

Microsoft Access 2016:

SECTION : 1

Introduction to Microsoft Access 2016

Microsoft Access 2016 offers a robust set of tools for creating, managing, and analyzing databases. By understanding and using its primary components – Tables, Queries, Forms, and Reports – you can efficiently manage large amounts of information while tailoring the database to your specific needs. Access's combination of user-friendly design and powerful capabilities makes it an essential tool for both beginners and advanced users.

Microsoft Access 2016 is a powerful database management system that allows users to store, manage, and analyze related data efficiently. A database is a collection of organized data, and Access enables you to maintain it within a single database file. It provides four primary objects to manage your data:

1. **Tables:** Store raw data in a structured format.
2. **Queries:** Allow you to ask questions and retrieve specific information from tables.
3. **Forms:** Enable the easy input and modification of data stored in tables.
4. **Reports:** Present data from tables or queries in a printable format.

Navigation Pane

The **Navigation Pane** lists all objects in the database and organizes them by type for easier management.

- **To minimize or maximize the Navigation Pane:** Click the double arrow in the upper-right corner.
- **Sorting objects:** Click the drop-down arrow next to "All Access Objects" and choose a sorting option.

Creating a Database

1. Start Access.
2. Click **Blank desktop database**.
3. Enter a name in the "File Name" field.
4. To change the storage location, click the folder icon and select a location.
5. Click **Create**.
Access will open with a new table in **Datasheet View** by default.

Understanding Views in Microsoft Access

Each database object has multiple views:

- **Design View:** Use this to define the structure of tables, set data types, and configure properties.
- **Datasheet View:** Use this to enter and view records in a tabular format.

Switching Views: On the Home tab, click the **View** arrow to toggle between Design View and Datasheet View.

Creating and Configuring Tables

What is a Table?

A table is a collection of related data. For example, you can create tables for employees, customers, or products.

Steps to Create a Table in Design View:

1. Go to the **Create** tab.
2. Click on **Table**.
3. Switch to **Design View**.
4. Save the table and provide a name.
5. Enter field names and select their data types.
6. Continue adding fields as required.

Note: The order in which you define fields determines their display sequence in the table.

Fields and Data Types

A **field** is a column in a table that stores specific information, such as names or dates. Each field has a **data type** that defines the type of data it can store.

Data Type	Description
Short Text	Text or alphanumeric data up to 255 characters.
Long Text	Large text such as paragraphs, up to 64,000 characters.
Number	Numeric data.
Date/Time	Dates and times.
Currency	Monetary values.
AutoNumber	Unique identifier automatically generated by Access.

Yes/No	Boolean values (Yes/No).
OLE Object	Multimedia files like pictures or charts.
Hyperlink	Links to external files or websites.
Attachment	Files like documents or images.
Calculated	Values calculated from one or more fields.
Lookup Wizard	Creates a dropdown list for field values.

Setting a Primary Key

A **Primary Key** uniquely identifies each record in a table.

1. In **Design View**, select the desired field.
2. Click the **Primary Key** button on the toolbar.
3. Save the table.

Input Masks

An **Input Mask** pre-formats fields for consistent data entry (e.g., automatically adding parentheses for phone numbers).

To create an Input Mask:

1. Open the table in **Design View**.
2. Select the field.
3. In the **Field Properties** section, click the **Input Mask** option.
4. Use the **Input Mask Wizard** to configure the format.

Entering and Managing Data

- **Entering data:** In **Datasheet View**, type data into the cells. Use the **Tab** key to move between cells.
- **Navigating records:** Use the arrows at the bottom of the table to move through records.
- **Sorting records:** Click in a field, then select **Sort Ascending** or **Sort Descending** from the **Home** tab.

Queries

Queries retrieve and manipulate data. You can use them to filter, sort, or calculate results from your tables.

Steps to Create a Query:

1. Go to the **Create** tab.
2. Click **Query Design**.
3. Add tables by clicking **Add**.
4. Close the Show Table window.
5. Double-click fields to include them in the query.

Adding Criteria:

1. In Query Design View, go to the **Criteria** row.
2. Enter a condition (e.g., "Excel" to filter all records containing that value).
3. Click **Run Query** to execute the query.

Forms

Forms simplify data entry and provide a user-friendly way to interact with database records.

Steps to Create a Form:

1. Open the table or query on which the form is based.
2. Go to the **Create** tab.
3. Click **Form**.

The form will open in **Layout View** by default.

Different Form Views:

- **Form View:** For entering and editing data.
- **Layout View:** For adjusting the form's appearance while seeing live data.
- **Design View:** For making detailed structural changes to the form.

