

# CIS223 - Assignment 1

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CIS223

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Please answer the following questions. Use Microsoft Word as your word processor. Place the questions along with the answers in your document. Upon completion, upload here.

## Review Questions

1. Discuss each of the following terms:
  - a. data: Raw facts, such as a telephone number, a birth date, a customer name, and a year-to-date(YTD) sales value. Data have little meaning unless they have been organized in some logical manner.
  - b. field: A character or group of characters (alphabetic or numeric) that has a specific meaning. A field is used to define and store data.
  - c. record: A logically connected set of one or more fields that describes a person, place, or thing. For example, the fields that constitute a customer record might consist of the customer's name, address, phone number, date of birth, credit limit, and unpaid balance.
  - d. file: A collection of related records. For example, a file might contain data about the students currently enrolled at Gigantic University.

2. What is data redundancy, and which characteristics of the file system can lead to it?

Data redundancy is when the same data are stored unnecessarily at different places. The organizational structure of a filesystem can lead to data redundancy.

3. What is data independence, and why is it lacking in file systems?

Data independence is changing the data storage characteristics without affecting the program's ability to access the data. It lacks in file systems because it holds no practical significance to the logical data format or the physical data format.

4. What is a DBMS, and what are its functions?

DBMS is a collection of programs that manages the database structure and controls access to the data stored in the database. Functions include data dictionary management, data storage management, and database communication interfaces.

5. What is structural independence, and why is it important?

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Structural independence is a data characteristic in which changes in the database schema do not affect data access.

6. Explain the difference between data and information.
7. What is the role of a DBMS, and what are its advantages? What are its disadvantages?
8. List and describe the different types of databases.
9. What are the main components of a database system?
10. What are metadata?
11. Explain why database design is important.

## Problem Solutions

Given the file structure shown in Figure P1.1, answer Problems 1 - 4.

PROJECT_CODE	PROJECT_MANAGER	MANAGER_PHONE	MANAGER_ADDRESS	PROJECT_BID_PRICE
21-5Z	Holly B. Parker	904-338-3416	3334 Lee Rd., Gainesville, FL 37123	16833460.00
25-2D	Jane D. Grant	615-898-9909	218 Clark Blvd., Nashville, TN 36362	12500000.00
25-5A	George F. Dorts	615-227-1245	124 River Dr., Franklin, TN 29185	32512420.00
25-9T	Holly B. Parker	904-338-3416	3334 Lee Rd., Gainesville, FL 37123	21563234.00
27-4Q	George F. Dorts	615-227-1245	124 River Dr., Franklin, TN 29185	10314545.00
29-2D	Holly B. Parker	904-338-3416	3334 Lee Rd., Gainesville, FL 37123	25559999.00
31-7P	William K. Moor	904-445-2719	216 Morton Rd., Stetson, FL 30155	56850000.00

FIGURE P1.1 The File Structure for Problems 1-4

1. How many records does the file contain? How many fields are there per record?
2. What problem would you encounter if you wanted to produce a listing by city? How would you solve this problem by altering the file structure?
3. If you wanted to produce a listing of the file contents by last name, area code, city, state, or zip code, how would you alter the file structure?
4. What data redundancies do you detect? How could those redundancies lead to anomalies?