



**Class: 12th**

**Subject: Computer**

**Chapter 6: TABLE AND QUERY**

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**📌 Important MCQs:**

**1. In a relational database, data is stored in the form of:**

- (a) Files
- (b) Forms
- (c) Tables**

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(d) Queries

**2. A table in a relational database is also called:**

(a) Record

**(b) Relation**

(c) Field

(d) Object

**3. The foundation of every Relational Database Management System (RDBMS) is:**

(a) Query

(b) Form

**(c) Table**

(d) Report

**4. Rows in a table are also known as:**

(a) Fields

(b) Attributes

**(c) Records**

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(d) Columns

**5. Columns in a table are also called:**

(a) Records

**(b) Fields** ✓

(c) Relations

(d) Objects

**6. Which of the following best describes a table?**

(a) A collection of programs

**(b) A grid of rows and columns used to store data** ✓

(c) A type of software

(d) A query result

**7. Each column in a table must have:**

(a) Same name

(b) No data type

**(c) A distinct name** ✓

(d) Duplicate values

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**8. Which rule applies to the cells of a relational table?**

- (a) A cell can store multiple values
- (b) A cell contains only one value** ✓
- (c) A cell must be empty
- (d) A cell stores records

**9. The number of fields in a table is called:**

- (a) Cardinality
- (b) Degree** ✓
- (c) Attribute
- (d) Record count



**10. The number of records in a table is known as:**

- (a) Degree
- (b) Field count
- (c) Cardinality** ✓
- (d) Relation

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**11. Which of the following statements about table rows is correct?**

- (a) Rows can be duplicate
- (b) Order of rows is important
- (c) Each row is distinct** ✓
- (d) Rows define data type

**12. A database object can be:**

- (a) Table
- (b) Query
- (c) Form
- (d) All of these** ✓



**13. Design View in MS Access is used to:**

- (a) Enter data
- (b) Delete records
- (c) Create and define fields** ✓
- (d) Print reports

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**14. Datasheet View allows the user to:**

- (a) Design table structure
- (b) Update and edit data** ✓
- (c) Create queries
- (d) Design forms

**15. IDE stands for:**

- (a) Internal Database Engine
- (b) Integrated Development Environment** ✓
- (c) Internet Data Explorer
- (d) Integrated Data Editor

**16. Design View in MS Access is mainly used to:**

- (a) Enter records
- (b) Print data
- (c) Define fields before entering data** ✓
- (d) Run queries

**17. When a table is opened normally, it is displayed in:**

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(a) Design View

(b) Report View

**(c) Datasheet View**

(d) Layout View

**18. Datasheet View is similar to:**

(a) Word document

(b) PowerPoint slide

**(c) Excel worksheet**

(d) Notepad file



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**19. In Datasheet View, field names are shown as:**

(a) Rows

(b) Footers

**(c) Column headers**

(d) Labels

**20. Which operation can be performed in Datasheet View?**

(a) Defining field properties

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(b) Adding and editing data

(c) Creating relationships

(d) Setting validation rules

**21. To switch from Datasheet View to Design View, you click:**

(a) Status bar

(b) Start menu

(c) Top-left View button

(d) Scroll bar

**22. How many main ways are available to create a table in MS Access?**

(a) One

(b) Two

(c) Three

(d) Four

**23. Which of the following is NOT a table creation method?**

(a) Design View

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(b) Wizard

(c) Entering Data

**(d) Report View**

**24. In Design View, the structure of a table is created by:**

(a) Entering records

**(b) Defining fields and data types**

(c) Printing data

(d) Sorting data

**25. Which column in Design View is optional?**

(a) Field Name

(b) Data Type

**(c) Description**

(d) Primary Key

**26. Which data type allows storage of up to 255 characters?**

(a) Memo

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(b) Text

(c) Number

(d) Currency

**27. Which data type is suitable for storing detailed descriptions?**

(a) Text

(b) Number

(c) Memo

(d) AutoNumber

**28. Which data type is automatically assigned a unique number?**

(a) Text

(b) Currency

(c) AutoNumber

(d) Number

**29. Which data type is used for True/False values?**

(a) Number

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(b) Yes/No

(c) Text

(d) Memo

**30. Which data type is used to store pictures or Word files?**

(a) Hyperlink

(b) Memo

(c) OLE Object

(d) Text

**31. Which field property controls the number of characters allowed?**

(a) Format

(b) Default Value

(c) Field Size

(d) Validation Rule

**32. The default field size of Text data type is:**

(a) 25 characters

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(b) 50 characters

(c) 100 characters

(d) 255 characters

**33. Which property helps speed up searching and sorting?**

(a) Default Value

(b) Input Mask

(c) Indexes

(d) Format

**34. Validation Rules are used to:**

(a) Format data

(b) Restrict incorrect data entry

(c) Store default values

(d) Create keys

**35. Input Mask is used to:**

(a) Calculate values

(b) Restrict duplicate records

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(c) Enter data in a specific format

(d) Hide fields

**36. Which of the following is an example of an Input Mask?**

(a) >0

(b) ???

(c) (555) 123-4567

(d) Yes/No

**37. A Primary Key is used to:**

(a) Sort records

(b) Format fields

(c) Identify each record uniquely

(d) Store pictures

**38. If no primary key is defined, Access creates:**

(a) Text field

(b) Number field

(c) ID AutoNumber field

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(d) Memo field

**39. Table Wizard helps to:**

(a) Write programs

**(b) Create tables easily using templates** ✓

(c) Delete records

(d) Design reports

**40. When a table is created by entering data, default field names are:**

(a) Name1, Name2

(b) Col1, Col2

**(c) Field1, Field2** ✓

(d) Data1, Data2

**41. An existing table in MS Access can be modified by:**

(a) Only deleting records

(b) Only adding fields

**(c) Adding, deleting, moving, or renaming fields** ✓

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(d) Printing the table

**42. New records in a table are added in:**

(a) Design View

(b) Report View

**(c) Datasheet View**

(d) Print Preview

**43. The asterisk (\*) in a datasheet indicates:**

(a) Deleted record

(b) Primary key

**(c) New record row**

(d) Required field



**44. To delete a record from a table, you should use:**

(a) Format Delete

(b) Tools Delete

**(c) Edit Delete Record**

(d) File Delete

---

**45. Which view is recommended for adding new fields with more options?**

(a) Datasheet View

**(b) Design View** ✓

(c) Print View

(d) Layout View

**46. When a new column is inserted in Datasheet View, it is added:**

(a) To the right of selected column

**(b) To the left of selected column** ✓

(c) At the end of table

(d) At the top of table

**47. Double-clicking the column boundary will:**

(a) Delete the column

(b) Freeze the column

**(c) Auto-fit the column width** ✓

(d) Hide the column

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**48. Freezing columns in a datasheet helps to:**

- (a) Delete columns
- (b) Print columns
- (c) Keep important columns visible while scrolling** ✓
- (d) Change data types

