Assignment 1 and 2

* Answer the following long questions :

Q:① Discuss the codd's rules.
→ Dr. E. F. codd developed a relational data
model in 1970, in 1965, Dr. codd published
a list of 12 rule called as 12 codds that
define an ideal relational database and
has provided a guideline for the design
of all relational database systems.

Rule : 1 Information rule

- All Data shold be presented in table from
- Rows and columns have to be strictly
  unordered.

RNO	NAME	Gender	city	Percentage
101	Raj	Male	Surat	88
102	Umang	Male	Anand	60
106	Raghav	Male	surat	85

Rule 2 : The guaranteed access rule

- All data Must be accessible without ambiguity.
  This can be accomplished through a
  combination of the table name , Primary key
  and column name.
- These logical addresses are Table
  name , Primary key (row) And Attribute
  (column).

Rule 3 : Systematic treatement of Null values

- The database must support Null values to represent missing or Unknown data without ambiguity.
- Null value must be data type independent.
- Null means
  - not applicable
  - Missing data
  - No value

Rule 4 : Active Online catalog

- The metadata (data about data) must be stored in the same format as the user data. The catalog should be accessible via Standard SQL
- DATA dictionary (catalogue) must have description of data.

Rule 5 : Comprehensive DATA Sub language

- The RDBMS must support at least one relational language that includes commands for data definition, manipulation, and transaction management.
- All commercial relational database use froms of standard SQL.

Rule 6 : View Updating Rule

- Data can be presented in different logical combinations called views. View is a virtual table which is generated based on a query. Each view should support the same full range of data manipulation that has direct access to a table available.
- All view that are theoretically updatable must be updatable by the system.

Rule 7 : High-Level insert, Update and Delete

- A database must support high-level insertion, updation and deletion.
- It means that data can be retrieved from a relational database in sets constructed of data from multiple rows and /or multiple tables.
- Set Operations like union, intersection and minus must also be supported.

Rule 8 : Physical data Independency

- Physical level Changes must not affect the application system.
- ex:
    If the file is moved from one device to another it must not affect the logical level and view of the database.

Rule 9: Logical data independency:

- If any changes are applied to the logical level it must not affect the view level of the database.
- It is more difficult to achieve than Physical level independency.

Rule 10: integrity independency

- Database must provide facility to specify constraints

  or:

  NOT NULL, CHECK, DAFAULT etc. without help of Frontend program.
- The constraints related information must be stored in the Data-Dictionary.

Rule 11: Distribution independency

- Distribution of database within Network shold not be visible to the users
- RDBMS must be distribution indendent so data can be visible accessed by the user without bothering its storage. It helps in the distributed database.

Rule 12 : The non-subversion

- If A low level interface is allowed to the user then also the user can't bypass the integrity constraints.
- Users can work from any level, but integrity constraints must be followed by the user before storing data within the system.

Q:2 Discuss Transaction control Language with examples.

→ Transaction control Language (TCL) is a subset of SQL used to manage transactions in a database. A transaction is a set of one or more SQL statements executed as a single unit of work. TCL commands ensure the integrity and consistency of the database, especially in the case of system failures or concurrent access by multiple users.

- It includes following statements :

① commit :
- It is used to save the data permanently after completion of transaction.
- Commit whenever an insert, update and delete command executed, you can set the AUTOCOMMIT variable as SET AUTOCOMMIT ON.

— Syntax : COMMIT ;

ex : insert into tblstudent values
(105, 'SAVAN', 'Mule', 'surat', 89).

COMMIT ;

(2) Rollback :

— It is used to restore the database
to its original from at the last
commit, It gives undo effect to
the currently executed transaction.

— Syntax : ROLLBACK ;

ex :
insert into tbl values (107, 'Hetal', 'F', 'Surat', 89)
insert into tbl values (108, 'Hetvi', 'F', 'Anand', 60)
insert into tbl values (109, 'Henvi', 'F', 'Surat', 70)

Rollback ;

(3) SavePoint :

— It is used to divide the transaction
into numbers of sections to save the
transaction related data temporarily.
— This pointer is used by the
ROllBACK statement whenever
required.

- Syntex :

    SAVEPOINT <savepoinkname7;

    ex :

    insert into tbl VALLES (107, 'Hetu', 'Female', 'Surat',
                        80); savepoint S1;
    insert into tbl VALLES (108, 'SAVAN', 'Male', 'Anand',
                        80); savepoint S2;
    insert into tbl VAILES (109, 'Hetvi', 'Female', 'Nadial',
                        70);

Q: ③ Discuss DATA Control Lamguage with
    examples.

→ - It includes the statements with are
    used to provide security to the
    database.
  - with multiple users, access to the
    database, these commands are
    necessary to provide privileges to
    specific users regarding access
    to the database.
  - As per the privileges, users can
    access to specific data.
  - It controls the access of the database.
  - It includes following statements :

① Grant :

    - It is used to give permission to the
      users for accessing the database.

– Syntax :

GRANT Privilege_name
ON object_name
TO { user_name | PUBLIC | role_name }

– Privilege name :

• select : Allow accessing or select
statement for specific table.

• insert : Allow inserting records
within a specific table.

• Update : Allow to modify the
records within a specific T.

• Delete : Allow to delete the records,
form the specific Table.

• ALTER : Allow to modify the structure
of a specific table.

• INDEX : Allow to create index on
specific table.

ex° GRANT SELECT ON
Object_name
FROM user_name

– GRANT Select
ON Student
TO Fy1 ;

② Revoke :

- It is used to withdraw some or all of the granted privileges given using GRANT statement.

- Syntax :

REVOKE privilege-name
ON object_name
FROM { user-name | PUBLIC | role-name }

ex:

- Revoke select ON $tut thlstydent FROM fy1
It revokes select permission from the student table from user FY1.

- Revoke All on $tblstydent FROM sy1;
It removes all rights given to sy1 for the student table.

- Revoke select on tblstudent from PUBLIC;
It removes selection rights from all users of the student table.