KASETSART UNIVERSITY
FACULTY OF SCIENCE AT SRIRACHA

Database Designing
Entity Relationship (ER) Diagram

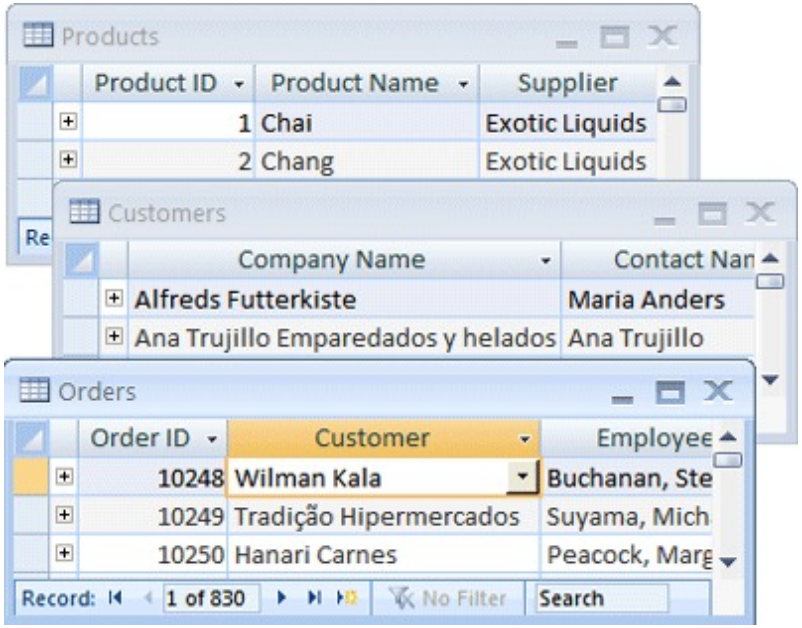
01418321 System Analysis and Design

Chalothon Chootong (Ph.D.)

Department of Computer Science and Information, Faculty of Science at Sriracha, Kasetsart University Sriracha Campus

chootong.c@ku.th

Database terms



Tables: : lists of rows and columns

Spreadsheet is a simple database

Each row is more correctly called a **record**, and each column, a **field**

Activity Diagram Summary

- Pros:
  - Map use case scenarios directly on to actions
  - Most intuitive for most procedural programmers
  - Includes constructs for top down decomposition (activity frames)
- Cons:
  - Some confusion of the relationship between activity diagram s and state charts

Recommendation: useful early in analysis, after use case.