**49. To search data in a table, which command is used?**

- (a) Edit Replace
- (b) Edit Find** ✓
- (c) Tools Spelling
- (d) Format Search



**50. To print a datasheet, you can use:**

- (a) Tools → Print
- (b) Edit → Print
- (c) File → Print or Print button** ✓
- (d) Format → Print

**51. Table relationships in MS Access are created to:**

- 
- (a) Increase data duplication
  - (b) Store flat-file data
  - (c) Prevent duplication of information**
  - (d) Delete records automatically

**52. Relationships between tables are established by:**

- (a) Matching table names
- (b) Repeating a common field in tables**
- (c) Using reports
- (d) Printing datasheets

**53. To create relationships, which button is used in MS Access?**

- (a) Tables
- (b) Queries
- (c) Relationships**
- (d) Forms

**54. Fields from different tables are linked by:**

- 
- (a) Typing field names
  - (b) Copying records
  - (c) Clicking and dragging fields**
  - (d) Using datasheet view

**55. Enforce Referential Integrity is used to:**

- (a) Format data
- (b) Maintain data consistency between tables**
- (c) Speed up printing
- (d) Hide fields

**56. In a parent-child relationship, the parent table contains:**

- (a) Foreign key
- (b) Duplicate records
- (c) Primary key**
- (d) No records

**57. Referential Integrity prevents:**

- 
- (a) Entering records in parent table
  - (b) Editing all records
  - (c) Deleting related records accidentally** ✓
  - (d) Printing tables

**58. Cascade Update Related Fields means:**

- (a) Delete all records
- (b) Update child records automatically when primary key changes** ✓
- (c) Hide related fields
- (d) Remove relationships

**59. Cascade Delete Related Records allows Access to:**

- (a) Update field sizes
- (b) Print related records
- (c) Automatically delete related records in child table** ✓
- (d) Prevent deletions

**60. A database without relationships is called:**

- 
- (a) Relational database
  - (b) Indexed database
  - (c) Flat-file database** ✓
  - (d) Distributed database

**61. Sorting and filtering are used to:**

- (a) Delete records
- (b) Change table design
- (c) View records in a different way** ✓
- (d) Create relationships

**62. Sorting rearranges records in a table on the basis of:**

- (a) Table name
- (b) Field values** ✓
- (c) Primary key only
- (d) Record size

**63. To sort records in ascending order, which option is used?**

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(a) Records → Filter

**(b) Records → Sort → Sort Ascending** ✓

(c) Edit → Sort

(d) Tools → Sort

**64. Sorting records by more than one field is done by:**

(a) Sorting one field only

**(b) Highlighting required columns and sorting** ✓

(c) Creating a new table

(d) Using Design View



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**65. Filter by Selection is used to:**

(a) Sort records alphabetically

**(b) Display records with identical field values** ✓

(c) Delete duplicate records

(d) Create queries

**66. Filter by Form is useful when:**

(a) Table is small

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(b) Exact value is known

(c) Table is large and value is hard to find

(d) Data must be deleted

**67. To specify alternative criteria in Filter by Form, you use:**

(a) Criteria row

(b) Sort option

(c) Or tab

(d) Apply Filter

**68. A filtered table can be saved permanently as:**

(a) Report

(b) Form

(c) Query

(d) Table

**69. To remove a filter and show all records again, you should:**

(a) Close the table

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(b) Delete the query

**(c)** Click the Apply Filter toggle button

(d) Restart Access

**70. Queries are used to:**

(a) Design tables

(b) Print reports

**(c)** Retrieve data from one or more tables

(d) Create relationships

**71. The result of a query is called:**

(a) Record set

(b) Datasheet

**(c)** Dynaset

(d) Table

**72. Which type of query only displays selected data?**

(a) Action query

**(b)** Select query

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(c) Crosstab query

(d) Parameter query

**73. Which query is used to delete records?**

(a) Select query

(b) Update query

**(c) Delete query**

(d) Append query

**74. A parameter query:**

(a) Deletes records automatically

**(b) Prompts the user for input when run**

(c) Finds duplicate values

(d) Creates tables

**75. Wildcards in queries are used to:**

(a) Enter fixed values

(b) Match exact data

**(c) Search patterns or partial words**

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(d) Sort records

**76. Calculations on a group of records in MS Access are performed using:**

(a) Tables

(b) Forms

**(c) Queries**

(d) Reports

**77. Which query option is used to add values of a field?**

(a) Avg

(b) Count

**(c) Sum**

(d) Max

**78. Which calculation type is used to find the average value?**

(a) Min

**(b) Avg**

(c) Var

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(d) First

**79. Which function counts the number of values in a field?**

(a) Sum

(b) Max

**(c) Count**

(d) StDev

**80. Which option is used to create a calculated field using a formula?**

(a) Group By

(b) Where

**(c) Expression**

(d) Last

 **Important Short Questions:**

**1. What is a table in a relational database?**

**Answer:**

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👉 A table is a collection of related data organized in rows and columns. It is also called a relation and is the basic unit of a relational database.

**Example:** A “Students” table with columns like Roll Number, Name, and Marks.

## 2. How is a table similar to an Excel worksheet?

**Answer:**

👉 Both are grids with columns and rows. Columns represent fields, and rows represent records. They help in storing and managing data efficiently.

**Example:** Excel sheet with student data vs. database table with same data.

## 3. What are the characteristics of a relational database table?

**Answer:**

👉 Each cell contains only one value, each column has a unique name, order of rows and columns is immaterial, and each row is a distinct record.

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**Example:** A table of students where each student's data is unique.

#### **4. What is meant by the degree of a table?**

**Answer:**

👉 The degree of a table is the number of fields (columns) it contains.

**Example:** A table with 5 columns (Roll Number, Name, Class, Section, Marks) has a degree of 5.

#### **5. What is meant by the cardinality of a table?**

**Answer:**

👉 The cardinality of a table is the number of records (rows) it contains.

**Example:** A table with 50 students has a cardinality of 50.

#### **6. What is the difference between a field and a record?**

**Answer:**

👉 Field (Column) defines a type of data, while a record (Row) is a set of field values representing one entity.

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**Example:** In a student table, “Name” is a field, and one student’s complete data is a record.

## **7. What is the advantage of using separate tables for each entity?**

**Answer:**

👉 Data is stored only once, reducing redundancy and errors, making the database more efficient.

**Example:** Separate tables for Students, Teachers, and Classes.

## **8. What does IDE stand for, and what is its purpose?**

**Answer:**

👉 IDE stands for Integrated Development Environment. It is an interface that helps create, manage, and design databases easily.

**Example:** Microsoft Access IDE.

## **9. How many ways are there to create a database in Microsoft Access?**

**Answer:**

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👉 **Two ways:** using Database Wizard or opening an Empty Database and creating objects manually.

**Example:** Create a Students database using Wizard or from scratch.

### **10. Which views are available in Access for working with tables?**

**Answer:**

👉 Design View to create and modify fields, and Datasheet View to enter, edit, and delete data.

