

Cheat Sheet for comprehensive Microsoft Access Advanced

Database Design and Management

Table Design

- **Primary Key:** Ensure each table has a unique primary key.
 - Example: `ID` field with `AutoNumber` data type.
- **Relationships:** Establish relationships between tables using primary and foreign keys.
 - Example: `Orders` table with `CustomerID` as a foreign key linked to `Customers` table.
- **Normalization:** Normalize data to reduce redundancy.
 - 1NF: Atomic values, no repeating groups.
 - 2NF: 1NF + no partial dependencies.
 - 3NF: 2NF + no transitive dependencies.

Field Properties

- **Data Types:** Choose appropriate data types.
 - Text, Number, Date/Time, Currency, Yes/No, etc.
- **Field Size:** Set appropriate field size for text fields.
 - Example: `FirstName` (Text, 50).
- **Validation Rules:** Ensure data integrity with validation rules.
 - Example: `Age` field with rule `>0`.

Queries

Basic Queries

- **Select Query:** Retrieve data from one or more tables.
 - Example: `SELECT * FROM Customers WHERE Country = 'USA';`
- **Parameter Query:** Prompt user for input.
 - Example: `SELECT * FROM Orders WHERE OrderDate = [Enter Order Date];`

Advanced Queries

- **Join Queries:** Combine data from multiple tables.

- Example: ``SELECT Customers.FirstName, Orders.OrderDate FROM Customers INNER JOIN Orders ON Customers.ID = Orders.CustomerID;``
- **Union Queries:** Combine results from multiple SELECT statements.
- Example: ``SELECT FirstName FROM Customers UNION SELECT FirstName FROM Employees;``
- **Subqueries:** Use queries within queries.
- Example: ``SELECT * FROM Orders WHERE CustomerID IN (SELECT ID FROM Customers WHERE Country = 'USA');``

Forms and Reports

Form Design

- **Form Wizard:** Use the wizard to create basic forms.
- **Form Layouts:** Choose from Single Form, Continuous Form, Datasheet, etc.
- **Controls:** Add controls like text boxes, combo boxes, buttons, etc.
- Example: ``TextBox`` for ``FirstName``, ``ComboBox`` for ``Country``.

Report Design

- **Report Wizard:** Use the wizard to create basic reports.
- **Grouping and Sorting:** Group and sort data for better readability.
- Example: Group by ``Country``, sort by ``OrderDate``.
- **Calculations:** Use calculated fields in reports.
- Example: ``TotalSales` = `SUM(SalesAmount)``.

Macros and VBA

Macros

- **Basic Macros:** Automate tasks with macros.
- Example: ``OpenForm`` to open a specific form.
- **Conditional Macros:** Use conditions to control macro execution.
- Example: ``If [Forms]![MyForm]![MyField] = "Yes" Then RunMacro "MyMacro";``

VBA (Visual Basic for Applications)

- **Basic VBA:** Write custom code for advanced functionality.

- Example: ``MsgBox "Hello, World!";``
- **Event Handling:** Handle events like ``OnClick``, ``OnLoad``, etc.
- Example: ``Private Sub btnSubmit_Click() MsgBox "Form Submitted!"; End Sub``
- **Data Manipulation:** Use VBA to manipulate data.
- Example: ``CurrentDb.Execute "UPDATE Customers SET Country = 'USA' WHERE ID = 1;"``

Security and Maintenance

Security

- **User-Level Security:** Set permissions for users and groups.
- Example: Grant ``Read`` permission to ``Sales`` group.
- **Encrypt/Decrypt:** Protect sensitive data by encrypting the database.
- Example: ``Application.SetOption "Use Encryption When Saving", True;``

Maintenance

- **Compact and Repair:** Regularly compact and repair the database.
- Example: ``Application.CompactRepair "C:\MyDatabase.accdb", "C:\MyDatabase_Compacted.accdb";``
- **Backup:** Create regular backups of the database.
- Example: ``Application.SaveAsText acDatabase, "C:\MyDatabase.accdb", "C:\Backup\MyDatabase_Backup.txt";``

Tips and Tricks

Performance Optimization

- **Indexes:** Create indexes on frequently queried fields.
- Example: Index on ``CustomerID`` in ``Orders`` table.
- **Query Optimization:** Use efficient SQL queries.
- Example: Avoid ``SELECT *``; specify needed fields.

User Experience

- **Custom Menus:** Create custom menus for frequently used actions.
- Example: ``DoCmd.RunCommand acCmdCustomizeMenuBar;``

- **Tooltips:** Add tooltips to controls for better user guidance.
- Example: `Me.txtFirstName.ControlTipText = "Enter First Name";`

Shortcuts

General Shortcuts

- **Ctrl + S:** Save current object.
- **Ctrl + C:** Copy selected item.
- **Ctrl + V:** Paste copied item.
- **Ctrl + Z:** Undo last action.
- **Ctrl + Y:** Redo last action.

Form and Report Shortcuts

- **Ctrl + D:** Duplicate selected control.
- **Ctrl + G:** Go to specific control.
- **Ctrl + Shift + F2:** Open Properties window.

Query Shortcuts

- **Ctrl + R:** Run query.
- **Ctrl + T:** Open SQL view.
- **Ctrl + Shift + T:** Open Design view.

Examples

Example 1: Creating a Parameter Query

```
SELECT * FROM Orders WHERE OrderDate = [Enter Order Date];
```

Example 2: Using VBA to Update Data

```
CurrentDb.Execute "UPDATE Customers SET Country = 'USA' WHERE ID = 1;"
```

Example 3: Creating a Custom Menu

```
DoCmd.RunCommand acCmdCustomizeMenuBar
```

This cheat sheet provides a comprehensive overview of advanced Microsoft Access features, shortcuts, tips, and tricks, organized into clear sections for easy reference.

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