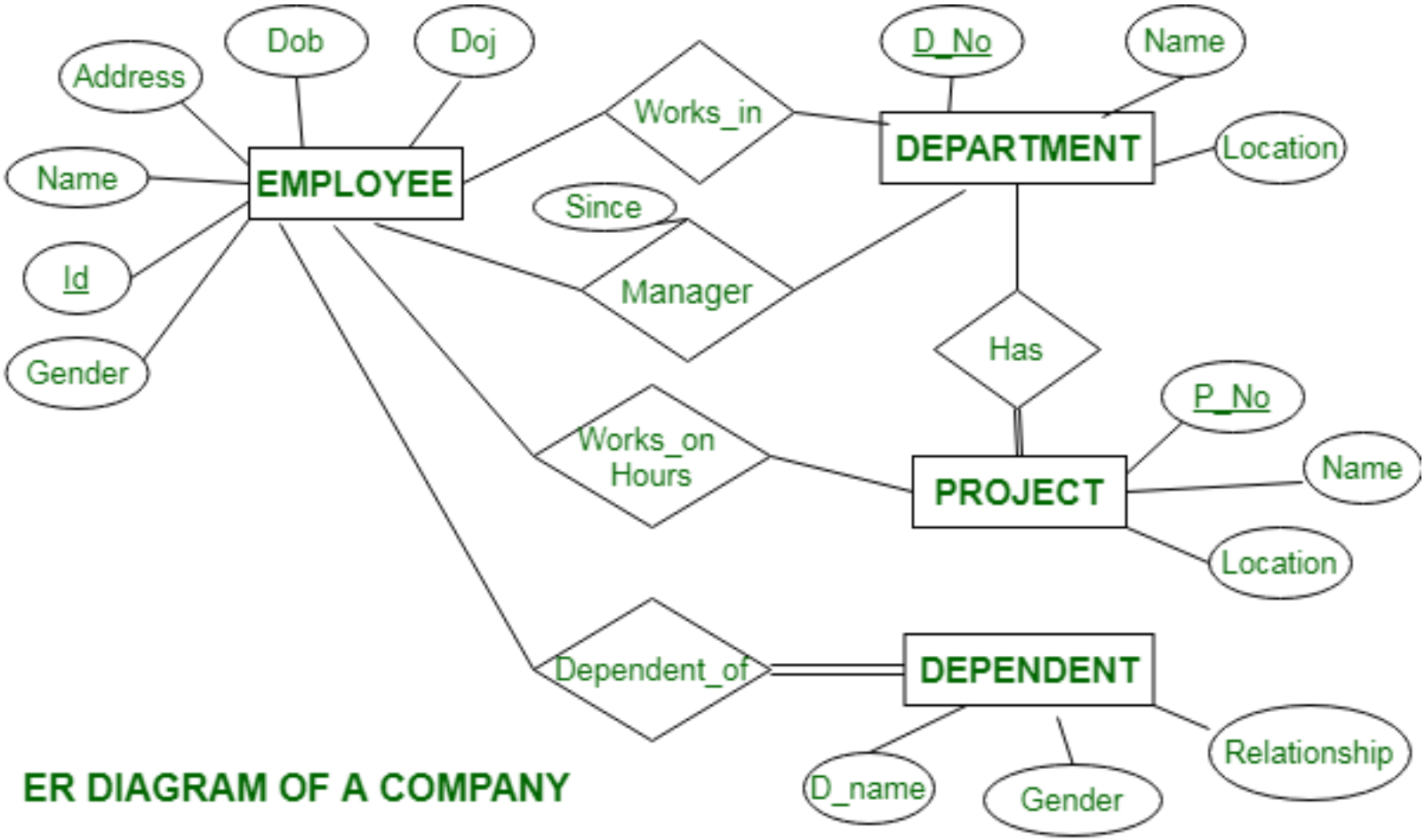
What is good database design?

- Divides your information into subject-based tables to reduce redundant data.
- Provides Access with the information it requires to join the information in the tables together as needed.
- Helps support and ensure the accuracy and integrity of your information.
- Accommodates your data processing and reporting needs.