**Example:** Add new columns in Design View, update student marks in Datasheet View.

### **11. What is Design View in Microsoft Access?**

**Answer:**

👉 Design View allows you to define fields, their data types, and properties in a table before adding any data.

### **12. What is Datasheet View in Microsoft Access?**

**Answer:**

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👉 Datasheet View displays a table like a spreadsheet, showing field names as column headers and records as rows.

### **13. What operations can be performed in Datasheet View?**

**Answer:**

👉 You can add, edit, delete, search, and view data in the table.

### **14. How can you switch between Datasheet View and Design View?**

**Answer:**

👉 Click the View button at the top-left corner of the Access window to switch between views.

### **15. Name three ways to create a table in Microsoft Access.**

**Answer:**

👉 (i) Using Design View

👉 (ii) Using Table Wizard

👉 (iii) By entering data directly in Datasheet View

### **16. How do you create a table using Design View?**

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**Answer:**

👉 Open Database Window → Click Table → New → Select Design View → Click OK → Define fields and data types.

**17. What is the purpose of defining fields in Design View before adding data?**

**Answer:**

👉 It organizes data into categories, assigns data types, and sets properties for accuracy and consistency.

**18. What is a Field Name in Access?**

**Answer:**

👉 Field Name identifies the contents of a column, e.g., Name, Address, Marks.

**19. What is the purpose of the Data Type for a field?**

**Answer:**

👉 Data Type defines what kind of data a field can store, e.g., Text, Number, Date/Time, Currency.

**20. Name at least five common data types available in Microsoft Access.**

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**Answer:**

👉 Text, Memo, Number, Date/Time, Currency, AutoNumber, Yes/No, OLE Object, Hyperlink.

**21. What is the purpose of the Description field in Design View?**

**Answer:**

👉 To provide optional text explaining the contents or purpose of the field.

**22. What are Field Properties in Design View?**

**Answer:**

👉 Settings that control data input, format, default value, validation, and behavior of a field.

**23. What is the function of the Field Size property?**

**Answer:**

👉 Specifies the maximum number of characters or numeric range allowed in a field to save space and prevent errors.

**24. How can you format numbers in Access fields?**

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**Answer:**

👉 Using the Format property to display numbers as Currency, Percentage, Decimal, or Custom formats.

## **25. What is a Default Value for a field?**

**Answer:**

👉 A preset value that automatically appears in a field for new records to save time.

## **26. What is the purpose of creating an Index in a table?**

**Answer:**

👉 Indexes make searching and sorting faster and can prevent duplicate entries if required.

## **27. What are Validation Rules in Microsoft Access?**

**Answer:**

👉 Rules that define what data is allowed in a field, e.g., only numbers > 0 or text of specific length.

## **28. What is an Input Mask, and why is it used?**

**Answer:**

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👉 An Input Mask controls the format of data entered, e.g., phone numbers as (555) 123-4567.

### **29. What is a Primary Key in a table?**

**Answer:**

👉 A field that uniquely identifies each record in a table; no duplicate or null values allowed.

### **30. How does Access create a Primary Key automatically when using Datasheet View?**

**Answer:**

👉 Access adds an ID AutoNumber field as the primary key if no existing field uniquely identifies records.

### **31. How can you add a new record to an Access table?**

**Answer:**

👉 In Datasheet View, type the new record beside the asterisk (\*) at the bottom of the table or click the New Record button to add a new row.

### **32. How can you edit or delete a record in Datasheet View?**

**Answer:**

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👉 To edit, place the cursor in the record and make changes.

👉 To delete, select any field in the record and choose Edit → Delete Record or click the Delete Record button on the toolbar.

### **33. How can you insert, delete, or resize fields and columns in a table?**

**Answer:**

👉 **Insert a field:** Highlight a column → Insert Column.

👉 **Delete a field:** Select a column → Delete Column.

👉 **Resize rows/columns:** Drag the sizing line or double-click to auto-fit column width.

### **34. What is the purpose of freezing and hiding columns in a table?**

**Answer:**

👉 **Freezing columns:** Keeps important columns visible while scrolling through the datasheet.

👉 **Hiding columns:** Temporarily hides unnecessary columns to simplify viewing of data.

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### 35. How can you find, replace data, check spelling, and print a datasheet in Access?

**Answer:**

👉 **Find:** Use Edit → Find and set criteria to locate data.

👉 **Replace:** Use Edit → Replace to update single or all occurrences.

👉 **Spell Check:** Use Tools → Spelling to correct errors.

👉 **Print:** Click the Print button on the toolbar or File → Print for options.

### 36. How are relationships established among tables in Microsoft Access?

**Answer:**

👉 Relationships are created by linking a field in one table to a corresponding field in another table using the Relationships window.

**Example:** Linking ClassID in the Class table to ClassID in the Student table.

### 37. What is the purpose of Enforce Referential Integrity?

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**Answer:**

👉 It ensures that related data remains consistent by preventing deletion or changes in a primary key if related records exist in another table.

**Example:** You cannot delete a class record if students are assigned to that class.

**38. What are joins in a relational database?**

**Answer:**

👉 Joins connect two or more tables to combine data for queries or reports, enabling access to related information efficiently.

**Example:** Joining Student and Class tables to display students with their class names.

**39. What is Referential Integrity and why is it important?**

**Answer:**

👉 Referential Integrity is a rule that ensures a foreign key in one table matches a primary key in another table or is null.

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👉 It maintains database reliability and prevents orphan records.

**Example:** Every student record must reference a valid class record.

#### **40. What are Cascade Update and Cascade Delete options in Access relationships?**

**Answer:**

👉 **Cascade Update:** Automatically updates related foreign key values when a primary key is changed.

👉 **Cascade Delete:** Automatically deletes related records when a primary key record is deleted.

**Example:** Changing or deleting a class ID automatically updates or removes corresponding student records.

#### **41. What is the purpose of sorting records in a table?**

**Answer:**

👉 Sorting arranges records in a specific order, such as ascending, descending, alphabetical, or by date, to make data easier to view and analyze.

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## 42. How can you sort records by one or more fields in Access?

### Answer:

👉 Place the cursor in the column → Records → Sort Ascending/Sort Descending or use the toolbar buttons.

👉 To sort by multiple columns, highlight the columns and apply sorting in the desired order.

## 43. What is Filter by Selection and how is it used?

### Answer:

👉 Filter by Selection displays only records that match a selected value in a field.

**Example:** Click on a city name "Lahore" → Filter by Selection shows only records with City = Lahore.

## 44. What is Filter by Form and when is it useful?

### Answer:

👉 Filter by Form allows filtering using drop-down menus for each field in large tables, useful for complex criteria.

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**Example:** Select multiple conditions using Or tabs to filter records with different values.

#### 45. How can you save or remove a filter in a table?

**Answer:**

👉 **Save filter:** File → Save As Query to reuse filtered records.

👉 **Remove filter:** Click the Apply Filter toggle button to view all records again.

