```sql
SELECT
    z.Name AS Zone_Name,
    COUNT(DISTINCT cl.CollectionLogID) AS Collection_Count,
    SUM(cl.TotalRouteWeight) AS Total_Weight_Collected
FROM Zone z
JOIN Route r ON z.ZoneID = r.ZoneID
JOIN CollectionLog cl ON r.RouteID = cl.RouteID
WHERE cl.CollectionDate >= DATE_SUB(CURDATE(), INTERVAL 1 MONTH)
GROUP BY z.ZoneID, z.Name
ORDER BY Total_Weight_Collected DESC;



SELECT
    h.Name AS Household_Name,
    h.Address,
    COUNT(CASE WHEN wt.Name = 'Recyclable' THEN 1 END) AS Recyclable_Bins,
    COUNT(wb.BinID) AS Total_Bins,
    ROUND(COUNT(CASE WHEN wt.Name = 'Recyclable' THEN 1 END) * 100.0 /
COUNT(wb.BinID), 2) AS Recycling_Rate_Percentage
FROM Household h
LEFT JOIN WasteBin wb ON h.HouseholdID = wb.HouseholdID
LEFT JOIN WasteType wt ON wb.WasteTypeID = wt.WasteTypeID
GROUP BY h.HouseholdID, h.Name, h.Address
ORDER BY Recycling_Rate_Percentage DESC;



SELECT
    v.VehicleID,
    v.Model,
    v.Make,
    v.LicensePlate,
```

```sql
    v.Status,
    COUNT(DISTINCT cl.CollectionLogID) AS Total_Collections,
    AVG(cl.TotalRouteWeight) AS Avg_Weight_Per_Collection,
    SUM(cl.TotalRouteWeight) AS Total_Weight_Collected,
    ROUND(SUM(cl.TotalRouteWeight) / v.Capacity * 100, 2) AS Capacity_Utilization_Percentage
FROM Vehicle v
LEFT JOIN CollectionLog cl ON v.VehicleID = cl.VehicleID
GROUP BY v.VehicleID, v.Model, v.Make, v.LicensePlate, v.Status, v.Capacity
ORDER BY Total_Collections DESC;


SELECT
    h.Name AS Household_Name,
    h.Address,
    COUNT(v.ViolationID) AS Total_Violations,
    SUM(CASE WHEN v.Status = 'Pending' THEN 1 ELSE 0 END) AS Pending_Violations,
    SUM(CASE WHEN v.Status = 'Pending' THEN v.FineAmount ELSE 0 END) AS
Outstanding_Fines
FROM Household h
LEFT JOIN Violation v ON h.HouseholdID = v.HouseholdID
GROUP BY h.HouseholdID, h.Name, h.Address
HAVING Total_Violations > 0
ORDER BY Outstanding_Fines DESC;


SELECT
    s.StaffID,
    s.Name,
    s.Role,
    COUNT(DISTINCT ls.CollectionLogID) AS Collections_Participated,
    COUNT(DISTINCT cl.RouteID) AS Routes_Covered,
```

```sql
    ROUND(AVG(cl.TotalRouteWeight), 2) AS Avg_Collection_Weight
FROM Staff s
JOIN LogStaff ls ON s.StaffID = ls.StaffID
JOIN CollectionLog cl ON ls.CollectionLogID = cl.CollectionLogID
GROUP BY s.StaffID, s.Name, s.Role
ORDER BY Collections_Participated DESC;


SELECT
    wt.Name AS Waste_Type,
    COUNT(DISTINCT wb.BinID) AS Number_Of_Bins,
    COUNT(DISTINCT wb.HouseholdID) AS Households_Using,
    SUM(cd.CollectedWeight) AS Total_Weight_Collected,
    wt.ProcessingCost AS Cost_Per_Unit,
    ROUND(SUM(cd.CollectedWeight) * wt.ProcessingCost, 2) AS Total_Processing_Cost
FROM WasteType wt
LEFT JOIN WasteBin wb ON wt.WasteTypeID = wb.WasteTypeID
LEFT JOIN CollectionDetails cd ON wb.BinID = cd.WasteBinID
GROUP BY wt.WasteTypeID, wt.Name, wt.ProcessingCost