The design process

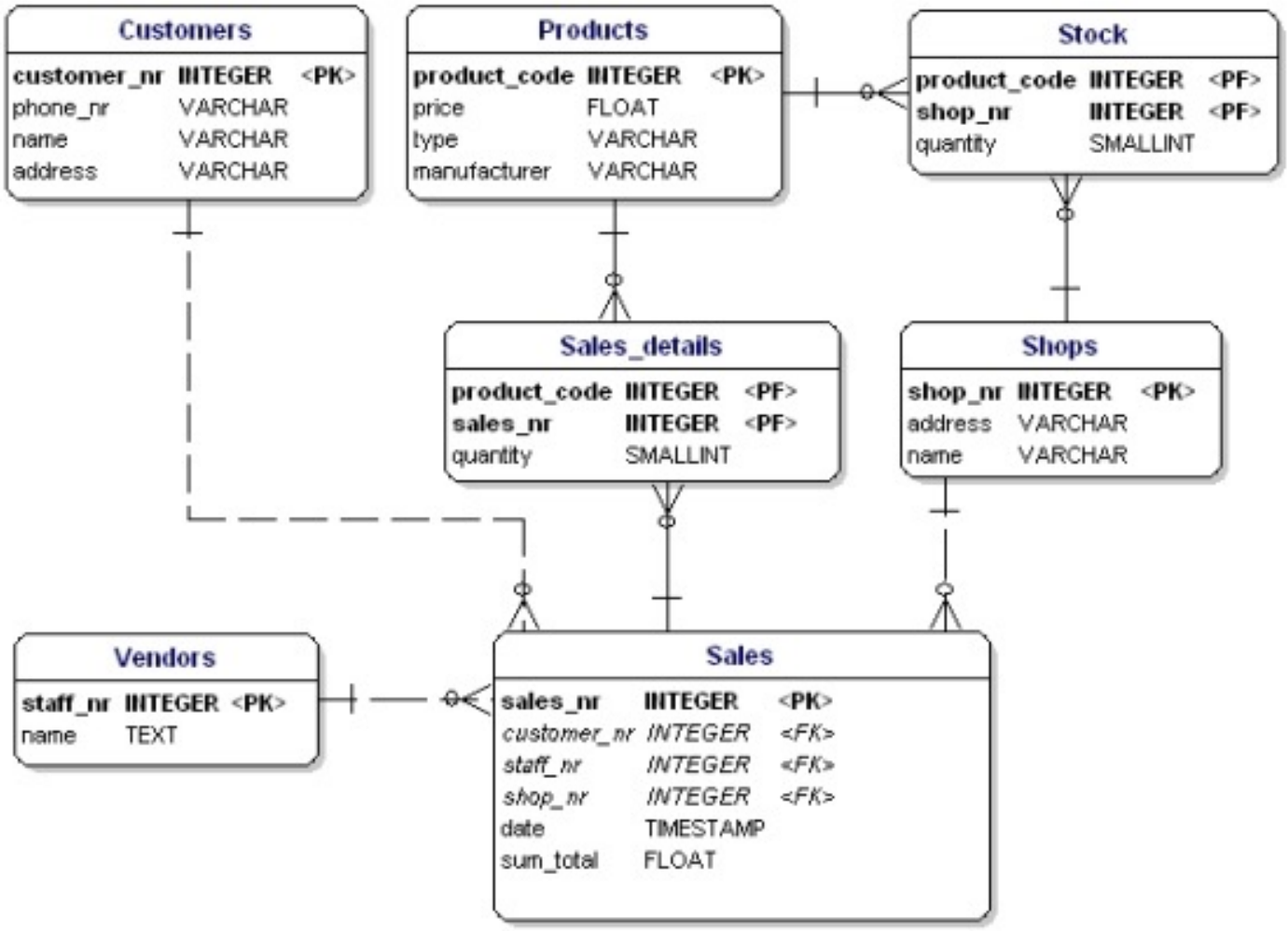
- Determine the purpose of your database (กำหนดวัตุประสงค์ของการสร้าง Database ให้ชัดเจน)
- Find and organize the information required (ตรวจสอบโครงสร้างของข้อมูลที่จำเป็น)
- Divide the information into tables (จำแนกข้อมูลลงในตาราง (Table))
- Turn information items into columns (สร้าง Column สำหรับเก็บข้อมูล)
- Specify primary keys (กำหนด Primary Key)
- Set up the table relationships (กำหนดความสัมพันธ์ของตาราง)
- Apply the normalization rules (ใช้กฎการ Normalization)