#### 46. What is a query in Microsoft Access?

**Answer:**

👉 A query is a question or request to retrieve specific data from one or more tables in a database.

👉 It allows filtering, sorting, and analyzing data efficiently.

#### 47. What are the different types of queries in Access?

**Answer:**

👉 **Select Query:** Retrieves and displays data.

👉 **Action Queries:** Modify data (Delete, Update, Append).

👉 **Crosstab Queries:** Summarize and restructure data.

---

👉 **Parameter Queries:** Ask user input when run.

👉 **SQL Queries:** Use SQL commands to extract data.

#### **48. What is a select query and what is it used for?**

**Answer:**

👉 A select query gathers, organizes, and presents data from one or more tables in a datasheet.

👉 Can group records and calculate sums, counts, averages, etc.

#### **49. What are action queries and their types?**

**Answer:**

👉 Action queries make changes to data in tables. Types:

**Delete Query:** Deletes selected records.

**Update Query:** Modifies selected records.

**Append Query:** Adds records to another table.

#### **50. How do you create a query in Design View in Access?**

**Answer:**

Queries page → New → Design View → OK

---

Add tables/queries → Click Add → Close

Add fields → Set sort order and criteria if needed

Click Run → Save the query

## **51. What is the purpose of performing calculations in a query?**

**Answer:**

👉 Calculations in a query allow you to compute values such as sums, averages, counts, minimum, maximum, and other statistics on a group of records efficiently.

**Example:** Calculating the total marks of all students in a class.

## **52. What are the types of predefined calculations available in Access queries?**

**Answer:**

👉 Access provides the following predefined calculation types:

- **Group By:** Identifies the group to calculate.
- **Sum:** Adds all values.
- **Avg:** Calculates the average value.
- **Min:** Finds the minimum value.

- 
- **Max:** Finds the maximum value.
  - **Count:** Counts the number of values.
  - **StDev:** Calculates standard deviation.
  - **Var:** Calculates variance.
  - **First:** Finds the first value.
  - **Last:** Finds the last value.

### 53. What is the use of the Expression and Where options in Access queries?

**Answer:**

👉 **Expression:** Creates a custom calculated field using a formula or expression.

👉 **Where:** Specifies criteria for a field to include or exclude records from the calculation.

**Example:** Sum of marks only for students in “Grade 10” using a Where condition.

## Exercise 6c

### 1. Fill in the blank

(i) The ----- is specified in table to avoid duplicate entries of records.

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**Answer:** Primary Key

**Explain:**

👉 A primary key is a unique identifier for each record in a table. It ensures that no two records have the same value in the primary key field.

**(ii)** In Microsoft Access, the data of the table is displayed in ----- view.

**Answer:** Datasheet

**Explain:**

👉 Datasheet view displays the table's data in rows and columns, similar to a spreadsheet, allowing easy data entry, editing, and viewing.

**(iii)** In the relational model, ----- is the basic structure in which data is stored.

**Answer:** Table (or Relation)

**Explain:**

👉 A table stores data in rows (records) and columns (fields). It is the fundamental building block of a relational database.

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(iv) The ----- is a graphical representation of the structure of a database.

**Answer:** ER Diagram (Entity-Relationship Diagram)

**Explain:**

👉 An ER Diagram shows entities, attributes, and relationships among tables, helping to design the database structure.

(v) The -----button shows the current record in the table.

**Answer:** Record Navigation

**Explain:**

👉 The navigation buttons allow moving through records such as First, Previous, Next, and Last in a datasheet.

(vi) If the primary key is made up of a group of two or more fields, it is called -----.

**Answer:** Composite Key

**Explain:**

👉 A composite key uses multiple fields together to uniquely identify a record in a table.

---

**(vii)** ----- are special characters that are used in queries to specify the criteria.

**Answer:** Wildcards

**Explain:**

👉 Wildcards help to filter data based on patterns, e.g., \* for any number of characters, ? for a single character.

**(viii)** In Microsoft Access, the output of a query is in the form of a -----.

**Answer:** Datasheet

**Explain:**

👉 Query results are displayed in a datasheet format, similar to a table, showing the selected records.

**(ix)** A query that involves two tables is called -----.

**Answer:** Join Query

**Explain:**

👉 A join query combines data from two or more tables based on a related field to display combined information.

---

(x) The wildcard character ----- is used to specify any number of character.

**Answer:** \* (asterisk)

**Explain:**

👉 The \* wildcard matches zero or more characters in a search criterion.

(xi) The ----- data type is used when the field is to contain text consisting of about 300 characters.

**Answer:** Memo

**Explain:**

👉 Memo fields can store large amounts of text (up to 64,000 characters), suitable for descriptions or notes.

(xii) The number of rows in a table of a relational database is called the ----- of the table.

**Answer:** Cardinality

**Explain:**

👉 Cardinality refers to the total number of records (rows) in a table.

---

(xiii) The number of columns in a table is called the ----- of the table.

**Answer:** Degree

**Explain:**

👉 Degree refers to the total number of fields (columns) in a table.

(xiv) A query that only retrieve and displays data is called -----.

**Answer:** Select Query

**Explain:**

👉 A select query extracts and displays data from one or more tables without modifying the data.

(xv) The wildcard character ----- is used to specify a single digit.

**Answer:** ?

**Explain:**

👉 The ? wildcard represents a single character in a search criterion.

---

## 2. Select the correct option.

**(i) The data in table is entered in:**

- a) Design View
- b) Normal View
- c) Datasheet View**
- d) Layout View

**(ii) How many types of relationship?**

- a) 2
- b) 3**
- c) 4
- d) 5

**(iii) In a relational database, a single piece of information is called:**

- a) Field**
- b) Record
- c) Entity

---

d) Attribute

**(iv) The rule that a record from a table cannot be deleted if its associated record exists in a related table is called rule:**

a) Referential integrity

b) Entity-relationship

c) Normalization

d) All of them

**(v) How many table views are available in Microsoft Access:**

a) 4

b) 3

c) 2

d) 1

**(vi) To find a four-character name that starts with H, the criteria is specified as:**

a) H\*4

---

b) H24

c) H????

d) H####

**(vii) Which of the following buttons of Find and Replace dialog box is clicked to start the search process?**

a) Find

b) Find Next

c) Search

d) Next

**(viii) As in Design view, you can move from field to field in the Table window in Datasheet view using:**

a) Tab

b) Esc

c) Enter

d) Spacebar

**(ix) The relationship between countries and their capitals is an example of relationships:**

---

a) one-to-one

b) one-to-many

c) many-to-many

d) None of them

**(x) The wildcard ----- Sal[ei]ma:**

a) Saleema

b) Salima

c) both a and b

d) None of them

**3. Write T for true and F for false statement.**

**(i)** If for each entity in B, and for each entity in B, there is only one related entity in A, then the relationship between the entities is one-to-many. **✗ F**

**Explain:** In a one-to-one relationship, each entity in one table is related to only one entity in another table.

---

**In contrast**, in a one-to-many relationship, one entity in the first table can be related to multiple entities in the second table.

