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 1st 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:
  + 1st 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 2nd and 3rd Normal Form

* A composite key is a primary key that is composed of more than one column.
* Normalization process:
  + 2nd 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.
  + 3rd normal form have 2 rules:
    - Rule1: The table should already be in 2nd Normal Form.
    - Rule2: Table has no transitive dependencies.