3b. Structured Query Language
- WHERE Clause

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SELECT Statement and WHERE Clause

• Select all columns and some rows

Example 1, show only employees from the accounting department:

SELECT *
FROM EMPLOYEE
WHERE Department = 'Accounting';

(didn’t specify which columns to see)

Note:

1. Text values must be enclosed in single quotes.
2. Date values must be enclosed by # signs.
2. Only field values are case-sensitive, others are not.
WHERE Clause

- Select all columns and some rows
Example 2, show only projects whose maximum hours are greater than 140.
SELECT *
FROM PROJECT
WHERE MaxHours > 140;
(No need to use single quotes as values in MaxHours are numeric)

Comparison Operators:
=, >, <, >=, <=, <> (not equal)
WHERE Clause

- Select all columns and some rows

Example 3, show only projects that started before August 1st.

SELECT *
FROM PROJECT
WHERE StartDate < #01-Aug-05#;
WHERE Clause

- Select some columns and some rows

Example 1, show projects whose maximum hours are no greater than 140, but only need to see project name and the hours.

```
SELECT ProjectName, MaxHours
FROM PROJECT
WHERE MaxHours <= 140;
```
WHERE Clause

- Select some columns and some rows

Example 1, show projects whose maximum hours are no greater than 140, but only need to see project name and the hours.

```sql
SELECT ProjectName, MaxHours
FROM PROJECT
WHERE MaxHours <= 140;
```
WHERE Clause – Wildcard Characters

- **LIKE** – Search for rows with only partial values. Used with wildcard characters
- **SQL wildcard characters**
  - `?`: question mark, represents a single unspecified character
  - `*`: asterisk, represent a series of one or more unspecified characters
WHERE Clause – Wildcard Characters

• Example 1, find employees whose phone number is something like 360-287-861X
  
  ```sql
  SELECT *
  FROM EMPLOYEE
  WHERE Phone LIKE '360-287-861?';
  ```

• Example 2, find employees whose phone number is something like 360-287-86XX
  
  ```sql
  SELECT *
  FROM EMPLOYEE
  WHERE Phone LIKE '360-287-86??';
  ```

• Example 3, find employees whose phone number is something like 360-287-8XXX
  
  ```sql
  SELECT *
  FROM EMPLOYEE
  WHERE Phone LIKE '360-287-8???';
  ```
WHERE Clause – Wildcard Characters

Example 4, find employees whose phone number is something like 360-287-8XXX

```sql
SELECT *
FROM EMPLOYEE
WHERE Phone LIKE '360-287-8*';
```

Example 5, find projects whose project name is like QXPortfolio

```sql
SELECT *
FROM PROJECT
WHERE ProjectName LIKE '*Q?Portfolio*';
```

Note:
- Use * whenever not sure if there are characters in that place
ORDER BY Clause

- **ORDER BY FieldName** – Sort all the rows according to the value in the field name in ascending order.
- **ORDER BY FieldName DESC** - Sort all the rows according to the value in the field name in descending order.

- Example 1, Give an employee email list, sort by their last name in ascending order.
  
  ```sql
  SELECT LastName, FirstName, Email
  FROM EMPLOYEE
  ORDER BY LastName;
  ```

- Example 2, List all rojects, order by their starting date, with latest first.
  
  ```sql
  SELECT *
  FROM PROJECT
  ORDER BY EndDate DESC;
  ```
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