BEFA ASSIGNMENT

Q Define Economics [Managerial]. Explain the nature and scope of Managerial Economics.

Managerial Economics :-

- The integration of economic theory with the business practice for the purpose of facilitating decision making & forward planning by management
- Managerial economics refers to application of principles of Economics to solve the managerial problems such as minimizing the cost or maximizing profit.

→ Managerial economics directs the utilization of scarce resources in a goal oriented manner.

→ Seeks to understand & analyze the problems of business decision making

→ Facilitates foreword planning.

→ Examines how an organization can achieve its objectives in most effectively.

→ Focuses on minimizing the cost & maximizing the profit.

Nature of Managerial Economics

1. Micro-economic in character
2. Operates against the backdrop of Macro Economics
3. It is pragmatic
4. Prescriptive Actions
5. Applied in nature
6. Offers scope to evaluate each alternative
7. Interdisciplinary (Economics OR, Mathematics, Statistics, Accountancy, Psychology, OB etc).

Scope of Managerial economics.

The scope of managerial economics refers to its area of study. Subject matter of Managerial Economics consists of applying economic principles & concepts towards adjusting various uncertainties faced by the business firms. such as

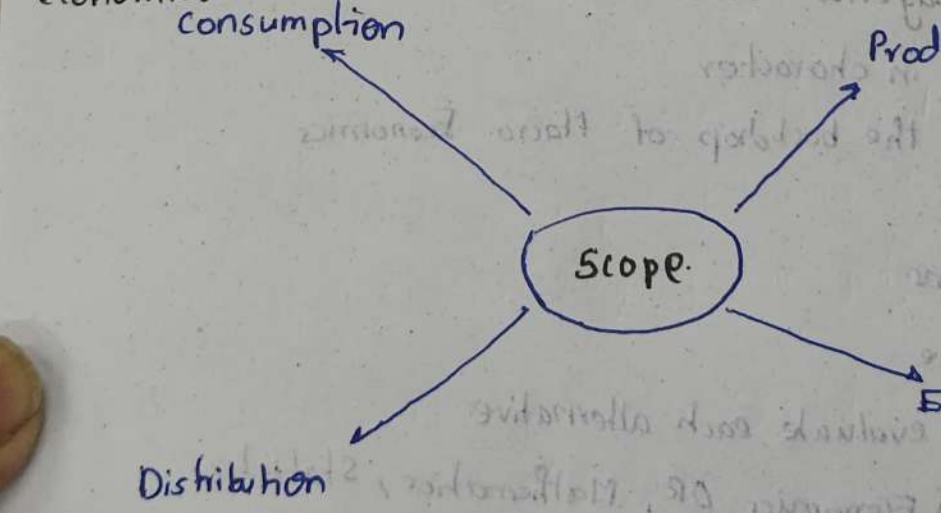
- Demand uncertainty
- Cost uncertainty
- Price uncertainty
- profit uncertainty
- Production uncertainty

Managerial Decision Areas:

