**Relational Data Model**

Data model: Structures and access techniques by a particular database management system

File management systems would not have any connection or link

More data = more difficulty/problems 🡪 inconsistent databases (garbage)

**Hierarchal Database**

Hierarchal structure (similar process to a tree – BST)

* Disadvantages

1. Difficult to have correlation/not much child nodes from the parent nodes
2. Rigid Structure, Messy code

* Advantages

1. Has a simple structure and is organized.

**Network Data Model**

Can have multiple parents/child nodes

* Advantages

1. Flexible, standardized, and performance

* Disadvantgaes

1. Programming is not synchronized
2. Complexity is challenging and high
3. Rigid structure, Messy code

**Relational Data Model**

Based on tables that are linked but do not have any pointers

* Are organized devoted to tables (rows, columns)

Tables are similar as to classes (used in Java/C++) but are as visible

Table: rectangular object with rows and columns. Column aka attribute, row aka entity.

*The order of the column has no effect against the table thus columns of a table have a left-right order*

**Table must need at least one column**

Tables can have zero rows or more, but with zero rows, it’s called an empty table. Order is not required.

\*\*To make a database portable, port the database into mySQL with features to keep in mind.\*\*

***\*\****Primary key: ***A column or combination of two or more columns that uniquely identifies each row of a table (\*\*Is not always one\*\*) It is also the parent\*\****

SSN, Student ID are ***UNIQUE***  ***\*\*Do not combine with them\*\****

DO NOT MAKE NAMES PRIMARY KEY!!!

Combine if there are two or more in a column

If the primary key contains two or more columns, it is called a

composite primary key

Candidates can be primary keys, however, due to security reasons they will not

**Foreign Key: Value that refers/matches a primary key of another table or possibly the same table**

They can be unique and does not have to be unique.

SQL (Structured Query Language)

It has no difference in other databases