

Case Study

Lawn Squad: Designing Lawn Care Services

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1. About Lawn Squad

Lawn Squad is a Calgary-based service company dedicated to delivering high-quality lawn care and maintenance solutions to both **residential** and **commercial** clients. With a growing customer base, the company provides a variety of seasonal and year-round services aimed at enhancing outdoor spaces.

As part of its digital transformation initiative, Lawn Squad is moving away from manual record-keeping to a **data-driven system** that improves service delivery, scheduling, customer management, and performance analysis. The project focuses on designing and implementing a structured database system that supports business operations, enhances customer experience, and enables future scalability.

Services Offered:

- ◆ Lawn Aeration
- ◆ Power Raking
- ◆ Window Cleaning
- ◆ Fertilization

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2. Mission and Objectives

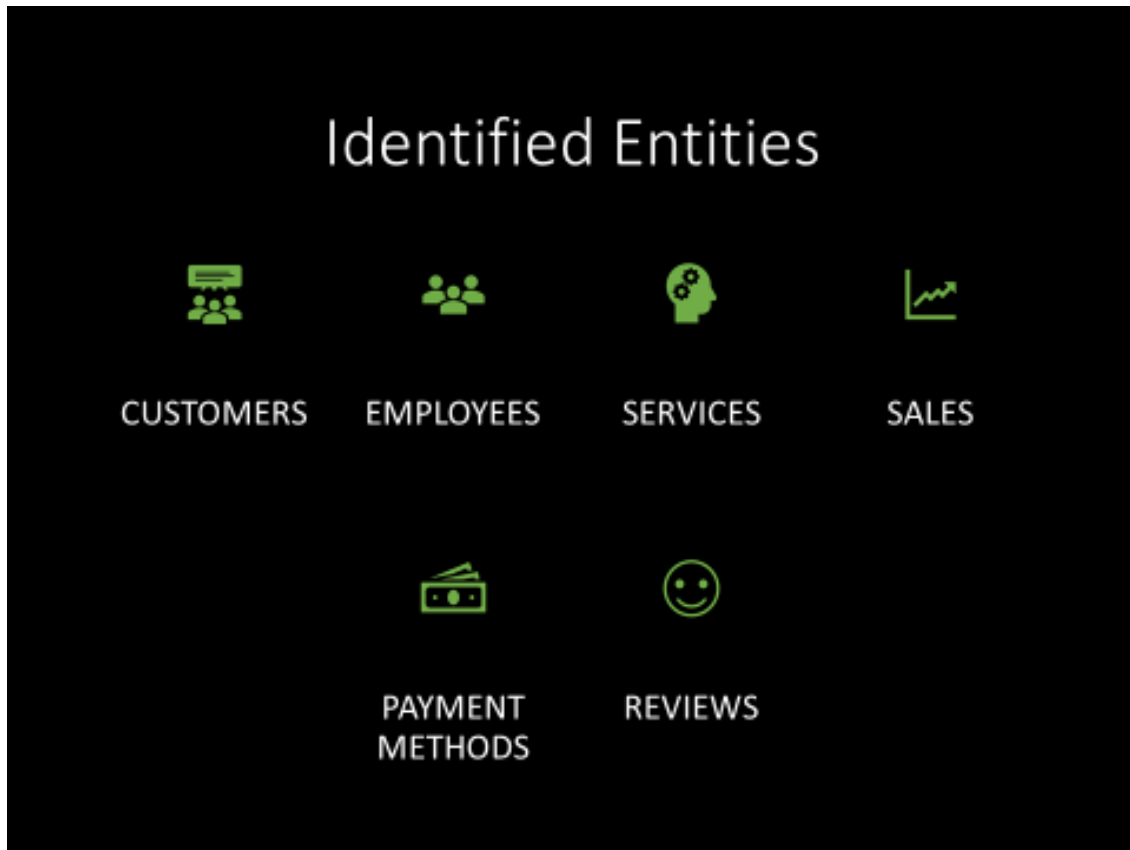
Mission:

“To design and implement a digital data system for Lawns Squad.”

Objectives:

- Streamline service management.
- Implement a digital database system.
- Enable data-driven decision making.

3. Identified Entities



4. Entity Relationships

Definition:

Understanding how the entities relate to one another is crucial for building a normalized and relational database. Below are the key relationships used in Lawn Squad's database design:

- **Employees → Sales** : One-to-Many
- **Customers → Sales** : One-to-Many
- **Sales → Services** : Many-to-One
- **Sales → Payment Methods**: Many-to-One
- **Customers → Reviews** : One-to-Many

Employees Sales: One-to-Many

Definition: One employee can be associated with multiple sales, but each sale is linked to only one employee.

Why it matters: Tracks employee workload and performance based on assigned services.

Example: Alex (employee) is assigned to 5 different customer jobs—each of those sales is connected to Alex.