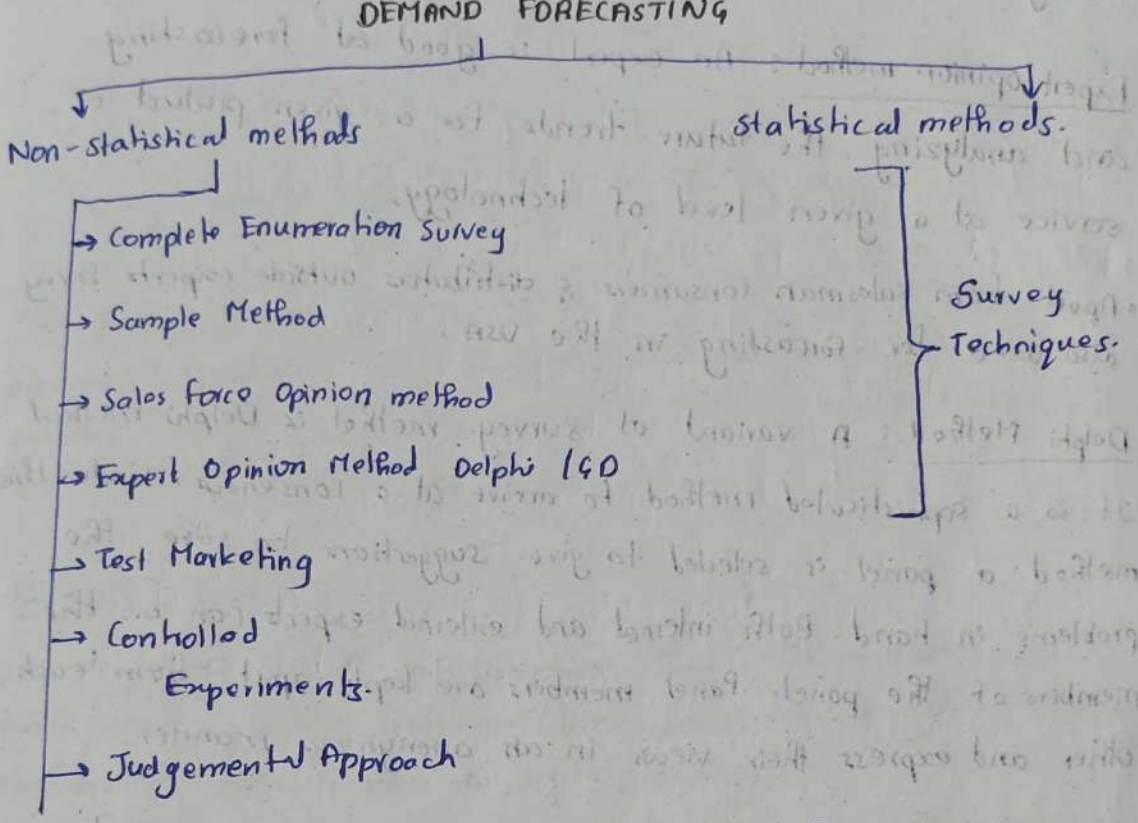
- production
- Cost Control
- price Determination
- Make or buy decisions
- Inventory Decisions
- Capital Investment Decision
- profit planning and Management

Concepts and Techniques of Me → Optimal solutions.

Scope of Managerial economics.



2) Discuss statistical & non-statistical demand forcasting methods.



Survey of buyer Intentions: In this method information is drawn from the buyer to estimate demand.

→ This is the most effective method because the buyer is the ultimate decision maker & we are collecting the information from the potential buyer.

→ If survey is conducted by considering the whole population it is called Census method. Census method is also called as Total Enumeration method.

→ If survey is conducted by considering the small group of potential buyers who can represent the whole population It is called Sample Method.

→ Sales force Opinion method: Sales people are in constant touch with the large number of buyers of a particular market.

• Sales forces constitute valid sources of information about the likely sales of a product.

Expert opinion method: An expert is good at forecasting and analyzing the future trends for a given product or service at a given level of technology.

• Apart from salesman consumers & distributors outside experts may also used for forcasting in the USA.

Delphi Method: A variant of survey method is Delphi method It is a sophisticated method to arrive at a consensus. Under this method a panel is selected to give suggestions to solve the problems in hand. Both internal and external experts can be the members of the panel. Panel members are kept apart from each other and express their views in an anonymous manner.

Test Marketing: In this test marketing the entire product and marketing program is carried for the first time in a small number of well chosen and authentic sales environment.

Controlled experiments: Major determinants of demand are manipulated to suit to the customers with different tastes and preferences.

Judgmental Approch: When non of the statistical and other methods are directly related to given product/service the management has no alternative other than using its own judgment in forecasting the demand

Statistical Methods

- Mechanical Extrapolation / Trend Projection Methods
- Barometric Techniques
- Correlation and Regression Methods

Trend Projection Method: A well-established firm will have accumulated data. These data is analyzed to determine the nature of existing trend. Then, this trend is projected in to future and results are used as the basis for forecast.

Barometric Techniques:

- It is based on the presumption that relationship can exist among various economic time series. Under this technique one set of data is used to predict another set.
- In other words to forecast demand for a product. Some other relevant indicator, which is known as BAROMETER is used to forecast the future demand.

Correlation:

- Correlation describes the degree of association b/w two variables such as sales and advertisement expenditure.
- When two variables tend to change together then they are said to be correlated.

Regression:

- A statistical measure that attempts to determine the strength of relationship b/w one dependent variable and a series of other changing variables.

Unit-II

1) Write about any 4 types of costs with example.