**(ii)** Date/Time data type is used when data such as date of birth or time of day is to be stored.  **T**

**(iii)** The primary key is assigned in a table to avoid duplicate entries of records.  **T**

**(iv)** An append query adds a group of records from one or more tables to the end of one or more tables.  **T**

**(v)** The currency data type cannot be used in calculations.  **F**

**Explain:** Currency data type can be used in calculations involving monetary values.

**(vi)** The most commonly used type of query is Scratch Query.  **F**

**Explain:** The most commonly used type of query is Select Query, not Scratch Query.

**(vii)** A query is used to extract specific information from a database.  **T**

---

**(viii)** The wildcard character "?" is used to specify any number of characters. ❌ **F**

**Explain:** "?" specifies a single character, "\*" is used for any number of characters.

**(ix)** Fields are displayed as check boxes by default on the datasheet. ✅ **T**

**Explain:** Yes/No fields are shown as check boxes by default.

**(x)** An action query makes changes in specified records of an existing table, or creates a new table. ✅ **T**

🌟 **Question 4: Define the different data type available in Microsoft Access.**

❖ **Answer:**

In Microsoft Access, each field in a table must have a data type, which specifies the kind of data the field can store. Choosing the correct data type is important for data accuracy and performing calculations. The main data types are described below:

### **1. Text:**

- Stores letters, numbers, or a combination of both.

- 
- Maximum 255 characters per field.
  - Used for short text entries like Name, City.

## 2. Memo (Long Text):

- Can store very long text, up to 64,000 characters.
- Suitable for detailed descriptions or notes.

**Example:** Product description, comments.

## 3. Number:

- Stores numeric values used in calculations.
- Field size options: Byte, Integer, Long Integer, Single, Double, Decimal.
- **Example:** Age, Quantity, Marks.

## 4. Date/Time:

- Stores dates, times, or both.
- **Example:** Date of Birth, Appointment Time.

## 5. Currency:

- Stores monetary values with currency formatting.
- Can be used in calculations.
- **Example:** Salary, Price.

## 6. AutoNumber:

- 
- Automatically assigns a unique number to each new record.
  - Can increment sequentially or randomly.

**Example:** ID field for students or employees.

## 7. Yes/No:

- Stores Boolean values: Yes/No, True/False, On/Off.
- Displayed as checkboxes in datasheets.
- **Example:** Active/Inactive, Married/Single.

## 8. OLE Object:

- Stores objects created in other programs such as Word documents, Excel sheets, images, or audio.
- **Example:** Employee photo, Product brochure.

## 9. Hyperlink:

- Stores links to websites or files.
- **Example:** [www.google.com](http://www.google.com), file location.

## ◆ Summary:

- Each data type controls the kind of data a field can hold and ensures database accuracy.

- 
- Choosing the correct data type is essential for database performance and maintaining data integrity.

🌟 **Q.6: Define the primary key.**

❖ **Answer:**

A Primary Key is a field (or a combination of fields) in a table that uniquely identifies each record in that table. It ensures that no two records in the table have the same value for the primary key field.

**Key Points:**

- 1. Uniqueness:** Every value in the primary key field must be unique.
- 2. No Null Values:** A primary key cannot have empty (null) values.
- 3. Single or Composite Key:**
  - **Single-field primary key:** Uses one field, e.g., StudentID.
  - **Composite primary key:** Uses a combination of two or more fields to uniquely identify a record.
- 4. Purpose:**
  - Prevents duplicate records.

- 
- Helps in creating relationships between tables.

### **Example:**

In a Student table, the field StudentID can be set as the primary key. Each student will have a unique ID, ensuring no two students have the same ID.

### **◆ Summary:**

The primary key is essential for data integrity and establishing relationships in a relational database.

### **★ Q.7: What is Referential Integrity?**

#### **❖ Answer:**

Referential Integrity is a rule in relational databases that ensures consistency and accuracy of data between related tables. It is used when a table contains a foreign key that references the primary key of another table.

### **Key Points:**

- 1. Consistency:** A foreign key value in a child table must either match a primary key value in the parent table or be null.

---

**2. Prevents Orphan Records:** It ensures that a record in a child table cannot exist without a corresponding record in the parent table.

**3. Data Protection:**

- You cannot delete a record in the parent table if it has related records in the child table.
- You cannot update a primary key in the parent table if related records exist in the child table, unless Cascade Update is enabled.

**4. Optional Cascades:**

- **Cascade Update:** Automatically updates foreign key values in related tables if the primary key is changed.
- **Cascade Delete:** Automatically deletes related records in child tables when a record in the parent table is deleted.

**Example:**

In a Class table (Parent) and a Student table (Child), each student must belong to an existing class. Referential Integrity ensures that you cannot add a student to a class that does not exist in the Class table.

◆ **Summary:**

---

Referential Integrity maintains accuracy, consistency, and reliability of data in relational databases, preventing invalid or orphaned records.

### 🌟 Q.8: What are relationships?

#### ❖ Answer:

In a relational database, a relationship is a connection between two or more tables that shows how data in one table is related to data in another table. Relationships help organize data efficiently and avoid unnecessary duplication.

#### Key Points:

**1. Purpose:** Relationships allow a database to link information from multiple tables and retrieve it in a meaningful way.

#### 2. Types of Relationships:

- **One-to-One (1:1):** Each record in Table A is related to only one record in Table B, and vice versa.
- **One-to-Many (1:M):** A single record in Table A can relate to multiple records in Table B, but a record in Table B relates to only one record in Table A.

- 
- **Many-to-Many (M:M):** Multiple records in Table A can relate to multiple records in Table B. Usually implemented using a junction table.
  - **Foreign Key:** Relationships are established using a primary key in one table and a foreign key in another table.

### 3. Benefits:

- Reduces data redundancy.
- Ensures data integrity through Referential Integrity.
- Allows efficient data retrieval using queries.

### Example:

- **Students table and Classes table:** Each student belongs to one class (One-to-Many relationship).

### ◆ Summary:

Relationships define how tables are linked, ensure data consistency, and help organize information logically in a relational database.

### 🌟 Q.9: How are relationships defined in Microsoft Access?

### ❖ Answer:

---

In Microsoft Access, relationships are defined to connect tables in a database, allowing data to be organized and linked efficiently. Relationships are created using primary keys and foreign keys.

## **Steps to Define a Relationship in Microsoft Access:**

### **1. Open Relationships Window:**

- Click the Relationships button on the toolbar.
- The Show Table dialog box will appear.

### **2. Add Tables:**

- Double-click the names of the tables you want to relate.
- Click Close when all required tables are added.

### **3. Create Relationship:**

- Drag a field (usually the primary key) from one table to the corresponding field (foreign key) in another table.
- The Edit Relationships dialog box will appear.