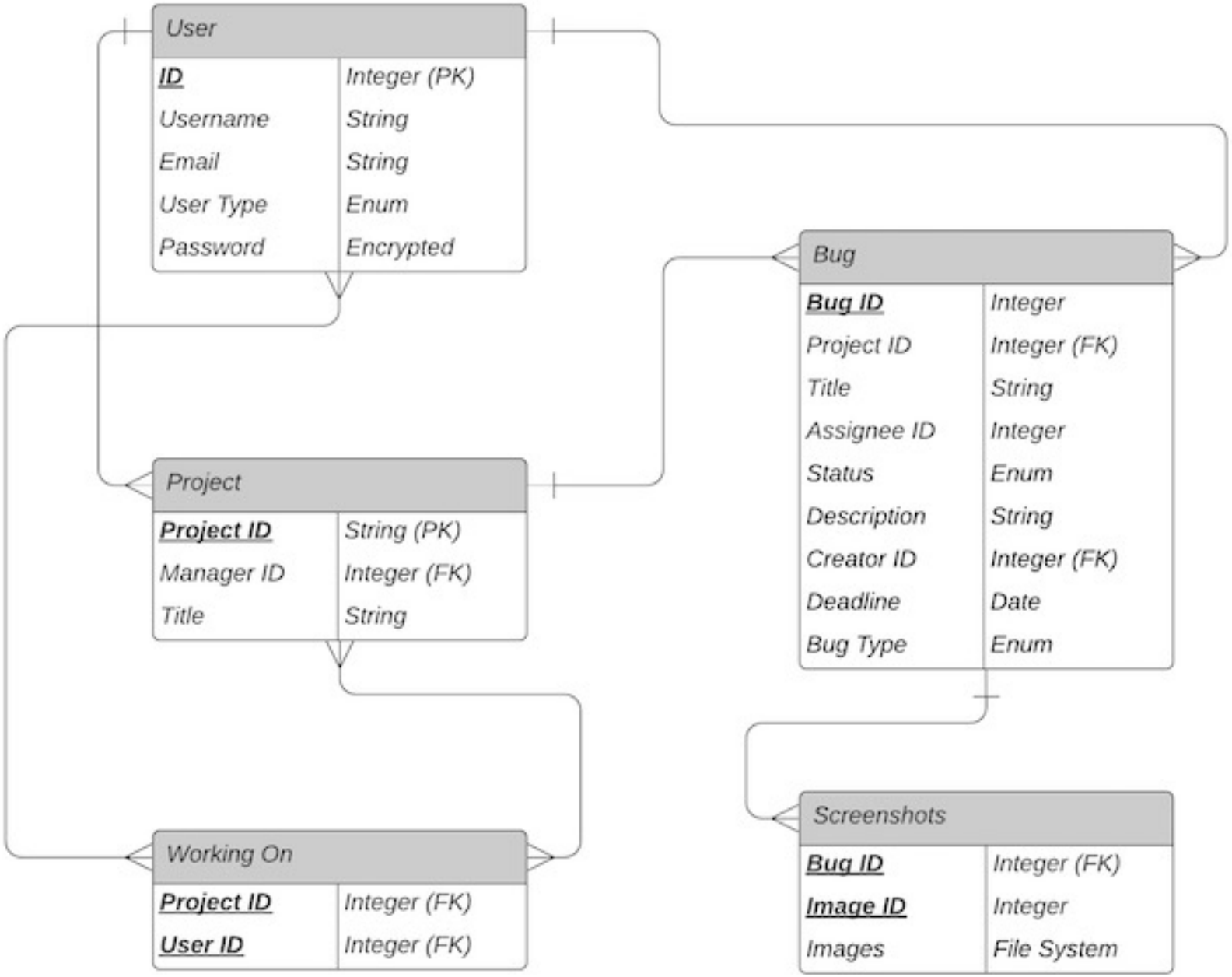
ตัวอย่าง ER digram



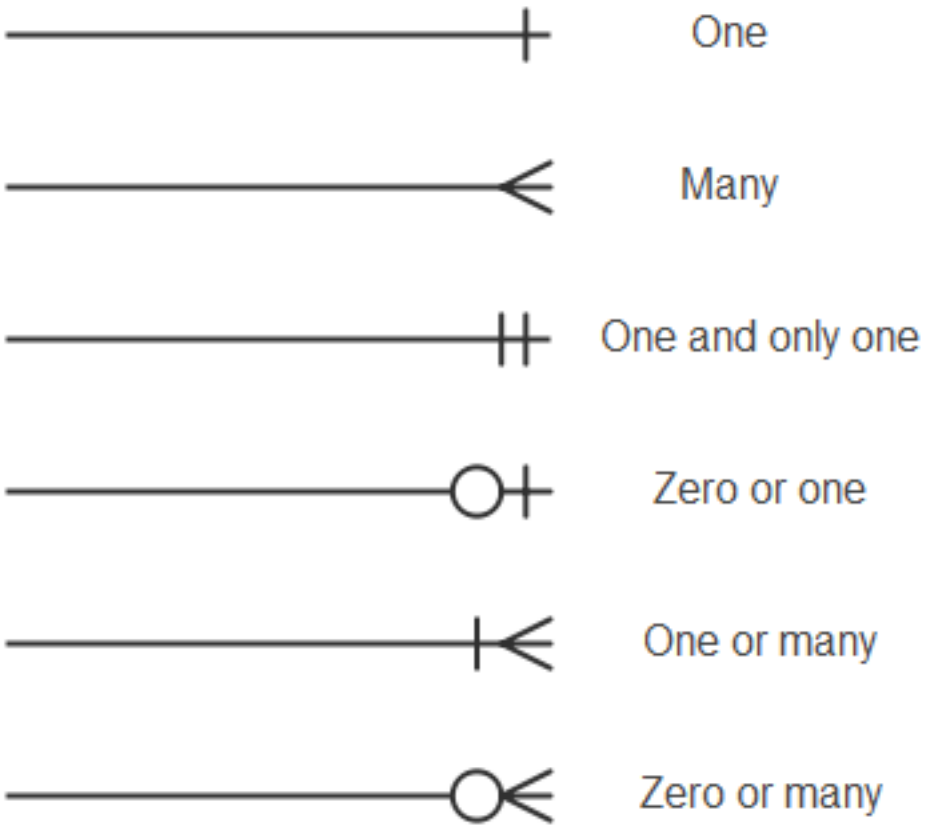
ตัวอย่าง ER digram

- Master Data
- Transaction Data




User
ID
Integer (PK)
Username
String
Email
String
User Type
Enum
Password
Encrypted
Bug
Bug ID
Integer
Project ID
Integer (FK)
Title
String
Assignee ID
Integer
Status
Enum
Description
String
Creator ID
Integer (FK)
Deadline
Date
Bug Type
Enum
Project
Project ID
String (PK)
Manager ID
Integer (FK)
Title
String
Working On
Project ID
Integer (FK)
User ID
Integer (FK)
Screenshots
Bug ID
Integer (FK)
Image ID
Integer
Images
File System