1) Fixed costs: are those costs that are fixed in the short run.

- Whether the production is taken up or not we have to incur certain expenses such as rent for factory & office buildings, insurances, telephone, electricity and so on.
- In other words total fixed costs remain constant in the short run.

2) Variable cost are those costs that vary with the volume of production.

- Variable costs comprises cost of raw materials, wages and so on these costs are incurred only when there is production.
- In other words the more the production the more will be the variable cost and vice versa.

3) Marginal cost it refers to additional cost incurred for manufacturing an additional unit of product.

- Marginal cost in economic theory is useful in matters relating to allocation of resources, product pricing decisions make or buy decisions and so, on.

4) Opportunity cost it refers to cost of next best alternative foregone.

- Opportunity costs refers to earnings / profits that are foregone from alternative ventures by using given limited facilities for a particular purpose.

- If there are no alternative there will be no opportunity cost.
- They record only the sacrificed alternative so they are not recorded in the books of accounts.
- Opportunity cost is said to exist when the resources are scarce and there are alternative uses for the resources.

2) Define BEP. Explain it with assumptions and limitations.

Break-Even Point (BEP)

The Break Even Point (BEP) is the level of sales at which total revenue equals total costs meaning there is no profit or loss. It represents the minimum ~~value~~ volume a business must achieve to cover its fixed and variable costs.

Assumptions of BEP Analysis

1) Constant Sales Price: The selling price per unit remains unchanged

2) Constant Variable Cost per Unit: the cost of raw materials and labor per unit does not change.

3) Fixed Costs are Truly Fixed costs remain constant over the relevant range.

4) All units produced are Sold: There is no inventory accumulation

5) Linear Cost and Revenue Behavior: Costs and revenue behave predictably and linearly.

6) No change in Efficiency or Productivity: Labor and machine efficiencies remain the same.

Limitations of BEP Analysis:

1) Ignores Market Dynamics: BEP assumes fixed selling prices. where as in reality prices fluctuate due to demand competition or discounts.

2. Fixed costs May Vary: In the long run, fixed costs might change due to expansion inflation or other factors.

3) Not Suitable for Multi Produd Firms: If a company sells multiple products maintaining a constant sales mix is unrealistic

4) Ignores External Factors

5) Simplistic: Cost Assumptions Variables are fixed costs may change with production scale.

6) Doesn't Account for profit Objectives.

→ The BEP is a useful financial tool for decision making helping businesses understand the minimum sales required to avoid losses.

Unit-III

1) Define market - Explain the features of perfect market.

MARKET:

- Market is defined as a place or point at which buyers and sellers negotiate the exchange of well-defined products or services.

- Market is any area over which buyers and sellers are in close touch with one another - either directly or through dealers that the price obtainable in one part of the market affects the prices paid in other parts

Features of Perfect Market.

1) Large Number of Buyers and Sellers.
   - No single buyer or seller can influence market prices.
   - Each participant is a 'price taker' meaning they must accept the prevailing market price.

2) Homogeneous Products
   - All products in the market are identical in quality features and price.
   - There is no differentiation ensuring pure competition.

3) Free Entry and Exit
   - Firms can freely enter or leave the market without restrictions
   - There are no barriers ~~like~~. They can freely enter or leave the market without barriers.

4) perfect information

- Bugers and sellers have complete knowledge about prices quality and market conditions.

5) Price Takers :

- Individual firms cannot set prices they must accept the market determined prices.

6) Perfect Mobility of Resources :

- Factors of production (labor, capital etc) can move freely to where they are most needed.

7) No Government Intervention

- The market operates freely without government imposed price controls taxes or subsidies.

8) No Transportation Costs

- Goods can be transferred without additional costs, making prices uniform across the market

9) Perfect knowledge

10) No publicity cost.

11) Uniform prices.

12) AR curve is parallel to X-axis.

2) Why pricing is necessary. Discuss any two pricing methods with example.

PRICING :-

- pricing is not an exact science more often are done by trial & error.
- Pricing is an important exercise. Under pricing will result in losses and over pricing will make the customers run away.
- To determine price in a scientific manner. It is necessary to understand pricing methods & procedure.

