



# **INTRODUCTION TO SQL**

**(STANDARD QUERY LANGUAGE)**



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## WHY DATABASES

- **Scalability** ; Storage of large amounts of data. Optimized for such.
- **Structure** ; Easily handle and define relationships within our data.
- **Data Integrity** ; Utilize constraints, normalization techniques to ensure data integrity.
- **Security** ; Via user identification, role-based access control.
- **Analytics and Reporting** ; Integrate better with analysis tools.

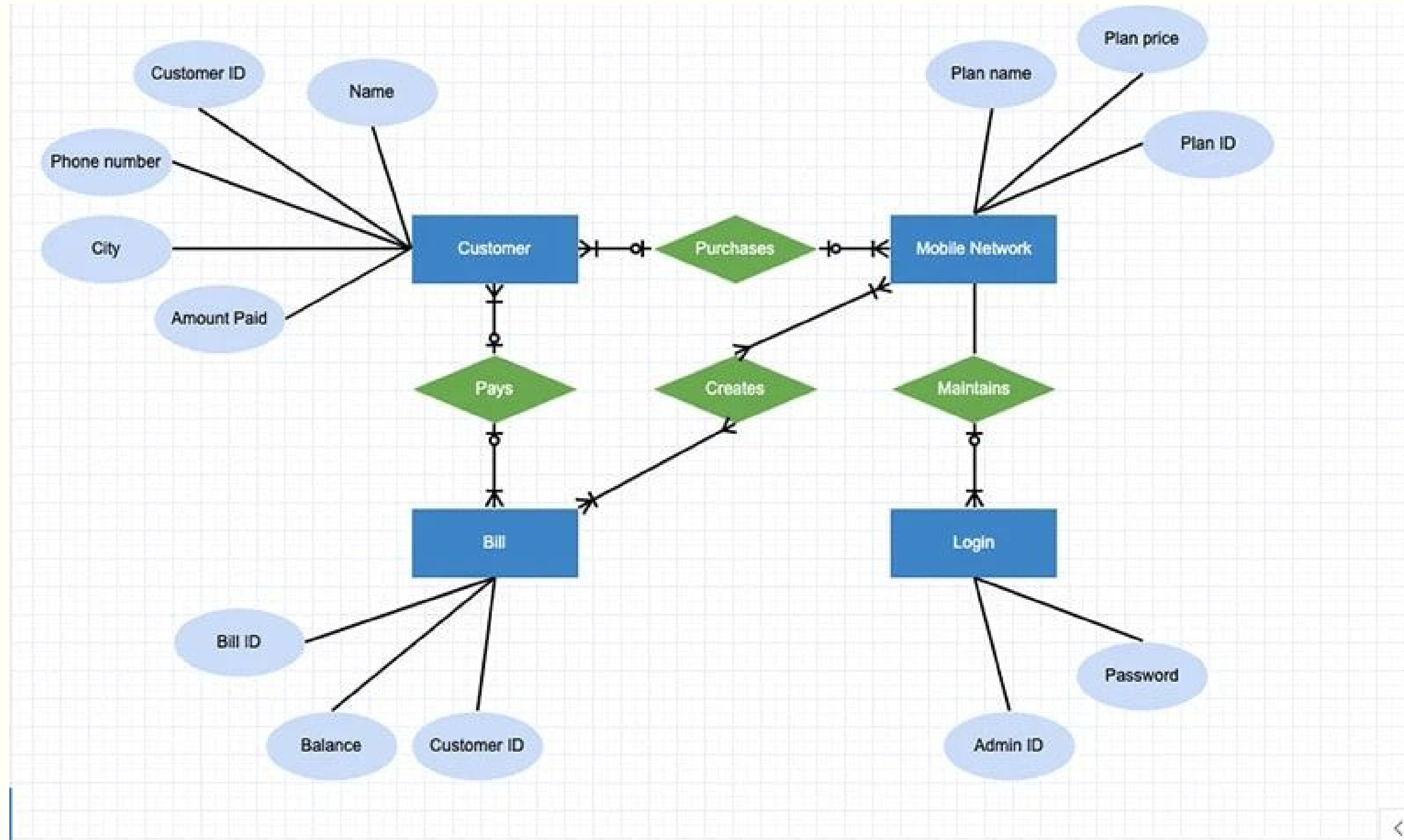
## ENTITY RELATIONSHIP DIAGRAM

- Graphical representation of database design.
- Used to visually depict entities in a database and the relationships between them.