### **4. Set Referential Integrity (Optional but Recommended):**

- Check the Enforce Referential Integrity box to ensure data consistency.
- **Optionally, select:**

- 
- **Cascade Update Related Fields:** Updates the foreign key automatically if the primary key changes.
  - **Cascade Delete Related Records:** Deletes related records automatically when a primary key record is deleted.

## 5. Create the Link:

- Click Create to finalize the relationship.
- A line connecting the two tables indicates the relationship.

## Benefits of Defining Relationships:

- Prevents data duplication.
- Maintains consistency using referential integrity.
- Allows efficient querying of related data across tables.

## Example:

- Students table (Primary Key: StudentID)
- Classes table (Foreign Key: StudentID)
- The relationship ensures each student is linked to the correct class.

## ◆ Summary:

---

**In Access**, relationships are graphical links between tables, defined using keys, to organize data logically and maintain integrity.

★ **Q.10: Explain the options in Find and Replace dialog box.**

❖ **Answer:**

The Find and Replace dialog box in Microsoft Access is used to search for specific data in a table, query, or form and, if needed, replace it with new data. It is a very useful feature for correcting mistakes, updating values, or locating particular records quickly.

**Here is a detailed explanation of the options in the Find and Replace dialog box:**

### **1. Find What:**

- This box is used to enter the value or text you want to search for.
- **Example:** If you want to find all students with the name "Ali", you type Ali in this box.
- Access will look for this value in the selected search area.

---

## 2. Replace With:

- This box is used to enter the new value that will replace the found data.
- **Example:** If you want to correct "Ahmed" to "Ahmad", you type Ahmad here.
- This is only applicable if you are performing a replace operation.

## 3. Look In:

### Determines where Access should search:

- **Current Field:** Searches only the field where the cursor is placed.
- **Current Document/Table:** Searches all fields in the table or query.

## 4. Match:

### Defines how Access matches the search value:

- **Any Part of Field:** Finds the search text anywhere in the field.
- **Example:** Searching "Ali" will find "Ali", "Alina", "Malik Ali".
- **Whole Field:** Finds only exact matches.

- 
- **Example:** Searching "Ali" will not find "Alina".
  - **Start of Field:** Finds values that begin with the search text.
  - **Example:** "Ali" will find "Ali" and "Alina" but not "Malik Ali".

## 5. Search:

### Defines the direction of the search:

- **Up:** Searches from the current record upward in the table.
- **Down:** Searches from the current record downward to the end.

## 6. More >> Button:

Expands the dialog box to provide additional options such as:

- **Match Case:** Searches with case sensitivity.
- **Match Byte:** Useful for double-byte characters in some languages.
- **Use Wildcards:** Allows advanced pattern searching using symbols like \* or ?.

## 7. Buttons in the Dialog Box:

- 
- **Find Next:** Moves to the next occurrence of the search value.
  - **Replace:** Replaces only the current occurrence of the found value.
  - **Replace All:** Replaces all occurrences of the value in the selected range (field, table, or document).
  - **Cancel:** Closes the dialog box without making any changes.

### **Example Use:**

Suppose you have a table of students and want to correct the name "Ahmed" to "Ahmad":

- Open the Find and Replace dialog box.
- Type Ahmed in Find What.
- Type Ahmad in Replace With.
- Click Replace All to correct all occurrences automatically.

### **◆ Summary:**

The Find and Replace dialog box in Access is an essential tool to:

- Quickly locate records,
- Correct or update information,

- 
- Save time when editing multiple records,
  - Ensure data accuracy and consistency in a database.

**🌟 Q.11: Differentiate between Relationship and Join in Microsoft Access.**

**❖ Answer:**

In Microsoft Access, Relationship and Join are closely related concepts in database design, but they serve different purposes.

### **Relationship**

A relationship defines how two tables are related to each other in a relational database. It specifies the connection between primary key in one table and foreign key in another table to maintain data integrity. Relationships ensure referential integrity and prevent inconsistent data. They are defined in the Relationships window of Access, where you can visually link fields between tables and enforce rules like Cascade Update or Cascade Delete. Relationships are permanent links in the database design.

---

**Example:** Linking the Student table (Primary Key: StudentID) with the Class table (Foreign Key: StudentID) ensures that students are assigned only to valid classes.

## Join

A join is an operation performed on tables to combine records from two or more tables based on a related field (usually primary key and foreign key). Joins are used in queries to retrieve combined data from multiple tables for analysis or reporting. Types of joins include Inner Join, Left Join, Right Join, and Full Outer Join. Joins are temporary and exist only when the query is executed.

**Example:** Using a query to show student names with their class names by joining StudentID in both tables.

## Key Differences

1. Relationships define a structural link between tables; joins are an operation to retrieve data.
2. Relationships maintain data integrity; joins are used to combine data for queries.
3. Relationships are permanent until manually removed; joins are temporary and exist only in the query.

- 
4. Relationships are defined in the Relationships window; joins are defined in queries using Design View or SQL.
  5. This explanation gives a clear conceptual distinction suitable for exams.

🌟 **Q12: Define different types of calculation in a query and specify some functions.**

❖ **Answer:**

In Microsoft Access, a query is not only used to retrieve data but also to perform calculations on the data. Calculations in queries can be done either by using predefined functions provided by Access or by creating custom expressions. These calculations help summarize, analyze, or process information efficiently.

## **Types of Calculations in a Query**

### **1. Group By**

- Used to group records based on a specific field before performing calculations.
- **Example:** Grouping students by class to calculate total marks for each class.

### **2. Sum**

- 
- Adds all the values in a specific field of selected records.
  - **Example:** Total sales of a product = Sum of SalesAmount field.

### 3. Avg (Average)

- Calculates the average of the selected field values.
- **Example:** Average marks of students in a class = Avg(Marks).

### 4. Min (Minimum)

- Finds the smallest value in a selected field.
- **Example:** Minimum marks obtained in a test = Min(Marks).

### 5. Max (Maximum)

- Finds the largest value in a selected field.
- **Example:** Maximum salary in a department = Max(Salary).

### 6. Count

- Counts the number of records in a selected field.
- **Example:** Total number of students in a class = Count(StudentID).

---

## 7. StDev (Standard Deviation)

- Calculates the statistical standard deviation of the field values.
- **Example:** Variation in exam scores = StDev(Marks).

## 8. Var (Variance)

- Measures the dispersion of data values from the mean.
- **Example:** Var(Marks) gives variance in student scores.

## 9. First

- Returns the first value in the selected field.

## 10. Last

- Returns the last value in the selected field.

## 11. Expression

- A custom calculation created using arithmetic operators, functions, or a combination of both.
- **Example:** TotalPrice: Quantity \* UnitPrice calculates the total price for each order.

## 12. Where

- 
- Specifies criteria to calculate values only for certain records.
  - **Example:** Sum(SalesAmount) Where Region = "Lahore" sums sales for Lahore only.