PRICING METHODS:

⇒ Cost Based Pricing Methods
- Cost plus pricing (Full cost or mark up)
- Marginal cost pricing (break even or target profit pricing)

⇒ Competition Oriented Pricing
- Sealed bid pricing
- Going rate pricing

⇒ Demand Oriented Pricing
- Price Discrimination (differential pricing)
- perceived value pricing.

DBMS ASSIGNMENT - 1.

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UNIT - 1 :

1. Explain the structure of DBMS with a neat diagram?

A Database Management System (DBMS) consists of multiple components that interact to provide an efficient way of storing, managing and retrieving data. The structure of a DBMS can be divided into following main components.

1. Database Users:
   - End Users: People who interact with the database using applications.
   - Database Administrators (DBA): Manage & maintain the database.
   - Application programmers: Develop application that interact with the DBMS
   - System Analysts: Design the database structure & Queries.
2. DBMS Interfaces:
   - Provides interaction between users & database
   Ex: Query language (SQL), forms, reports, APIs
3. Query Processor:
   - Converts user Queries into a form that the DBMS can process.
   - Includes
     - DDL Interpreter: Processes Data Definition Language commands
     - DML compiler: Converts Data Manipulation language Queries into executable code.

- Query Optimizer: Optimizes queries for efficient execution.

4. Storage Manager

→ Manages data storage on physical devices

→ Authorization & Integrity Manager: Ensures Security and integrity.

→ Transaction Manager: Handles transactions & concurrency control.

→ File Manager: Manages storage allocation and file structures.

→ Buffer Manager: Manges data in memory for Quick access

5. Database Engine.

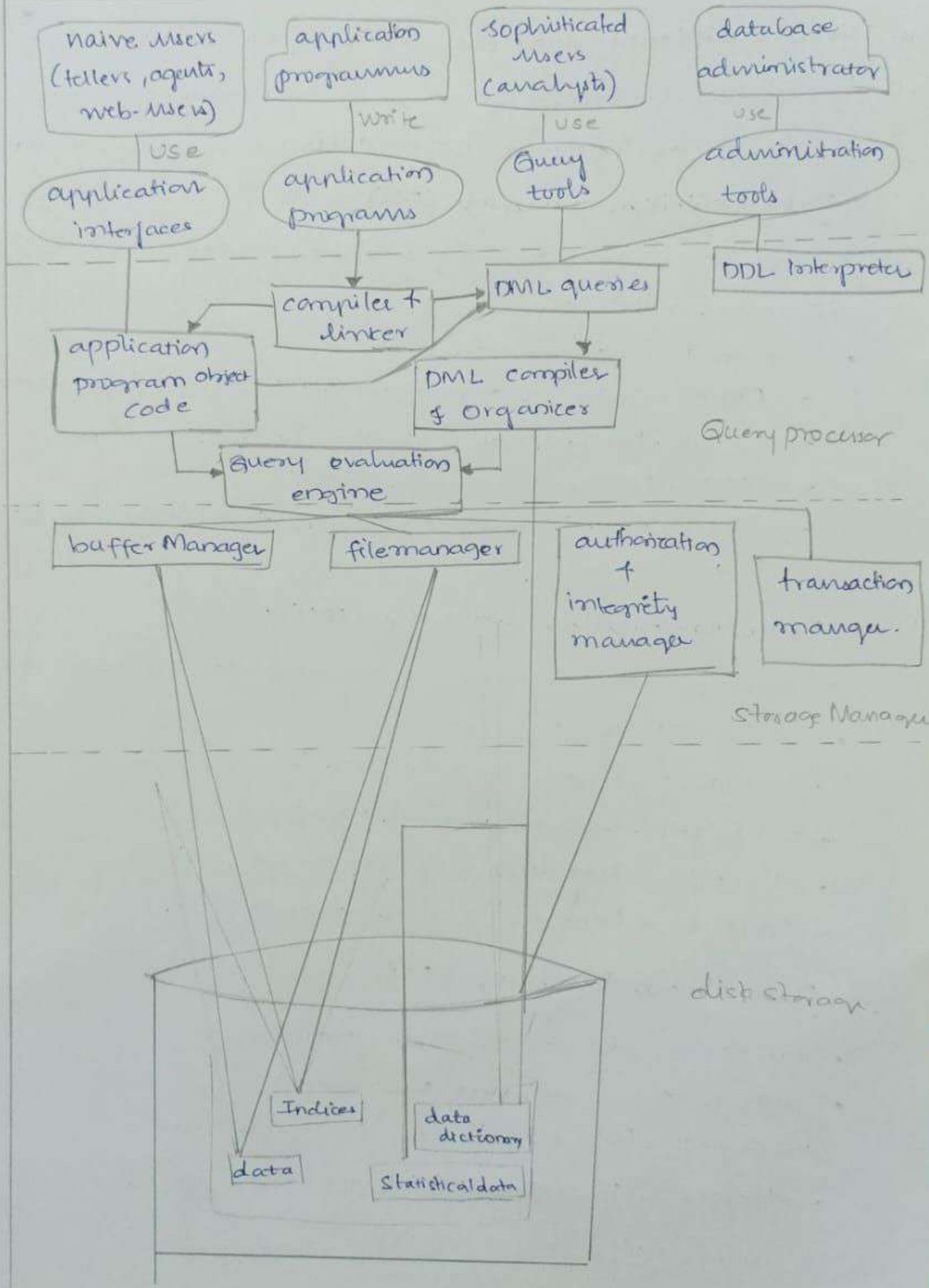
- Executes Queries and updates data in database
- Ensures ACID properties (Atomicity, Consistency, Isolation, Durability)

