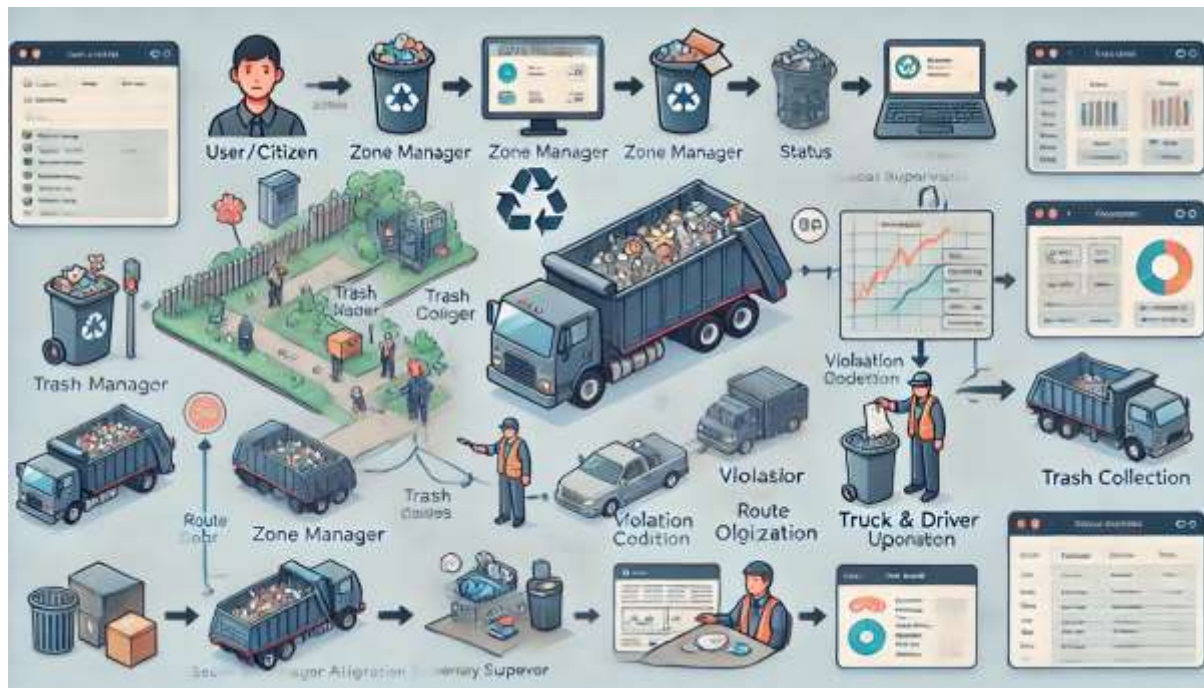High Level Component Diagram: Garbage Collection and Tracking System

Screen Flow/ User Interaction Diagram: Garbage Collection and Tracking System

1. Home Screen

- The Home Screen serves as the starting point for the system. It offers login options for three roles:
    - Admin Login
    - Supervisor Login
    - User Login
- Depending on the role selected, the user is directed to their respective dashboards or functionalities.

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2. Admin Role

- Dashboard: After logging in, the Admin can access functionalities to:
    1. Create Drivers: Add driver details, such as name, license number, and assigned truck.
    2. Create Trucks: Add truck details, such as capacity, description, and mode.
    3. Create Supervisors: Add supervisor details, such as name and password.
    4. Manage Directories: Update or delete information in driver, truck, or supervisor directories.

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3. Supervisor Role

- Dashboard: Once logged in, the Supervisor can perform the following actions:
    1. Assign Drivers, Trucks, and Routes:
        - Assign specific drivers to trucks.
        - Allocate routes to ensure efficient trash collection.
    2. View User Information:
        - Access user details for better coordination.
    3. Manage Collections:
        - Oversee trash collection points, ensuring timely pickups.

4. User Role

- Dashboard: After logging in, the User has access to:

    1. Check Bills:
        - View and pay their trash collection bills.

    2. Raise Complaints:
        - Report issues related to trash collection, missed pickups, or system errors.

    3. Add/Remove Bins:
        - Request the addition or removal of trash bins in their area.

    4. Track Route Assignments:
        - View optimized routes assigned to drivers for trash collection.

5. Driver Role

- Although the Driver doesn't log into the system, their actions are crucial:

    1. Optimized Route Assignment:
        - Drivers are assigned optimized routes for efficient bin collection based on user requests.

    2. Bin Collection:
        - Drivers collect trash bins in their designated areas and update the system.

6. Optimized Route Allocation

- System-Generated Routes:
    - Based on trash bin locations, the system calculates optimized routes for drivers, ensuring efficient garbage collection and minimizing fuel usage.
    - Routes are managed by the Supervisor and assigned to specific drivers.

How the System Works Together

- Admin manages high-level system setup by creating roles (drivers, trucks, supervisors).

- Supervisors handle operational management, ensuring that drivers and trucks are assigned to the appropriate routes.

- Users interact with the system to pay bills, raise complaints, and manage bin-related requests.

- Drivers execute the operations on the ground using the optimized routes generated by the system.

Admin Login

User Id
Password

Submit

Admin Dashboard

Check Truck
Check Driver
Check Route
Check User
Check Super

Total Truck

Garbage Collection Project

Admin Login   Admin
Supervisor Login   Admin
User Login   Admin

User Login

User Id
Password

Submit

User Dashboard

Check Bill
Pay Bill
Complain
Add Waste

Total Trash

Supervisor Login

User Id
Password

Submit

Supervisor Dashboard

Assign Truck
Assign Driver
Assign Route
Check User

Total Truck

Check bill

Pay bill

Bill No
Date
Amount

Submit

File Complain

Bill Id
Date
Complain

Submit

Add/ Remove Bin

Bill No
Address
Add/Remove
Bin/Extra

Submit

Assign Truck

Choose Truck
Date
Region

Set

Assign Route

Choose Truck
Route no
Route Id

Set

Assign Driver

Choose Truck
Driver
Driver Shift

Set

Check Truck Collection

Choose Truck
Area
Region

Set

Driver Pick up Register

Address
Bin no
Status

Set

Driver Pick up Complete

Address
Bin no
Status

Set