Explain data independence with its types.

Data independence is a concept in database management that refers to the ability to make changes to the database system without affecting its higher-level structures or applications. There are two main types of data independence:

Physical Data Independence:

Definition: Physical data independence allows modifications to the internal schema of the database without affecting the conceptual schema.

Explanation: This means you can change how the data is stored, reorganize files, add new access paths, or modify indexes without altering the way users or applications perceive and interact with the data at a higher level.

Example: Suppose you decide to reorganize the storage structure of a database for better performance by changing the way data is stored on disk. With physical data independence, you can make these changes without impacting how users or applications view and query the data.

Logical Data Independence:

Definition: Logical data independence allows modifications to the conceptual schema without affecting the external schemas or application programs.

Explanation: This means you can add or remove entities, modify relationships, or make changes to the overall structure of the database without requiring modifications to the external views or programs that interact with the data.

Example: Imagine you have a database with multiple applications accessing it. If you need to add a new entity or modify the structure of an existing one to better represent the business requirements, logical data independence ensures that these changes won't disrupt the external views or programs using the data.

Related Posts:

1. What is database management system (DBMS) ? What are the tasks performed by users in DBMS ?
2. What are the advantages and disadvantages of DBMS ?
3. What do you understand by database users ? Describe the different types of database users.
4. Who are data administrators ? What are the functions of database administrator ?OR Discuss the role of database adinistrator.
5. What is data abstraction ? Explain different levels ofabstraction.
6. Explain the differences between physical level,conceptual level and view level of data abstraction.
7. Explain the difference between database management system (DBMS) and file system.
8. Discuss the architecture of DBMS. What are the types of DBMS architecture ?
9. What are data models ? Briefly explain different types of data models.
10. Describe data schema and instances.
11. Describe the classification of database language. Which type of language is SQL ?
12. Explain DBMS interfaces. What are the various DBMS interfaces ?
13. What is ER model ? What are the elements of ER model ? What are the notations of ER diagram ?
14. What do you understand by attributes and domain ?Explain various types of attributes

used in conceptual data model.

15. Construct an ER diagram for University system.
16. Construct an ER diagram for the registrar’s office
17. Explain the primary key, super key, foreign key and candidate key with example. OR Define key. Explain various types of keys.
18. What do you mean by a key to the relation ? Explain the differences between super key, candidate key and primary key.
19. Explain generalization, specialization and aggregation. OR Compare generalization, specialization and aggregation with suitable examples.
20. What is Unified Modeling Language ? Explain different types of UML.
21. What is relational model ? Explain with example.
22. Explain constraints and its types.
23. Consider the following relations:
24. What are the additional operations in relational algebra ?
25. Explain integrity constraints.
26. Explain the following constraints : i. Entity integrity constraint. ii. Referential integrity constraint. iii. Domain constraint.
27. Describe mapping constraints with its types.
28. Explain how a database is modified in SQL. OR Explain database modification.
29. Discuss join and types with suitable example. Define join. Explain different types of join.
30. Describe the SQL set operations