6. Database (Physical Storage)

→ The actual location where data is stored.

→ Includes tables, indexes, metadata & logs.

DBMS Structure Diagram:


naive users (tellers, agents, web-users)
application programmers
sophisticated users (analysts)
database administrator
use
write
use
use
application interfaces
application programs
query tools
administration tools
DDL interpreter
compiler & linker
DML queries
application program object code
DML compiler & organizer
Query processor
query evaluation engine
buffer Manager
file manager
authorization & integrity manager
transaction manager
Storage Manager
disk storage
Indices
data dictionary
data
Statistical data

2. Discuss different data base languages?

Database languages are used do creati, manage & manipulat. databases. The different types of database languages includes:

1, Data Definition language (DDL)

- Used to define & modify database structures such as tables, Schemas, & indexes.
- Common DDL commands.
  - → CREATE - Creates a new database object (table, view, index)
  - → ALTER - Modifies an existing database structure
  - → DROP - Deletes a database object.
  - → TRUNCATE - Removes all records from a table but keeps the structure.

2, Data Manipulation language (DML):

- Used for data retrieval & manipulation within the database
- Common DML commands:
  - → SELECT - Retrieves data from the database
  - → INSERT - Adds new records to a table
  - → UPDATE - Modifies existing records.
  - → DELETE - Removes records from a table.

3, Data Control Language (DCL)

- Manages user access and permissions
- Common DCL commands:
  - → GRANT - Provides specific privileges to users
  - → Revoke - Removes privileges from users.

4. Transaction Control Language (TCL)

- Manages database transactions to ensure consistency & integrity.
- Common TCL commands:
  - → COMMIT : Saves changes permanently
  - → ROLLBack : Reverts changes if an error occurs
  - → SAVEPOINT : Creates a point in a transaction to which you can later roll back.

UNIT-2

3. Discuss ER-model with an example?

Entity-Relationship (ER) Model

The Entity-Relationship (ER) model is high-level conceptual data model used for designing & representing the structure of a database. It provides a graphical way of describing the data & its relationships in a system.

Components of ER Model

1, Entities:

→ Objects or things in the real world that have attributes

→ Represented as rectangles in the ER diagram.

Ex: Student, Teacher, Course.

2, Attributes:

→ Properties or characteristics of an entity

→ Represented as Ovals in the ER diagram.

Ex; student entity may have attributes like Student-ID, Name, Age.

3. Entity sets:

→ collection of similar entities

→ Ex; A group of students forms a student entity set.

4. Relationships:

→ Associates between entities

→ Represented as diamonds in the ER diagram

→ Ex; A student enrolls in a course.

