

# Database

## Chapter 1 session 1    Relation database

- The benefits of using relational database have
  - Feasible for future
  - Data Accuracy
  - High security
  - Normalization
  - Flexibility
  - Data integrity
  - Easy Access to data
  - Simple model
- A table schema describes an entity and its attributes.
- Entity describes about attributes.
- Attribute describe the properties of an entity in a database table.  
Attribute types have: string, numeric, date time.

Table is a list of records.

Table	Column	Row
Relation	Attribute	Record

## Chapter 1 session 3    Many to Many Relation

- Have three big relation:
  - One to one EX: at PNC one student can take food one.
  - One to many EX: one people can buy a lot of things.
  - Many to many EX: one people can buy a lot of lemon a lot of lemon  
buy a lot of people.
- Intersection table is a table that combine about attribute other table and it has primary key and foreign key.
- Associative table there is an additional new attribute.
- A primary key is a unique identifier of an entity record.

- A foreign key is a reference to another entity record.
- What is an ERD? Entity Relational Diagram?
  - Relation
  - Primary key and foreign key or key type
  - Attribute type or data type

**Note:** one table has only primary key.

## Chapter 1 session 5    relation database 1<sup>st</sup> Normal Form

- Understand the problems of a database without normalization have three:
  - Inserting anomaly: Increases the size of the database.
  - Updating anomaly: Increases the risk of making a mistake when modifying data.
  - Deleting anomaly: Increases the risk of losing information.
- What is NORMALISATION?
  - Normalization: Technique to organize data into multiple related tables, to minimize data redundancy
- Normalization process:
  - 1<sup>st</sup> normal form have 4 rules:
    - Rule1: Each column of the table must be a single value no multiple value.
    - Rule2: A column should contain values of the same type.
    - Rule3: Each column/attribute in a table should have a unique name.
    - Rule4: The order in which you store the data does not matter

## Chapter 1 session 6    Relation Database 2<sup>nd</sup> and 3<sup>rd</sup> Normal Form

- A composite key is a primary key that is composed of more than one column.
- Normalization process:
  - 2<sup>nd</sup> normal form have 2 rules:
    - Rule1: The table should already be in 1st Normal Form.
    - Rule2: All non-key attributes are dependent of every columns that compose the primary key.
  - 3<sup>rd</sup> normal form have 2 rules:
    - Rule1: The table should already be in 2nd Normal Form.
    - Rule2: Table has no transitive dependencies.

Normalization lesson-by-sreyny