Customers Sales: One-to-Many

Definition: A single customer can request multiple services over time, resulting in multiple sales records.

Why it matters: Helps maintain a history of customer interactions and supports repeat service tracking.

Example: John Doe (customer) books lawn aeration in April and window cleaning in June—both sales link back to John.

Sales Services: Many-to-One

Definition: Many sales can be associated with a single type of service, but each sale pertains to only one service.

Why it matters: Simplifies service classification and reporting (e.g., most requested services).

Example: 20 sales records for “Fertilization” all point to the same “Fertilization” entry in the Services table.

Sales Payment Methods: Many-to-One

Definition: Each sale uses one payment method, but one payment method can be used in many sales.

Why it matters: Enables analysis of how customers prefer to pay (credit, cash, e-transfer, etc.).

Example: Out of 100 sales, 65 were paid using credit card—all referencing the same “Credit Card” method.

Customers Reviews: One-to-Many

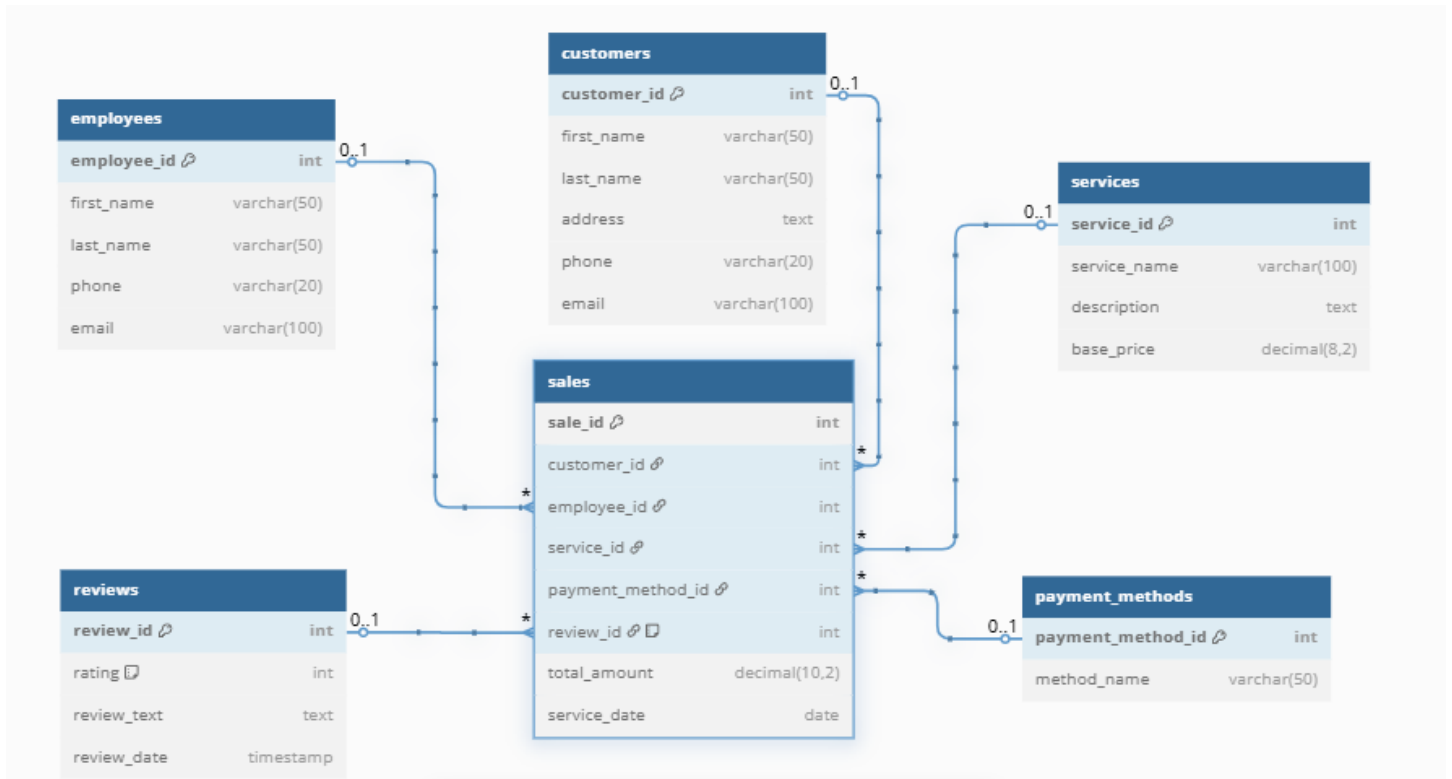
Definition: One customer may leave multiple reviews, each connected to a different service experience.

Why it matters: Supports quality assurance and service improvement through feedback tracking.

