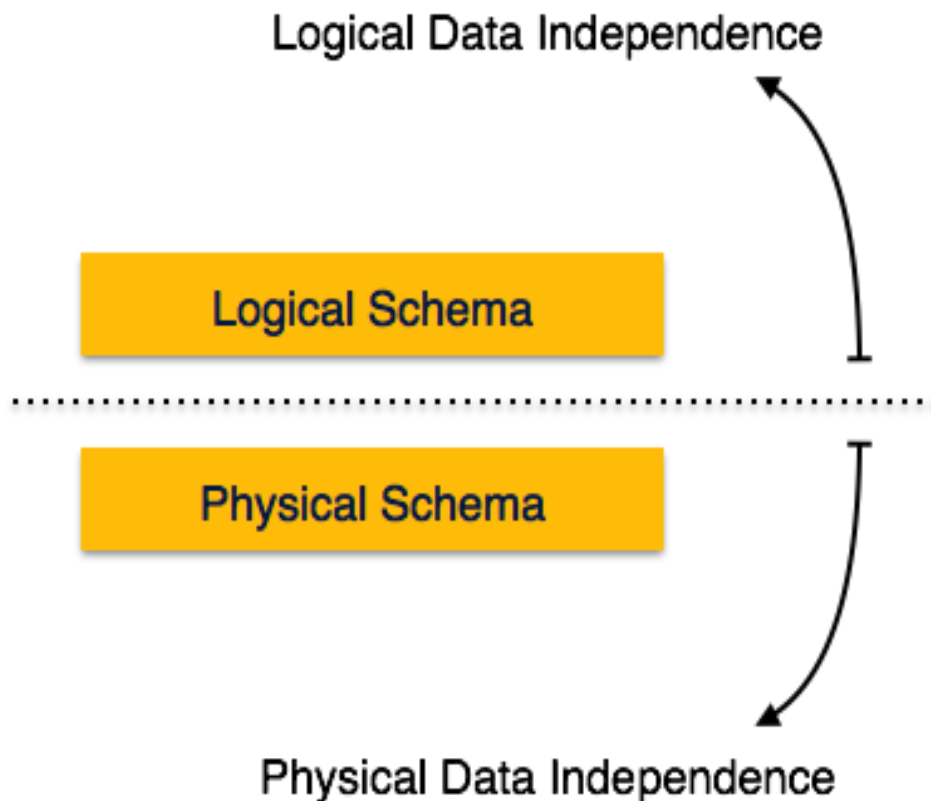


DBMS Data Independence

If the database system is not multi-layered then it will be very hard to make any changes in the database system. Database systems are designed in multi-layers as we learnt earlier.

Data Independence:

There's a lot of data in whole database management system other than user's data. DBMS comprises of three kinds of schemas, which is in turn data about data (Meta-Data). Meta-data is also stored along with database, which once stored is then hard to modify. But as DBMS expands, it needs to be changed over the time satisfy the requirements of users. But if the whole data were highly dependent it would become tedious and highly complex.



[Image: Data independence]

Data about data itself is divided in layered architecture so that when we change data at one layer it does not affect the data layered at different level. This data is independent but mapped on each other.

Logical Data Independence

Logical data is data about database, that is, it stores information about how data is managed inside. For example, a table (relation) stored in the database and all constraints, which are applied on that relation.

Logical data independence is a kind of mechanism, which liberalizes itself from actual data stored on the disk. If we do some changes on table format it should not change the data residing on disk.

Physical Data Independence

All schemas are logical and actual data is stored in bit format on the disk. Physical data independence is the power to change the physical data without impacting the schema or logical data.

For example, in case we want to change or upgrade the storage system itself, that is, using SSD instead of Hard-disks should not have any impact on logical data or schemas.

Source:

http://www.tutorialspoint.com/dbms/dbms_data_independence.htm