DB - Assignment # 1

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Question # 1 :

(a) File system management has no proper mechanism to handle multiple users accessing data simultaneously. There are limited security mechanisms for restricting user access. Also, same data stored in multiple files leads to inconsistency. There are also integrity issues which makes it difficult to enforce constraints.

(b) A composite primary key consists of two or more columns used together to uniquely identify a record.
E.g. consider a library management system with member_ID and book_ID columns. Here, member_ID alone is not unique as a member can borrow multiple books at a time. And book_ID is also not unique as one book can be borrowed by different members. However, both member_ID and book_ID can uniquely identify each row.

(c) Application programs when using DBMS can perform various operations.
DML - insert, delete, update
DDL - creating, altering tables
Data control and security
Transaction management.

(d) In three-schema, logical data independence is more difficult to achieve than physical data independence because small changes in data like adding a unique constraint requires an update query which might change external schemas or the data structures.

(e) All keys are superkeys because they uniquely identify records; but not all superkeys are keys because they may contain redundant attributes.