Example: Sarah (customer) leaves a review after lawn aeration and another after window cleaning—both reviews are tied to her profile.

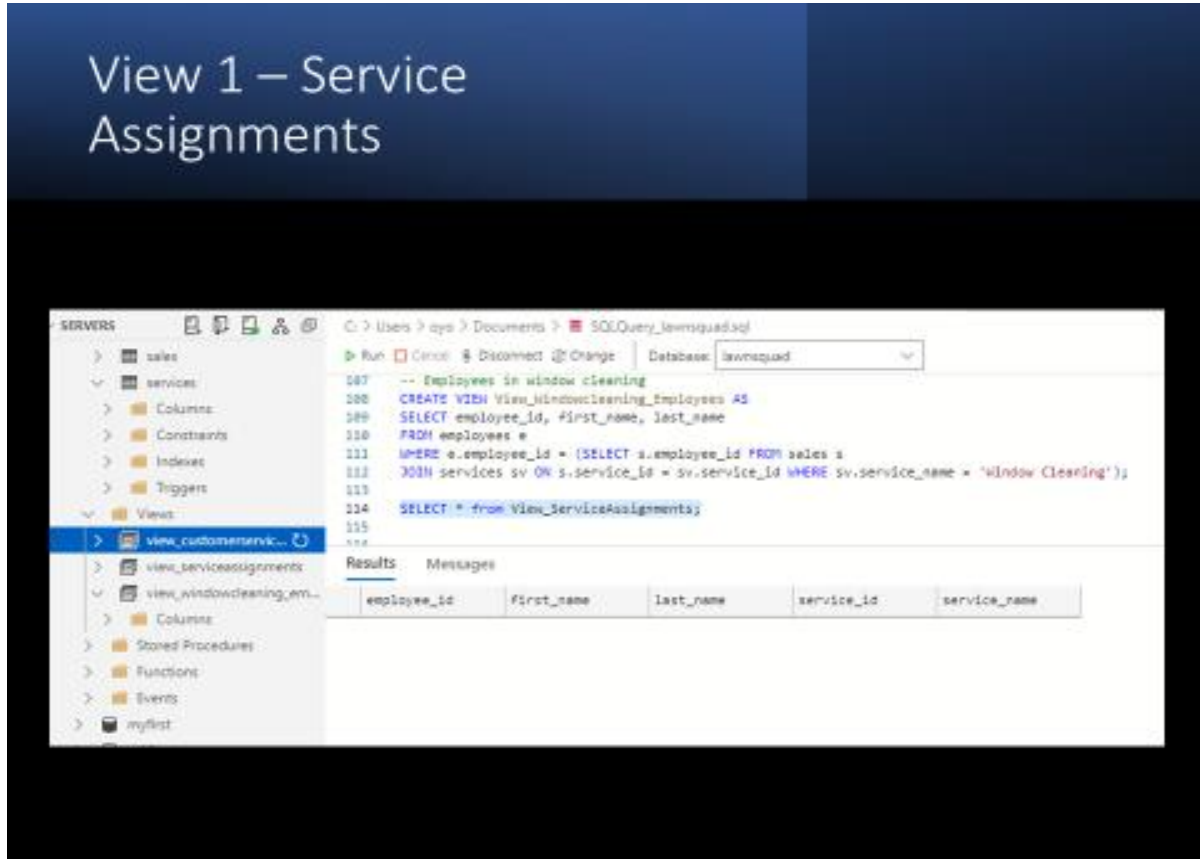
5. Entity Relationship Diagram

Refer to the attached ER diagram slide in the original presentation.