5. Cardinality:

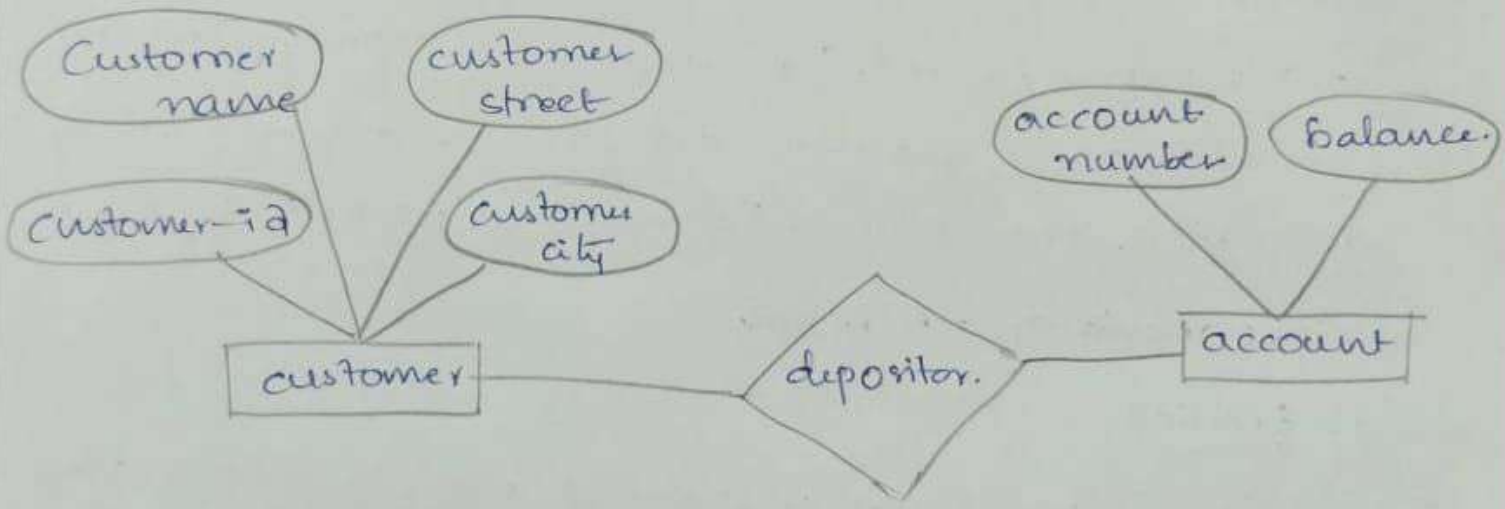
→ Defines how many entities can be related to another entity

→ Types:

1, One to one (1:1)

2, One to many (1:M)

3, Many to Many (M:N)



4. Describe different integrity constraints with examples?

Integrity constraints are rules applied to ensure the accuracy & consistency of data in a database. These constraints prevents invalid data entry & help maintain database integrity.

1. UNIQUE constraint.

- Ensures that all values in a column are distinct.
- A column with a UNIQUE constraint allows only one NULL value.
- Multiple UNIQUE constraints can exist in a table, but only one PRIMARY KEY is allowed.

Ex:
```
CREATE TABLE student(
    sid NUMBER(5),
    name VARCHAR2(10) UNIQUE,   // should have unique names
    login VARCHAR2(20) NOTNULL,
    age NUMBER(2),
    GPA NUMBER(2,1)
);
```

2, NOT NULL constraint

- Ensures that a column cannot have NULL values.
- By default, columns can hold NULL values unless specified otherwise.

Ex:
```
CREATE TABLE student(
    sid NUMBER(5),
    name VARCHAR(10),
    login VARCHAR(20) NOT NULL,   //must have value
);
```

3, PRIMARY KEY constraint

- Uniquely identifies each record in a table.
- A table can have only one PRIMARY KEY, which must be unique & cannot be NULL.

Ex; CREATE TABLE Students (
Sid NUMBER (5) PRIMARY KEY,
name VARCHAR(10),
);

→ The sid column acts as a unique identifier for each student.

4. FOREIGN KEY Constraint.

→ A foreign key in one table refers to a primary key in another table.

→ Ensures referential integrity by allowing only values present in the referenced table.

Ex; CREATE TABLE Enrolled (
Sid VARCHAR (20) PRIMARY KEY,
grade VARCHAR(2),
Sid NUMBER(5),
FOREIGN KEY (sid) REFERNCIES Students (sid)
);

Here sid in the enrolled table must match an existing sid in the students table.

