# Introduction to SQL

* Structured Query Language
* It is not a programming language (by itself). It is a **declarative query** language
  + You tell the program what needs to be done instead of delivering the implementation details to do what needs to be done.
* It performs operations against a relational database

## Database

* It is just an organize collection of data stored in some organized format.
* They allow us to input, manage, organize, and retrieve data quickly
* Traditionally, it is organized into “tables” and each table will have a row and column
  + Rows will be the same as “records”
  + Columns will be the same as “fields”
* Data itself is the intersection between the row and column

## RDBMS

* It stands for Relational Database Management System
  + SQL is a specific style of RDBMS
* It upholds specified relationships between tables or our data
* It includes functions that maintain the security, accuracy, integrity, and consistency of the data

# SQL Sublanguages

## DDL

* Data Definition Language
* It is the sublanguage in SQL that is responsible for creating/altering the tables in your database
* Create – most used to create a table and their columns
  + Can also be used to create views, schema, etc.
* Alter – Will change the column of the table
  + Can also change certain properties or constraints
* Drop – will drop the table from the database out of existence

## DML

* Data Manipulation Language
* It is the sublanguage in SQL that is responsible for adding/changing/modifying the data within a table
* Insert – Adds row(s) to your table
* Select – gets data from your table
* Delete – remove data from your table

# Constraints

* They are a way for you limit what data can be inputted in column

## Some commonly used constraints

* Primary Key
  + It is that every data inside of the column will be unique
* Foreign Key
  + Data in this column will reference a data from another table/column

# Multiplicity

* It is way to describe relationships between two tables
* We will be using primary and foreign key constraints to establish these relationships
* There are 3 main categories:

## One to One

* One row in Table A is directly relation to one row in Table B and it goes both ways (bi-direction)
* Ex: One person can only have one heart

## One to Many

* One row in Table A is relation to many rows in Table B
* Established by making

## Many to Many