Lesson 6 - Introduction to SQL

From Lesson 1 recall,

What is a Database?

Storage of data in tabular format (rows and columns). Used to store data for websites and applications such as videos, images, usernames, passwords. Similar to Excel. Each Column has a title and data type. And most of the times each table has a column that serves as a primary key.

What is SQL?

Structured Query Language is used to access and manipulate a database. There are different variations of SQL, but we will stick to the SQL Server by Microsoft.

Example Table

id	first_name	last_name	country
1	Talha	Salman	Pakistan
2	Amad	Kazmi	Denmark
3	Talha	Salman	Turkey

Create a database

```
CREATE DATABASE talha_db;
```

If we try to create a database that is already present, an error will occur

```
Database 'talha_db' already exists. Choose a different database name.
```

Create a table

```sql
CREATE TABLE contacts (
        first_name VARCHAR(64),
        last_name VARCHAR(64),
        phone_number BIGINT,
        number_of_children INT
);
```

If we try to create a table that is already present, an error will occur

```
There is already an object named 'contacts' in the database.
```

Drop table

```sql
DROP TABLE contacts;
```

If the table does not exist, error will occur

```
Cannot drop the table 'contacts', because it does not exist or you do not have
permission.
```

Drop database

```sql
DROP DATABASE talha_db;
```

If it is in use, following error occurs

```
Cannot drop database "talha_db" because it is currently in use.
```

If it does not exists, then

```
Cannot drop the database 'talha_db', because it does not exist or you do not
have permission.
```

Insert data into a table

```sql
INSERT INTO contacts
VALUES('Talha', 'Salman', 923065094501, 0);

INSERT INTO contacts
VALUES('Amad', 'Kazmi', 4528343545, 1);

INSERT INTO contacts (first_name, phone_number)
VALUES('Fasih', 923065012365);
```

```
INSERT INTO contacts
VALUES('Muhammad', 'Saleem', 923065094508, 6);

INSERT INTO contacts
VALUES('Muhammad', 'Talal', 923065066512, 0);
```

```
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
(1 row affected)
Completion time: 2022-10-16T14:42:19.9109504+05:00
```

Selecting data

Select all columns.

```
SELECT *
FROM contacts;
```

Select single column.

```
SELECT first_name
FROM contacts;
```

Select multiple columns.

```
SELECT first_name, phone_number
FROM contacts;
```