

Introduction to SQL

> SQL (Structured Query Language)

- Programming language for communicating with data in database
- Let us access, organize and analyze data with direct commands, known as **queries**

> Table

- Database consist of tables
- Tables consist of rows (records) and columns (fields)
- Rows contain individual data
- Columns describe specific data

Name	Age	Gender	Eye color
Kelly	26	Female	Blue
Jim	52	Male	Brown
Marge	87	Female	Green

> Naming

Table

- Clear and refer to data
- Lowercase
- Use underscore not space
- plural



employees – products_supplier



student – product supplier – st_pt

Fields

- Singular
- Lowercase
- Different to the table and other fields



- NAME
- names



- name
- Product_id

> Data Types

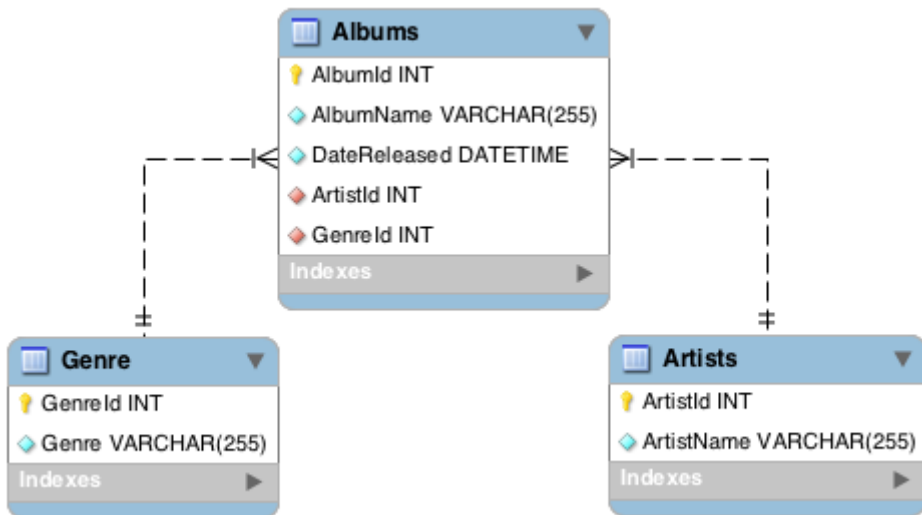
Data Types change for database to another

Main Types

- String: sequence of characters such as letters, numbers(ASCII), or punctuation
- Integers: store numbers
- Floats: store fractional numbers

> Schema

Shows database's design such as tables, relationships between tables and datatype of each field



> Querying

Query Main Keywords

- # Used to Indicate what operations to perform
- 1. **SELECT**: which fields to be selected
- 2. **FROM**: indicates the table which these fields are located

All fields using wildcard character (*)

```
SELECT *
FROM books;
```

Select multiple fields

```
SELECT author, title
FROM books;
```

Select one field

```
SELECT author
FROM books;
```

Select limit number of records

Select the first (n) records

```
SELECT id, title AS name
FROM books
LIMIT 5;
```

> Aliasing

Rename columns in result set using keyword **AS**

```
SELECT id, title AS name
FROM books;
```

id	name
1	10-Day Green Smoothie Cleanse
2	11/22/63: A Novel
3	12 Rules for Life: An Antidote to Chaos

> Unique values

```
SELECT author
FROM books;
```

```
SELECT DISTINCT
author
FROM books;
```

26	Bill O'Reilly
27	Bill O'Reilly
28	Bill O'Reilly
29	Bill O'Reilly
30	Bill O'Reilly
31	Bill O'Reilly
32	Bill Simmons
33	B. J. Novak

26	Bill O'Reilly
27	Bill Simmons
28	B. J. Novak
29	Blue Star Coloring
30	Bob Woodward
31	Brandon Stanton
32	Brené Brown
33	Brian Kilmeade

> Views

Saved SQL query acts like a virtual table

```
CREATE VIEW authors_publish_year AS
SELECT authors, year
FROM books;
```

Query from view as a normal table after creating

```
SELECT *
FROM authors_publish_year ;
```