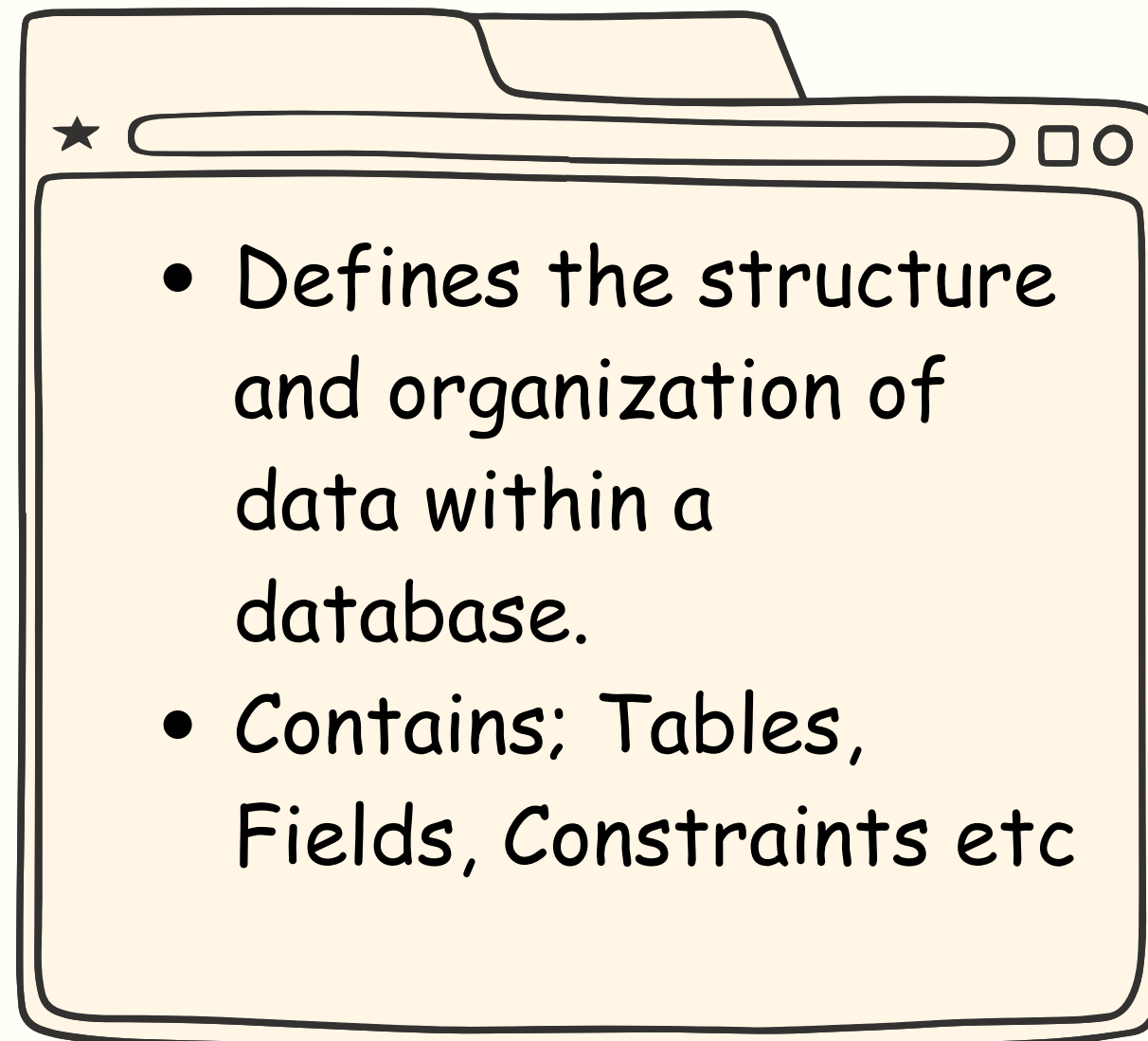
## DEFINITION OF TERMS

- **Entity** ; Real world object, one which attributes can describe its properties. e.g Tables
- **Attribute**; Describes the properties or characteristics of an entity.
- **Relationship**; Defines how entities are related to each other.