6. Data Views

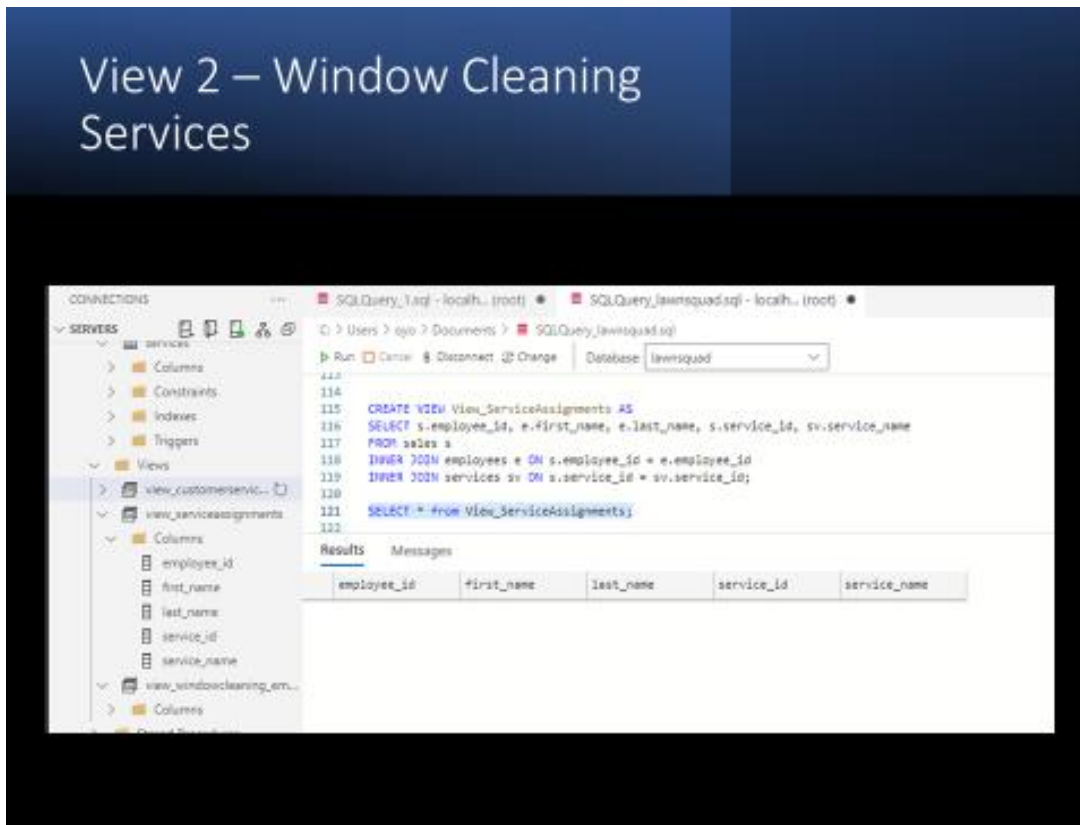
View 1 – Service Assignments



SQL QUERIES

```
CREATE VIEW View_ServiceAssignments AS
SELECT s.employee_id, e.first_name, e.last_name,
s.service_id, sv.service_name
FROM sales s
INNER JOIN employees e ON s.employee_id =
e.employee_id
INNER JOIN services sv ON s.service_id =
sv.service_id;
```

View 2 – Window Cleaning Services



SQL QUERIES

```
-- Employees in window cleaning  
CREATE VIEW View_Windowcleaning_Employees AS  
SELECT employee_id, first_name, last_name  
FROM employees e  
WHERE e.employee_id = (SELECT s.employee_id FROM  
sales s  
JOIN services sv ON s.service_id = sv.service_id  
WHERE sv.service_name = 'Window Cleaning');
```

View 3 – Customer Service History

The screenshot displays the SQL Server Enterprise Manager interface. On the left, the 'Databases' tree shows the 'Adventureworks' database. The 'Views' folder is expanded, and a new view named 'view_CustomerServiceHistory' is being created. The SQL query editor shows the following code:

```
118 CREATE VIEW view_CustomerServiceHistory AS
119 SELECT
120 c.customer_id,
121 CONCAT(c.first_name, ' ', c.last_name) AS customer_name,
122 c.email,
123 c.phone,
124 COUNT(s.sale_id) AS total_services_booked,
125 SUM(s.total_amount) AS total_spent,
126 MAX(s.service_date) AS last_service_date,
127 GROUP_CONCAT(DISTINCT sv.service_name SEPARATOR ', ') AS services_used
128 FROM
129 customers c
130 LEFT JOIN
131 sales s ON c.customer_id = s.customer_id
132 LEFT JOIN
133 services sv ON s.service_id = sv.service_id
134 GROUP BY
135 c.customer_id, c.first_name, c.last_name, c.email, c.phone
136 ORDER BY
137 total_spent DESC;
138
139 SELECT * FROM view_CustomerServiceHistory;
```

The 'Results' tab shows the output of the query, displaying columns: customer_id, customer_name, email, phone, total_services_booked, total_spent, last_service_date, and services_used. The data is as follows:

customer_id	customer_name	email	phone	total_services_booked	total_spent	last_service_date	services_used
1	Rita Khan	rita@gmail.com	123456789	0	NULL	NULL	NULL
2	Samath Marstad	samath@gmail.com	456789012	0	NULL	NULL	NULL
3	Bob Johnson	bob@gmail.com	345678901	0	NULL	NULL	NULL
4	Justin Olain	justin@gmail.com	456789012	0	NULL	NULL	NULL

SQL QUERIES

SELECT

c.customer_name,
s.service_name,
r.review_text,
r.rating,
r.review_date

FROM

Reviews r

JOIN Customers c ON r.customer_id = c.customer_id

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```
JOIN Sales sa ON r.sale_id = sa.sale_id  
JOIN Services s ON sa.service_id = s.service_id  
ORDER BY  
    r.review_date DESC;
```

7. Conclusion & Acknowledgment

Thank you for reviewing our project. We look forward to implementing the next stages of designing data for Lawn Squad.