You've got the power

INTRODUCTION TO SQL SERVER

John MacKintosh
Instructor

CRUD operations

CREATE

- Databases, Tables or views
- Users, permissions, and security groups

READ

- Example: `SELECT` statements

UPDATE

- Amend existing database records

DELETE

CREATE

- `CREATE TABLE` `unique table name`
- (column name, data type, size)

```
CREATE TABLE test_table(
  test_date date,
  test_name varchar(20),
  test_int int
)
```

A few considerations when creating a table

- Table and column names
- Type of data each column will store
- Size or amount of data stored in the column

Data types

Dates:

- date (`YYYY-MM-DD`), datetime (`YYYY-MM-DD hh:mm:ss`)
- time

Numeric:

- integer, decimal, float
- bit (`1` = `TRUE` , `0` = `FALSE` . Also accepts `NULL` values)

Strings:

- `char` , `varchar` , `nvarchar`

Let's create some tables!

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Insert, Update, Delete

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INSERT

```
INSERT INTO table_name
```

```
INSERT INTO table_name (col1, col2, col3)
```

```
INSERT INTO table_name (col1, col2, col3)
VALUES
  ('value1', 'value2', value3)
```

INSERT SELECT

```
INSERT INTO table_name (col1, col2, col3)
SELECT
  column1,
  column2,
  column3
FROM other_table
WHERE
  -- conditions apply
```

- Don't use `SELECT *`
- Be specific in case table structure changes

UPDATE

```
UPDATE table
SET column = value,
WHERE
  -- Condition(s);
```

- Don't forget the `WHERE` clause!

```
UPDATE table
SET
  column1 = value1,
  column2 = value2
WHERE
  -- Condition(s);
```

DELETE

```
DELETE
FROM table
WHERE
  -- Conditions
```

- Test beforehand!

```
TRUNCATE TABLE table_name
```

- Clears the entire table at once

Let's INSERT, UPDATE, and DELETE!

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Declare yourself

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Variables

```
SELECT *
FROM artist
WHERE name = 'AC/DC';
```

Now change the query for another artist:

```
SELECT *
FROM artist
WHERE name = 'U2';
```

To avoid repetition, create a variable:

```
SELECT *
FROM artist
WHERE name = @my_artist;
```

DECLARE

```
DECLARE @
```

Integer variable:

```
DECLARE @test_int INT
```

Varchar variable:

```
DECLARE @my_artist VARCHAR(100)
```

SET

Integer variable:

```
DECLARE @test_int INT

SET @test_int = 5
```

Assign value to `@my_artist` :

```
DECLARE @my_artist  varchar(100)

SET @my_artist = 'AC/DC'
```

```
DECLARE @my_artist varchar(100)
DECLARE @my_album varchar(300);

SET @my_artist = 'AC/DC'
SET @my_album  = 'Let There Be Rock' ;

SELECT --
FROM --
WHERE artist = @my_artist
AND album = @my_album;
```

```
DECLARE @my_artist varchar(100)
DECLARE @my_album varchar(300);

SET @my_artist = 'U2'
SET @my_album  = 'Pop' ;

SELECT --
FROM --
WHERE artist = @my_artist
AND album = @my_album;
```

Temporary tables

```
SELECT
  col1,
  col2,
  col3 INTO #my_temp_table
FROM my_existing_table
WHERE
  -- Conditions
```

- `#my_temp_table` exists until connection or session ends

```
-- Remove table manually
DROP TABLE #my_temp_table
```

Let's declare some variables!

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Congratulations!

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What we learned...

- Selecting: `SELECT`
- Ordering: `ORDER BY`
- Filtering: `WHERE` and `HAVING`
- Aggregating: `SUM` , `COUNT` , `MIN` , `MAX` and `AVG`
- Text manipulation: `LEFT` , `RIGHT` , `LEN` and `SUBSTRING`

What we learned (II)...

- `GROUP BY`
- `INNER JOIN` , `LEFT JOIN` , `RIGHT JOIN`
- `UNION` and `UNION ALL`
- Create, Read, Update and Delete (CRUD)
- Variables
- Temporary tables

Next Steps

- Intermediate SQL Server
- Joining Data in SQL

Congratulations!

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