# ER DIAGRAM



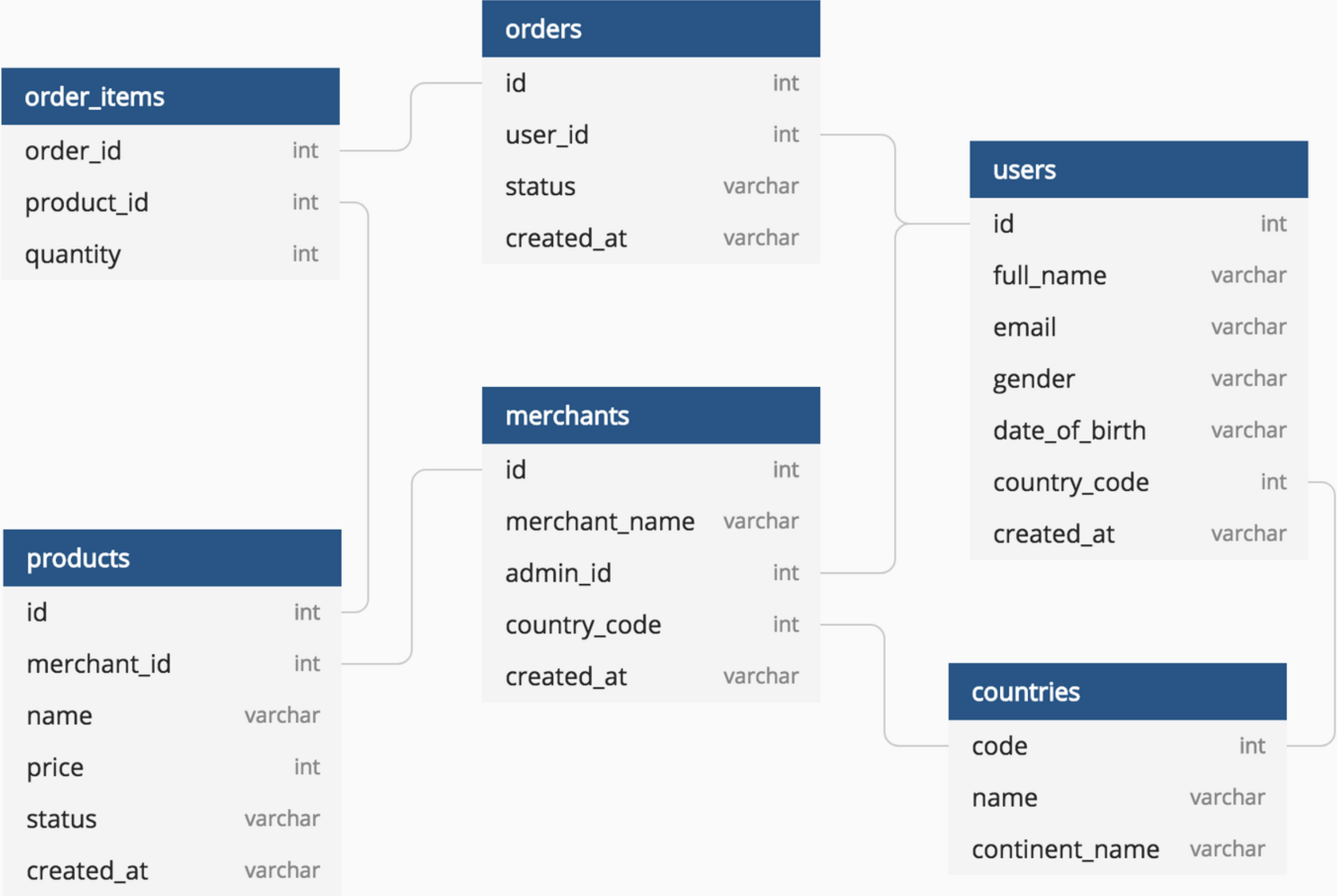
# SCHEMA



## DEFINITION OF TERMS

- **Tables**; Representation of an entity. Contains rows, columns.
- **Columns/Fields**; Represent the attributes of an entity.
- **Data Types**; Specific types of data to be stored in each column.
- **Relationship**; Defines how tables are related to each other.
- **Indexes**; Created on specific columns to improve query performance.
- **Constraints**; Rules and conditions applied to the data
- **Primary Key**; A field/combination of fields which uniquely identify each record in a table

# SCHEMA



# SQL DATA TYPES

- **INT**; Representing whole numbers (Integers)
- **DECIMAL**; Representing decimal numbers (Exact/Precise)
- **VARCHAR**; String/text of length (X)
- **DATE**; Representing date
- **TIMESTAMP**; Precise date and time value. 'YYYY-MM-DD  
HH.MM.SS'
- **BOOLEAN**; True or False values



# SQL BASIC COMMANDS AND KEYWORDS

## SELECT

- Used to retrieve data from one or more tables

## CREATE TABLE

- Used to create a new table in a database

## INSERT INTO

- Used to insert data into a table.

## DROP TABLE

- Used to drop a table and its data from a database entirely.