Reports

Reports are used to format, summarize, and print data for presentation purposes.

Steps to Create a Report:

1. Open the table or query on which the report is based.
2. Go to the **Create** tab.
3. Click **Report**.

Different Report Views:

- **Print Preview:** See the final appearance of the report for printing.
- **Report View:** View the report on screen.
- **Layout View:** Adjust design elements while previewing data.
- **Design View:** Modify the structure of the report.

To Print a Report:

1. Switch to **Print Preview**.
2. Click the **Print** icon.
3. Click **OK** to start printing.

SECTION : 2

1 Mark Questions

1. What is the main purpose of Microsoft Access?
2. Define a database.
3. Name two views available for tables in Access.
4. What is a table in Microsoft Access?
5. Which object in Access is used to retrieve specific data from a database?
6. What is the maximum length of Short Text in Access?
7. What is the extension of an Access database file?
8. What is a Primary Key?
9. Name one advantage of using a Primary Key in a table.
10. Which tab in the Ribbon allows you to create new objects in Access?
11. What is the purpose of the Datasheet View?
12. What is the default data type for a new field in a table?
13. What does the AutoNumber data type do?
14. What is the Lookup Wizard used for?
15. How do you rename a database object in Access?
16. What is the Navigation Pane?
17. Name any two types of data types available in Access.
18. Which Access object is used for displaying data in a printable format?
19. Which data type is used to store dates and times in Access?
20. What is a form in Access?
21. How can you delete a field in Design View?
22. What is a query in Access?
23. Which data type is best for storing monetary values?
24. How do you set a Primary Key in Access?
25. Name any one view available for forms in Access.
26. What is the purpose of an Input Mask?
27. How can you switch between views in a table?
28. What is a calculated field?
29. What is the purpose of a report in Access?
30. Which key is used to save changes to an Access database?

2 Mark Questions

1. Explain the difference between a database and a table.
2. What are the steps to create a blank database in Access?
3. How does a Primary Key ensure data integrity in Access?
4. What are the main functions of the Navigation Pane?

5. Explain the purpose of the Design View in Access.
6. What are the steps to sort data in a table in Access?
7. How do you add a new field to a table in Datasheet View?
8. Differentiate between Short Text and Long Text data types in Access.
9. What are the uses of the Currency and Number data types?
10. How do you filter data in an Access table?
11. What are the different views available for queries?
12. Explain the purpose of forms in Access.
13. What are the steps to create a query using the Query Wizard?
14. How do you modify the field size of a table in Design View?
15. What are the steps to apply an Input Mask to a field?
16. How does the AutoNumber field work in Access?
17. Explain the purpose of the "Calculated" data type.
18. What are the steps to delete a record from a table in Datasheet View?
19. How do you sort database objects in the Navigation Pane?
20. What are the steps to create a report from a table?
21. Explain the purpose of the Lookup Wizard in Access.
22. How do you open an existing database in Access?
23. What is the significance of the Field Properties section in Design View?
24. How do you set a relationship between two tables in Access?
25. What is the purpose of a composite key?
26. How do you export data from Access to an Excel file?
27. Explain how to create a calculated field in Access.
28. What are the steps to print a report in Access?
29. How do you customize the layout of a form in Layout View?
30. What are the uses of the Hyperlink and Attachment data types?

3 Mark Questions

1. Describe the steps to create a new table in Design View in Access.
2. How can you create a query to display specific fields from a table?
3. Explain the steps to import data from an Excel spreadsheet into Access.
4. What are the advantages of using a Primary Key in a table?
5. How do you apply data validation rules to a field in Access?
6. Explain the steps to design a form in Access using the Form Wizard.
7. What are the different ways to filter data in an Access table?
8. Describe the steps to create a lookup field in Access.
9. How do you create a one-to-many relationship between two tables in Access?
10. What are the uses of queries in a database?
11. Describe the steps to add a new field to an existing table in Design View.
12. Explain the process to delete a field from a table in Design View.
13. What are the different types of joins available in Access relationships?
14. How do you edit a report in Access after creating it?
15. Describe the steps to apply conditional formatting to a field in a table.
16. Explain the steps to group data in an Access report.
17. How do you add a calculated field in a query?

18. Describe the process of creating a report that shows data from multiple tables.
19. Explain the importance of relationships in a database.
20. How do you secure your database with a password in Access?
21. What are the steps to export a report to PDF format?
22. Describe how to add a subform to a form in Access.
23. What are the steps to delete duplicate records from a table in Access?
24. How do you use the Expression Builder in Access?
25. Describe how to create and use a parameter query.
26. What are the differences between "Compact & Repair" and "Backup" in Access?
27. How do you use the "Find and Replace" feature in a table?
28. Explain how to set referential integrity for table relationships.
29. How do you create and use a report with grouped data?
30. Describe the process of creating a multi-value field in Access.

