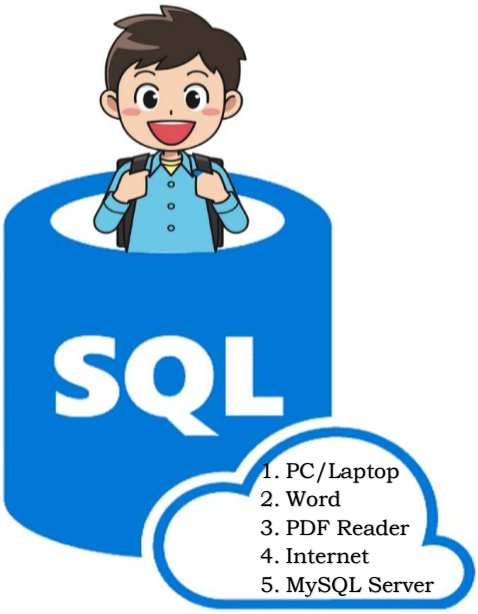
[Laboratory No. 1: Database Systems]

Objectives

1. To evaluate the difference between data and information
2. To emphasize the valuable assets for decision making

Materials



Background

Data are raw facts. Data are usually stored in a database. You need a database management system (DBMS) to implement a database and manage its contents. The DBMS serves as the intermediary between the user and the database. The database contains the data you have collected and "data about data, known as metadata.

Database design defines the database structure. A well-designed database facilitates data management and generates accurate and valuable information. A poorly designed database can lead to bad decision-making, and bad decision-making can lead to the failure of an organization.

Databases evolved from manual and then computerized file systems. In a file system, data are stored in independent files and require their own data management programs. Although this data management method is largely outmoded, understanding its characteristics makes database design easier to understand. Awareness of the problems of file systems can help you avoid similar issues with DBMS.

Database management systems were developed to address the file system's inherent weaknesses. Rather than depositing data in independent files, a DBMS presents the database to the end user as a single data repository. This arrangement promotes data sharing, thus eliminating the potential problem of islands of information. In addition, the DBMS enforces data integrity, eliminates redundancy, and promotes data security.

Prepared by: ***Martzel P. Baste***

Procedure

1. Given the following file structures below, answer the following problems:

PROJECT_CODE	PROJECT_MANAGER	MANAGER_PHONE	MANAGER_ADDRESS	PROJ_BID_PRICE
1234	Karen M. Aparece	221-5265	St Michael, Mati	2,200,000.00
6547	Genelyn Tampos	225-8696	Dampa, Tagum City	5,000,000.00
1234	Meljohn V. Aborde	224-7854	Maa, Digos	4,581,257.00
7896	Karen M. Aparece	221-5265	St. Michael, Mati	7,854,129.00
1236	Martzel P. Baste	222-4585	Obrero, USA	17,965,823.00

Figure 1.1

For numbers 1-4, use Figure 1.1:

1. How many records does the following file contain? How many fields are there per record?

2. What problems would you encounter if you wanted to produce a listing by city? How would you solve this problem by altering the file structure?

3. How would you alter the file structure if you wanted to produce a listing of the file contents by last name, area code, or city?

4. What data redundancies do you detect? How could those redundancies lead to anomalies?

2. Given the following file structures below, answer the following problems:

PROJ _NUM	PROJ _NAME	EMP _NUM	EMP _NAME	JOB _CODE	JOB_CHG _HOUR	PROJ _HOURS	EMP _PHONE
1	Hurricane	101	Aly Punga	IS	125.00	15.0	225-2525
1	Hurricane	105	Luh Kay	CS	125.00	12.5	321-5858
1	Hurricane	110	Juny Sia	CS	130.00	15.4	224-5878
2	Coast	101	Aly Punga	IS	125.00	14.0	225-2525
2	Coast	108	Cory Khong	IT	125.00	25.0	321-9696
3	Satellite	110	Juny Sia	CS	130.00	16.0	224-5878
3	Satellite	105	Luh Kay	CS	125.00	18.5	321-5858
3	Satellite	123	Mely Cirus	EMC	140.00	12.0	221-8574

Figure 1.2

For numbers 5-8, use Figure 1.2:

5. Identify and discuss the serious data redundancy problems exhibited by the file structure shown in Figure 1.2.

6. Looking at the ***EMP_NAME*** and ***EMP_PHONE*** contents in Figure 1.2, what change/s would you recommend?

7. Identify the various data sources in the file you examined in Problem 5.

8. Given your answer to Problem 7, what new files should you create to help eliminate the data redundancies found in the file shown in Figure 1.2?

Insights

Write your takeaways in the blank provided.

Scoring System

Task	Total Points	Score
Task 1 (10 points each)	**40**	
Task 1 (10 points each)	**40**	
Insights	**20**	

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