### Some commonly used functions in query calculations:

- **Sum()** – Adds values
- **Avg()** – Calculates average
- **Min()** – Finds minimum value
- **Max()** – Finds maximum value
- **Count()** – Counts records
- **StDev()** – Standard deviation
- **Var()** – Variance

★ **Q.13: What is a query? Discuss its uses and advantages.**

❖ **Answer:**

A query in Microsoft Access is a tool used to ask questions (retrieve information) from one or more tables in a database. Queries allow you to select, filter, sort, and analyze data in a flexible way. They can also be used to perform calculations, update records, delete records, or add records to another table.

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## Uses of Queries

### 1. Retrieve Specific Data

- Queries can extract only the information you need from large tables.
- **Example:** Find all students who scored above 80 marks.

### 2. Perform Calculations

- Queries can calculate totals, averages, minimum or maximum values, and more.
- **Example:** Calculate the total sales for a specific product.

### 3. Filter Data

- Queries allow filtering records based on specific criteria.
- **Example:** Display all orders from the city "Lahore."

### 4. Update or Delete Records

- Action queries can update or delete multiple records efficiently.
- **Example:** Update the salary of all employees in a department.

### 5. Combine Data from Multiple Tables

- 
- Queries can join related tables to view combined information.
  - **Example:** Show student names along with their class teacher's name.

## 6. Create Reports and Forms

- Queries can provide data for reports and forms to summarize or present information clearly.

## Advantages of Using Queries

### 1. Efficiency

- Queries save time by automatically retrieving specific information from large databases.

### 2. Flexibility

- You can sort, filter, and calculate data as required.

### 3. Accuracy

- Reduces errors by automatically performing calculations and applying criteria.

### 4. Dynamic Updates

- 
- If the original table is updated, the query result is automatically updated as well.

## 5. Multiple Data Sources

- Queries can combine data from multiple tables to produce meaningful information.

### ◆ **Summary:**

A query is a powerful tool in databases to extract, analyze, and manipulate data efficiently. Its ability to filter, sort, calculate, and join tables makes it essential for managing information in a relational database.

### ★ **Q.14: Explain the criteria in a query. How is it specified?**

### ❖ **Answer:**

In Microsoft Access, a query is used to extract specific information from one or more tables. When you want to filter or limit the data retrieved by a query, you use criteria.

Criteria in a query are conditions or rules that determine which records will be displayed. Only the records that meet the criteria are retrieved, while others are ignored. This makes

---

queries very powerful because they allow you to work with specific data without altering the original tables.

## Purpose of Criteria

**1. Select specific records:** Instead of viewing all records in a table, you can retrieve only the ones that match your condition.

- **Example:** Find all students who scored more than 75 marks.

**2. Exclude unwanted data:** You can ignore records that do not meet certain conditions.

- **Example:** Show all employees except those in the "Sales" department.

**3. Perform calculations on filtered data:** Criteria can limit calculations such as sums, averages, or counts to certain records.

- **Example:** Calculate the average salary only for employees in the "IT" department.

## How to Specify Criteria

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Criteria can be specified in Design View of a query using several methods:

## 1. Using the Criteria Row

- Open the query in Design View.
- In the Criteria row under the field you want to filter, type your condition.
- **Example:** >80 in the "Marks" field retrieves students scoring more than 80.

## 2. Using Wildcards

Wildcards allow pattern matching in text fields:

- \* : Represents any number of characters.
- **Example:** A\* finds all names starting with "A".
- ? : Represents a single character.
- **Example:** H??? finds all four-letter names starting with "H".

## 3. Using Comparison Operators

- = : Equal to
- <> : Not equal to
- > : Greater than

- 
- < : Less than
  - >= : Greater than or equal to
  - <= : Less than or equal to

**Example:** Salary>=50000 retrieves employees earning 50,000 or more.

#### 4. Using Logical Operators

- **AND** : Both conditions must be true.
- **Example:** Marks>=60 AND Marks<=80
- **OR** : Either condition can be true.
- **Example:** City="Lahore" OR City="Karachi"

#### 5. Multiple Criteria Rows

- You can use more than one row in the Criteria section.
- The first row applies AND logic between fields in the same row.
- The second and subsequent rows apply OR logic, meaning any condition in those rows can also retrieve a record.

#### Example of Criteria

Field	Criteria
Marks	>=60 AND <=80

- 
- This retrieves students who scored between 60 and 80 marks.

Field	Criteria
City	Lahore
City	Karachi

- This retrieves students who live in either Lahore or Karachi.

#### ◆ **Summary:**

Criteria in a query filter records based on specific conditions. They are specified in Design View using comparison operators, wildcards, logical operators, or multiple criteria rows. By using criteria, a query becomes a powerful tool to extract precise, meaningful, and relevant data from large databases.

#### ✨ **Q.15: What is a join? Explain its purpose.**

#### ❖ **Answer:**

A join in Microsoft Access (and in relational databases in general) is a way of combining data from two or more tables based on a common field between them. Joins allow you to

---

view related data together without duplicating information in the database.

## **Purpose of a Join**

### **1. Combine related data:**

- When data is split across multiple tables to avoid redundancy, joins allow you to bring the data together for analysis or reporting.
- **Example:** You have a Students table with student names and IDs, and a Classes table with class IDs and subjects. A join allows you to see which student is in which class.

### **2. Avoid data duplication:**

- Instead of storing all information in a single table, joins let you maintain smaller, focused tables and link them when needed.

### **3. Enable complex queries:**

- Joins are used in queries to retrieve information from multiple tables based on relationships, enabling you to generate reports or perform calculations on combined data.

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## 4. Maintain database integrity:

- By using joins along with referential integrity, you can ensure that relationships between tables remain consistent, avoiding orphan or invalid records.

## Types of Joins

### 1. Inner Join:

- Retrieves records that have matching values in both tables.
- **Example:** Only students who have an assigned class will appear.

### 2. Left (Outer) Join:

- Retrieves all records from the left table and matching records from the right table.
- If there is no match, the result shows null for the right table.

### 3. Right (Outer) Join:

- Retrieves all records from the right table and matching records from the left table.

### 4. Full Outer Join (Not directly in Access):

- 
- Retrieves all records from both tables, filling in nulls where there is no matching.

### Example:

#### Students Table:

StudentID	Name
1	Ali
2	Sara

#### Classes Table:

ClassID	StudentID	Subject
101	1	Math
102	2	English

#### Inner Join Result:

Name	Subject
Ali	Math
Sara	English

**Here**, the StudentID field is used to join the tables. Only students with assigned classes appear.

#### ◆ Summary:

A join links two or more tables using a common field to combine related data, avoid duplication, and enable detailed

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queries or reports. It is essential for relational database design and allows efficient data management.

### 🌟 Q.16: Differentiate between Sorting and Filtering

#### ❖ Answer:

Sorting and Filtering are two methods to organize and view data in Microsoft Access. Their differences can be explained as follows:

#### Sorting:

1. Arranges all records in a table in a specific order based on a selected field.
2. Can be in ascending order (A-Z, smallest to largest) or descending order (Z-A, largest to smallest).
3. Helps make data easier to read and analyze.
- 4. Example:** Sorting student marks from highest to lowest.
5. All records remain visible; only their order changes.