SECTION : 3

1 Mark Questions

Q1: What is a database in Microsoft Access?

A: A database is a collection of related information that is managed in one database file.

Q2: Name the four major objects in Microsoft Access.

A: Tables, Queries, Forms, and Reports.

Q3: What is the purpose of the Navigation Pane in Access?

A: The Navigation Pane organizes all database objects and allows you to open, rename, or delete them.

Q4: What does the Primary Key in a table do?

A: It uniquely identifies each record in a table and prevents duplicate entries.

Q5: Which view is used to enter and view data in Access tables?

A: Datasheet View.

Q6: What is the default sorting criterion for objects in the Navigation Pane?

A: Objects are sorted by type by default.

Q7: What is an Input Mask in Access?

A: An Input Mask pre-formats a field to ensure data is entered in a specific format.

Q8: What data type is used for monetary values in Access?

A: Currency.

Q9: Which data type is used for storing alphanumeric data up to 255 characters?

A: Short Text.

Q10: How do you start creating a blank database in Access?

A: By clicking on "Blank desktop database" in the Access start screen.

2 Mark Questions

1: Explain the difference between Design View and Datasheet View in Access tables.

- **Design View:** Used to set data types, insert or delete fields, and define the Primary Key.
- **Datasheet View:** Used to enter and view the data for records.

2: How can you set a Primary Key in a table?

1. Open the table in Design View.
2. Place the cursor on the desired field.
3. Click the **Primary Key** button on the toolbar.

3: What are the steps to minimize or maximize the Navigation Pane?

1. Click the double arrow in the upper-right corner of the Navigation Pane.
2. Click again to toggle between minimizing and maximizing.

4: What is the purpose of the Lookup Wizard in Access?

The Lookup Wizard creates a field that displays a list of values either retrieved from a table/query or specified manually.

5: What are the different views available for forms in Access?

- **Form View:** To view, create, or edit records.
 - **Layout View:** For visually oriented design changes.
 - **Design View:** For detailed structural changes to the form.
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3 Mark Questions

Q1: Describe the steps to create a new table in Design View in Access.

A:

1. Click on the **Create** tab.
2. Click on **Table**.
3. Switch to **Design View** on the Home tab.
4. If prompted, save the table by entering a name and clicking OK.
5. Enter the field names and select appropriate data types for each field.
6. Continue until all fields are added.

2: Explain the purpose and steps to apply an Input Mask in Access.

Purpose: An Input Mask ensures that data is entered in a specific format (e.g., phone numbers, dates).

Steps:

1. Open the table in Design View.
2. Select the field for which the Input Mask will be applied.
3. In the Field Properties section, click on the Input Mask line.
4. Click the Build button to start the Input Mask Wizard.
5. Choose the appropriate input mask and follow the steps in the wizard.
6. Click **Finish** and save the table.

3: What are Queries in Access, and how do you create a basic query?

Definition: Queries are used to view, analyze, and modify data. They can also be used as the source of records for forms or reports.

Steps:

1. Click on the **Create** tab.
2. Select **Query Design** from the Queries group.
3. Add the desired table(s) in the upper part of the Query Design Screen.
4. Double-click on the fields you want to include in the query.
5. Define criteria for specific fields if needed.
6. Click the **Run Query** button to execute the query.

4: Describe the process to create and print a report in Access.

Steps to Create:

1. Open the table or query on which the report will be based.
2. Click on the **Create** tab.
3. Click on **Report** in the Reports group.

Steps to Print:

1. Switch to **Print Preview** from the View option on the Design tab under Report Layout Tools.
2. Click the **Print** icon.
3. Confirm the settings and click OK.

5: Explain the various data types available in Access and their uses.

1. **Short Text:** Alphanumeric data up to 255 characters (e.g., names).
2. **Long Text:** Large text like paragraphs (up to 64,000 characters).
3. **Number:** Numeric data.
4. **Date/Time:** For storing dates and times.
5. **Currency:** For monetary values.
6. **AutoNumber:** Automatically generates unique values for each record.
7. **Yes/No:** For fields containing binary values (e.g., true/false).
8. **OLE Object:** Stores objects like pictures or graphs.
9. **Hyperlink:** Links to documents or files on the internet.
10. **Attachment:** Allows attaching multiple files to a record.
11. **Calculated:** Stores values based on expressions or calculations.
12. **Lookup Wizard:** Displays predefined lists or values from another table.