ORDER BY Total_Weight_Collected DESC;


SELECT
    r.RouteID,
    r.Name AS Route_Name,
    z.Name AS Zone_Name,
    COUNT(DISTINCT h.HouseholdID) AS Total_Households,
    COUNT(DISTINCT cs.ScheduleID) AS Scheduled_Collections,
    COUNT(DISTINCT cl.CollectionLogID) AS Actual_Collections,
    ROUND(AVG(cl.TotalRouteWeight), 2) AS Avg_Weight_Per_Collection
FROM Route r
```

```sql
JOIN Zone z ON r.ZoneID = z.ZoneID
LEFT JOIN Household h ON r.RouteID = h.RouteID
LEFT JOIN CollectionSchedule cs ON r.RouteID = cs.RouteID
LEFT JOIN CollectionLog cl ON r.RouteID = cl.RouteID
GROUP BY r.RouteID, r.Name, z.Name
ORDER BY Total_Households DESC;


SELECT
    h.Name AS Household_Name,
    COUNT(p.PaymentID) AS Total_Payments,
    SUM(CASE WHEN p.PaymentType = 'Service' THEN p.Amount ELSE 0 END) AS
Service_Payments,
    SUM(CASE WHEN p.PaymentType = 'Fine' THEN p.Amount ELSE 0 END) AS Fine_Payments,
    SUM(p.Amount) AS Total_Amount_Paid
FROM Household h
LEFT JOIN Payment p ON h.HouseholdID = p.HouseholdID
GROUP BY h.HouseholdID, h.Name
ORDER BY Total_Amount_Paid DESC;


SELECT
    rc.Name AS Center_Name,
    rc.ProcessingCapacity AS Total_Capacity,
    COUNT(DISTINCT cp.WasteTypeID) AS Waste_Types_Processed,
    SUM(cp.ProcessingCapacity) AS Allocated_Capacity,
    ROUND((rc.ProcessingCapacity - SUM(cp.ProcessingCapacity)), 2) AS Available_Capacity
FROM RecyclingCenter rc
LEFT JOIN CenterProcessing cp ON rc.CenterID = cp.CenterID
GROUP BY rc.CenterID, rc.Name, rc.ProcessingCapacity
ORDER BY Available_Capacity DESC;


SELECT
```

```sql
    cs.CollectionDay,
    COUNT(DISTINCT cs.ScheduleID) AS Scheduled_Collections,
    COUNT(DISTINCT cl.CollectionLogID) AS Actual_Collections,
    ROUND(COUNT(DISTINCT cl.CollectionLogID) * 100.0 / COUNT(DISTINCT cs.ScheduleID), 2)
AS Compliance_Rate
FROM CollectionSchedule cs
LEFT JOIN CollectionLog cl ON cs.RouteID = cl.RouteID
    AND DATE(cl.CollectionDate) = cs.ScheduledDate
GROUP BY cs.CollectionDay
ORDER BY cs.CollectionDay;


SELECT
    r.Name AS Route_Name,
    z.Name AS Zone_Name,
    COUNT(cl.CollectionLogID) AS Collection_Count,
    SUM(cl.TotalRouteWeight) AS Total_Weight,
    ROUND(AVG(cl.TotalRouteWeight), 2) AS Average_Weight
FROM Route r
JOIN Zone z ON r.ZoneID = z.ZoneID
JOIN CollectionLog cl ON r.RouteID = cl.RouteID
WHERE cl.CollectionDate >= DATE_SUB(CURDATE(), INTERVAL 30 DAY)
GROUP BY r.RouteID, r.Name, z.Name
ORDER BY Total_Weight DESC
LIMIT 5;


SELECT
    DATE_FORMAT(v.DateIssued, '%Y-%m') AS Month,
    COUNT(v.ViolationID) AS Total_Violations,
    SUM(v.FineAmount) AS Total_Fines,
    COUNT(DISTINCT v.HouseholdID) AS Households_With_Violations,
    v.ViolationType
```

```sql
FROM Violation v
GROUP BY DATE_FORMAT(v.DateIssued, '%Y-%m'), v.ViolationType
ORDER BY Month DESC, Total_Violations DESC;
```