#### Filtering:

1. Displays only those records that meet a specific condition or criteria.
2. Hides all records that do not match the criteria.
3. Helps to focus on a specific subset of data.

---

**4. Example:** Showing only students who scored above 80 marks.

5. Not all records are visible; only filtered records are displayed.

### ☀ **Q.17: What are wildcards?**

#### ❖ **Answer:**

Wildcards are special symbols or characters used in database queries to represent unknown or variable characters in search criteria. They help in searching for records that partially match a value rather than requiring an exact match. Wildcards are very useful in Microsoft Access when you want to filter, find, or sort data based on patterns.

#### ◆ **Explanation:**

##### **1. Purpose of Wildcards:**

- They allow users to search flexibly in a database.
- Useful when the exact spelling, number, or format of a value is unknown or variable.

##### **2. Common Wildcard Symbols in Access:**

- **\* (Asterisk):** Represents any number of characters.

- 
- **Example:** A\* will match Ahmed, Ali, Asghar, Anwar.
    - **? (Question Mark):** Represents exactly one character.
  - **Example:** A?i will match Ali, Avi, Ami.
    - **# (Hash):** Represents any single digit.
  - **Example:** 12# will match 120, 121, 129.
    - **[ ] (Square Brackets):** Represents any one character from the set.
  - **Example:** S[ae]l will match Sal and Sel.
    - **! (Exclamation Mark inside brackets):** Represents any character not in the set.
  - **Example:** S[!ae]l will match Sol but not Sal or Sel.

### 3. Advantages of Using Wildcards:

- Makes searching more flexible and efficient.
- Helps in handling incomplete or uncertain data.
- Can be used in combination with criteria in queries to filter results easily.

#### ◆ **Summary:**

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Wildcards are powerful tools in queries that allow you to find records based on patterns rather than exact matches. They enhance data searching, filtering, and reporting by making it easier to work with partial, unknown, or variable data.

🌟 **Q.18: Define the various types of queries.**

❖ **Answer:**

A query in Microsoft Access is a way to ask questions or retrieve specific information from one or more tables in a database. Queries allow users to view, analyze, filter, and manipulate data in flexible ways. There are several types of queries, each serving different purposes.

**Types of Queries:**

**1. Select Query:**

- Retrieves data from one or more tables and displays it in a datasheet.
- Can be used to filter, sort, and calculate data.
- **Example:** Selecting all students who scored above 80 marks.

**2. Action Query:**

- 
- Performs changes in one or more tables.

### Types of action queries:

- **Delete Query:** Deletes a group of records from tables.
- **Update Query:** Modifies data in existing records.
- **Append Query:** Adds records from one table to another.
- **Make Table Query:** Creates a new table from selected data.

### 3. Crosstab Query:

- Summarizes and restructures data for analysis.
- **Groups data by two types of information:** one along the rows and one across the columns.
- **Example:** Showing total sales per product per month.

### 4. Parameter Query:

- Prompts the user to enter a value when the query is run.
- Useful for creating flexible queries that require input at runtime.
- **Example:** Asking the user for a city name to display all customers from that city.

---

## 5. Find Duplicate Query:

- Finds records in a table that have duplicate values in specified fields.
- **Example:** Finding students with the same email address.

## 6. Find Unmatched Query:

- Finds records in one table that do not have corresponding values in another table.
- Example: Finding students who have not enrolled in any class.

### ◆ Summary:

Queries are powerful tools in Access that allow you to extract, manipulate, and analyze data efficiently. By using the different types of queries, you can perform simple searches, complex calculations, and data management tasks.

### 🌟 Q.19: How can you create a query in Design View?

### ❖ Answer:

Creating a query in Design View in Microsoft Access allows you to manually select tables, fields, criteria, and sorting options

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for more control over the query. Here's how it is done step by step:

### **1. Open Queries Window:**

- In the Database Window, click on the Queries section to view all queries.

### **2. Create New Query:**

- Click the New button to start creating a query.

### **3. Select Design View:**

- In the dialog box that appears, choose Design View and click OK.

### **4. Add Tables or Queries:**

- A list of tables and existing queries will appear.
- Select the tables or queries you want to include in your new query and click Add.
- Click Close once all required tables are added.

### **5. Add Fields to Query:**

- Double-click the field names from the tables to include them in the query.

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- **Alternatively**, you can select the field from the Field and Table dropdowns.

## 6. Specify Sort Order (Optional):

- **If needed**, choose Ascending or Descending order for any field in the query.

## 7. Set Criteria (Optional):

- **To filter data**, enter criteria in the Criteria row under the specific field.
- **For example**, entering >80 under the Marks field will display records with marks greater than 80.

## 8. Run the Query:

- Click the Run button on the toolbar to see the results of your query.

## 9. Save the Query:

- After creating the query, click Save, give it a name, and click OK.

## Key Points:

- Design View provides more control than using a wizard.

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- You can create complex queries with multiple tables, sorting, and criteria.
  - Queries created in Design View can be modified anytime for new requirements.

## 🌟 Q.20: Create a Query in Design View

### ❖ Answer:

Creating a query in Design View in Microsoft Access allows you to manually control the fields, criteria, and sorting for your query. Here's how to do it step by step:

#### 1. Open Queries Section:

- In the database window, click on Queries to view all existing queries.

#### 2. Start a New Query:

- Click the New button to create a new query.

#### 3. Select Design View:

- In the window that appears, select Design View and click OK.

#### 4. Add Tables or Queries:

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- A dialog box will show a list of tables and existing queries.
  - Double-click the tables or queries you want to include in your query.
  - Click Close once all required tables are added.

## 5. Add Fields to the Query:

- From the added tables, double-click the field names to include them in the query.
- **Alternatively**, select fields using the Field and Table dropdowns.

## 6. Specify Sort Order (Optional):

- You can sort any field in Ascending or Descending order by selecting the sort option in the query grid.

## 7. Set Criteria (Optional):

- To filter data, enter the condition in the Criteria row for the specific field.
- **Example:** Entering >50 under the Marks field will show only records with marks greater than 50.

## 8. Run the Query:

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- Click the Run button (red exclamation mark) on the toolbar to see the results.

## 9. Save the Query:

- After creating the query, click Save, enter a name for the query, and click OK.

### Key Points:

- Design View provides flexibility to create complex queries.
- You can include multiple tables in a single query.
- Queries created can be modified later for new requirements or updated criteria.
- This method is commonly used in exams to test your practical knowledge of query creation in Access.

### Note:

This chapter is designed to provide a solid foundation of knowledge, with the goal of deepening understanding and encouraging further exploration of the subject. The content has been carefully selected to support effective learning and inspire students to engage with the topic more deeply.

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**Purpose:** To contribute to education by offering insightful, valuable content that enhances learning and understanding.

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