overdue or pending bills to ensure timely payments.

2. Billing and Revenue Tracking :

The system helps generate water bills based on usage and track payment statuses, including pending and overdue amounts. Revenue trends over time can also be analyzed to improve financial planning and ensure sustainable water supply operations.

3. **Water Meter Management :**

Authorities can monitor water meter installations, track readings, and detect anomalies such as sudden spikes in consumption. Regular maintenance and calibration records can be accessed to ensure accurate measurement and billing.

4. **Water Supply Network Monitoring :**

The database allows retrieval of information about pipelines, storage and purifying stations .

5. **Maintenance Management :** Municipalities can keep track of scheduled and emergency maintenance activities for pipelines, reservoirs, and treatment plants. The system helps assign maintenance teams, employees.

6. **Outage and Emergency Handling :** The system enables tracking of planned and unplanned water supply outages. Authorities can respond to reported supply disruptions while sending alerts to affected consumers.

7. **Consumer Complaint and Feedback Handling :** The system allows municipal corporations to manage and resolve consumer complaints efficiently.

Use Cases – Employee

1. **Employee Profile Management :**

Employees can view and update their personal details like salary, contact, department etc.

2. **Maintenance team and place tracking :**

Employees can check their assigned team and work place i.e. storage, purification place.

3. **Work Schedule and Status:**

Employees can view their assigned works schedule (timings) and also check current status of task.

Use Cases – Consumers

1. View and Manage Water Bills :

Consumers can access their water bills, check due amounts, and track payment history. The system allows them to download invoices and receive alerts for pending or overdue payments.

2. Monitor Water Consumption :

Users can track their monthly or yearly water usage to manage consumption efficiently. The system provides insights into usage patterns, helping them reduce wastage and control expenses.

3. Online Bill Payment :

Consumers can make online payments through the system using various payment methods. They can receive digital receipts and confirm successful transactions without visiting physical offices.

4. Request New Water Connection :

The system allows users to apply for a new water connection by submitting the required documents. Consumers can also check the status of their application and receive updates on approval or installation schedules.

5. Provide Feedback and Suggestions :

Users can submit feedback on service quality, billing accuracy, and water supply issues. Their input helps municipal corporations improve service delivery and address recurring concerns effectively.

Tentative list of reports (Queries)

For Municipal corporations

1. Total water consumption and revenue summary
2. Retrieve log of water usage per consumer.
3. List of pending water connection applications.

4. Retrieve consumers with unpaid or overdue water bills.
5. List all consumers with active water connections.
6. Retrieve water consumption history for a specific consumer.
7. Retrieve summary of canceled or disconnected water connections.
8. List Employee salary wise/team wise etc.

List current outage/ Maintenance.

For Employee

1. Retrieve employee profile details.
2. View work schedule.
3. Retrieve details of maintenance tasks assigned to a specific employee.
4. Fetch details of completed maintenance or repair tasks by an employee.

For Consumers

1. Retrieve current water bill and payment status.
2. View past water consumption records.
3. Check payment history.
4. Submit a request for a new water connection.
5. Track the status of a pending water connection request.
6. Submit feedback or rate water supply services.