class diagram waste management system

Waste Management System Report

Introduction

Efficient waste management is critical for maintaining clean and sustainable communities. This system is designed to streamline the collection, transportation, and disposal of waste, ensuring that resources are used efficiently and that the environment is protected.

Class Diagram Overview

The class diagram for the waste management system includes the following main components:

- Waste Management
- Collection Vehicle
- Waste Collector
- Disposal Facility
- Treatment Method

Waste Management

This is the core class of the system, responsible for tracking types and amounts of waste collected. Key attributes include:

- wasteType: Type of waste (e.g., organic, recyclable, hazardous)
- amountCollected: Quantity of waste collected
- collectionDate: Date the waste was collected

Collection Vehicle

Vehicles used for waste collection are tracked with this class. Key attributes include:

- vehicleID: Unique identifier for each vehicle
- driverName: Name of the driver assigned to the vehicle
- vehicleCapacity: Maximum capacity of the vehicle
- currentLoad: Current amount of waste in the vehicle

Waste Collector

Individuals responsible for collecting waste are represented by this class. Key attributes include:

- collectorID: Unique identifier for each collector
- name: Name of the waste collector
- shift: Work shift of the collector
- assignedVehicle: Vehicle assigned to the collector

Disposal Facility

Facilities where waste is disposed of are managed by this class. Key attributes include:

- facilityID: Unique identifier for each facility
- location: Physical location of the facility
- maxCapacity: Maximum capacity of the facility
- currentWasteAmount: Current amount of waste at the facility

Treatment Method

Methods used to treat waste are tracked with this class. Key attributes include:

- methodID: Unique identifier for each treatment method
- methodName: Name of the treatment method (e.g., recycling, incineration)
- cost: Cost associated with the treatment method

System Workflow

1. Collection: Waste collectors use assigned vehicles to gather waste from designated areas.
2. Transportation: Collected waste is transported to disposal facilities.
3. Disposal: Waste is disposed of at facilities, with data on capacity and type of waste tracked.
4. Treatment: Waste undergoes various treatment methods as necessary, with costs managed by the system.

Conclusion

This waste management system ensures efficient and effective waste collection, transportation, and disposal. By integrating key components and tracking vital data, the system helps maintain a clean and sustainable environment.