Relationship Cardinality

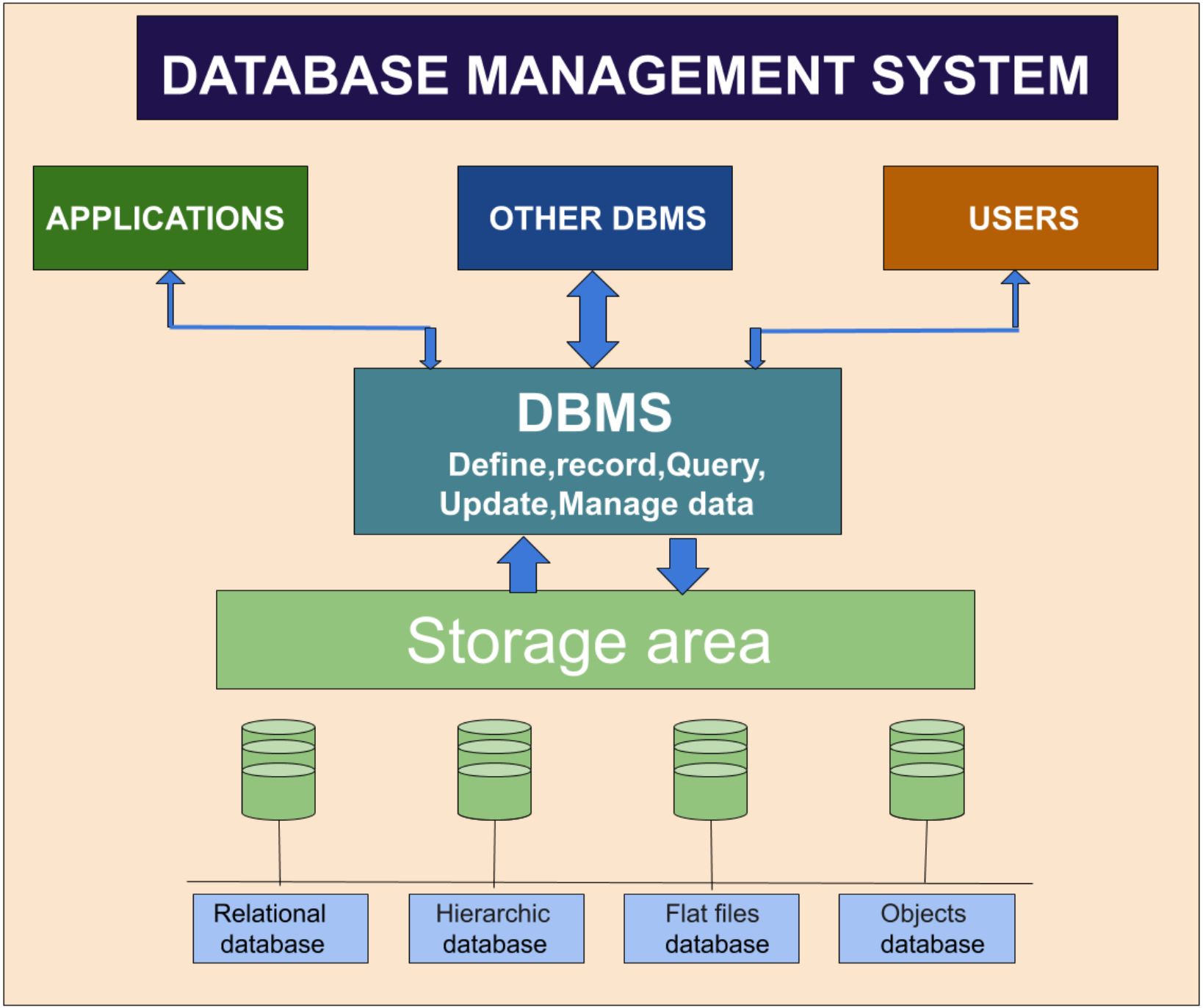


Data Dictionary

Data Dictionary

Data Dictionary outlining a Database on Driver Details in NSW

Field Name	Data Type	Data Format	Field Size	Description	Example
License ID	Integer	NNNNNN	6	Unique number ID for all drivers	12345
Surname	Text		20	Surname for Driver	Jones
First Name	Text		20	First Name for Driver	Arnold
Address	Text		50	First Name for Driver	11 Rocky st Como 2233
Phone No.	Text		10	License holders contact number	0400111222
D.O.B	Date / Time	DD/MM/YYYY	10	Drivers Date of Birth	08/05/1956


DATABASE MANAGEMENT SYSTEM
APPLICATIONS
OTHER DBMS
USERS
DBMS
Define,record,Query,
Update,Manage data
Storage area
Relational database
Hierarchic database
Flat files database
Objects database

DBMS software

- MySQL
- PostgreSQL
- Microsoft Acce
- SQL Server
- FileMaker
- Oracle
- RDBMS
- dBASE
- Clipper
- FoxPro.

Thanks!

Any questions?

รายงานเอกสารที่ต้องส่ง

- บทที่ 1
- บทที่ 2
- บทที่ 3

สิ่งที่ต้องนำเสนอ

- DFD พร้อมคำอธิบาย DFD
- System Workflow + Use Case พร้อมคำอธิบาย
- Class diagram พร้อมความสัมพันธ์
- Activity Diagram
- Sequence Diagram
- State Chart Diagram + ER Diagram and Data Dictionary