5. CHECK Constraint

→ Ensures that values in a column meet a specified condi

→ Used to restrict values within a defined range

Ex; CREATE TABLE Students(
Sid NUMBER(5) PRIMARY KEY,
name VARCHAR (10),
age NUMBER(2) CHECK (age > 16),
);

the age column must contain values greater than 16.

6. DEFAULT Constraint:

- Assigns a default value to a column if no value is provided

Ex: CREATE TABLE students (

```
    sid NUMBER(5) PRIMARY KEY,
    name VARCHAR2(10) DEFAULT 'Jones',
    login VARCHAR(20),
);
```

→ If no name is provided, 'Jones' will be inserted by default.

7. Enforcing Integrity Constraints.

SQL providing mechanisms to enforce constraints to ensure data integrity.

→ Preventing Duplicate Entries (PRIMARY KEY Violation)

```
INSERT INTO students VALUES (53688, 'Mike', 'mike@ee', (1, 3.4));
```

- This insertion fails if sid 53688 already exists.

→ Handling Foreign Key Deletions (Referential Integrity)

```
CREATE TABLE Enrolled (
    cid VARCHAR(20) PRIMARY KEY,
    grade VARCHAR(2),
    sid NUMBER(5),
    FOREIGN KEY(sid) REFERENCES students(sid)
    ON DELETE CASCADE
);
```

→ If a student is deleted their enrollments will also be deleted (CASCADE).

UNIT-3

5. What is a nested Query? Explain with an Example?

A nested query, also known as a subquery, is a SQL query that is embedded inside another query. The inner query is executed first, & its result is used by the outer query.

Types of Nested Queries:

1, Single-row subquery - Returns only one value.

2, Multi-row Subquery - Returns multiple values.

3, Correlated Subquery - The inner query depends on the outer query.

Single-row Nested Query:

// Find names of students who have higst GPA.

```
SELECT name
FROM Students
WHERE gpa = (SELECT MAX(gPA) FROM Students);
```

→ inner query finds highest GPA & Outer query fetches the students name(s) with that GPA.

Multi-row Nested Query:

// Find students who are enrolled in 'Math 101'

```
SELECT name
FROM Students
WHERE sid IN (SELECT sid FROM Enrolled WHERE
                                    cid = 'Math 101');
```

→ Inner Query Retrieves all students IDs from Enrolled in 'Math 101'. & Outer query fetches names of Students using the retrieved sid values.

Correlated Nested Query:

Find students who have a GPA greater than the average GPA of students in their Department.

```
SELECT name, dept
FROM students S1
WHERE GPA > ( SELECT AVG (gpa) FROM students S2
    WHERE S1.dept = S2.dept);
```

→ Inner Query calculates the average GPA for each department.

→ Outer Query: selects students whose GPA is above their department's average.

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6. Discuss different types of joins? (Inner, full Outer, left Outer, Right Outer).

TYPES OF JOINS IN SQL

Joins are used to combine data from multiple tables based on a related column.

1. INNER JOIN:

- Returns only matching records from both tables.
- If a record has no match in either table, it is excluded.

Ex:
```
SELECT students.sid, students.name, Enrolled.sid
    FROM students
    INNER JOIN Enrolled ON students.sid = Enrolled.sid;
```

→ Retrieves only students who are enrolled in a course.

2. LEFT OUTER JOIN (LEFT JOIN)

→ Returns all records from the left table + matching records from the right table.

→ If no match is found, NULL values are returned for columns from the right table.

Ex: SELECT students.sid, students.name, Enrolled.sid
FROM students
LEFT JOIN Enrolled ON students.sid = Enrolled.sid;

→ show all students, even if they are not enrolled in any course.

3. RIGHT OUTER JOIN (RIGHT JOIN)

→ Returns all records from the right table + matching records from the left table.

→ If no match is found, NULL values are returned for columns from the left table.

Ex: SELECT Students.sid, Students.name, Enrolled.sid
FROM Students
RIGHT JOIN Enrolled ON students.sid = Enrolled.sid;

→ Displays all enrollments, even if some students are missing in the students table.

4. FULL OUTER JOIN:

→ Returns all records from both (sides) tables.

→ If no match is found, NULL values appear in missing columns.

Ex: SELECT students.sid, students.name, Enrolled.sid from students
FULL OUTER JOIN Enrolled ON students.sid = Enrolled.sid;

→ Displays all students + all enrollments with NULL values where no match exists.