DBMS TT 1

60004190057
Junaid. Girkar

SECTION - B

Q1 Define physical Data Independence and logical Data independence in three schema architecture of DBMS. List down the advantages

ANS PHYSICAL DATA INDEPENDENCE is the capacity to change the internal schema without having to change the conceptual schema. Hence the external schemas need not to be changed as well. Changes to the internal schema may be needed because some physical files were reorganized to improve the performance of retrival or update. If the same data as before remains in the database, we should not have to change the conceptual schema

LOGICAL DATA INDEPENDENCE is the capacity to change the conceptual schema without having to change the external schemas or application programs. We may change the conceptual schema to expand the database, to change constraints, or to reduce the database by removing a record type or data type.

Generally physical data independence exists in most databases and file environments where physical details are hidden from the user. Applications remain unaware of these details. On the other hand, logical data independence is harder to achieve because it allows structural and constraint changes without affecting application programs - a much stricter requirement

6000419005-7
Junaid
Junaid

ADVANTAGES OF 3 SCHEMA ARCHITECTURE

- MAINTAINABILITY : Because each ~~schema~~ tier is independent → updates and changes can be carried without affecting others
- SCALABILITY : Because ~~schema~~ tier is based on deployment of layers, scaling out an application is reasonably straightforward
- FLEXIBILITY : Because each ~~schema~~ tier can be managed or scaled independently, flexibility is increased
- AVAILABILITY : Applications can exploit the modular architecture of enabling systems using easily scalable components thus increasing availability
- REUSEABILITY : Components are reusable