Microsoft Access

Mastery for Beginners

The Complete Step-by-Step Guide to Mastering Data Management, Analysis & Automation from Beginner to Pro

Gally Renders

Copyright © 2026 Gally Renders

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without prior written permission of the publisher, except as permitted under United States copyright law and fair use.

Disclaimer and Terms of Use

This book is an independent publication and is **not affiliated with, endorsed by, or sponsored by any official certification body** or any other organization referenced herein.

The author and publisher have made every effort to ensure the accuracy and completeness of the content in this guide. However, they make no representations or warranties regarding its suitability, reliability, or effectiveness for your specific situation or exam outcome. This book is intended for informational and educational purposes only. Readers should use their own discretion and consult official resources or professionals as needed.

By using this book, you acknowledge that you assume full responsibility for your actions and outcomes based on the material provided.

Printed in the United States of America

TABLE OF CONTENTS

TABLE OF CONTENTS I

INTRODUCTION 1

Overview of This Book 1

PART 1 10

GET ACCESS TO FUNDAMENTAL INFORMATION 10

CHAPTER 1 11

DEVELOPMENT OF DATABASES 11

The vocabulary used in Access Databases 11

Databases *11*

Tables *12*

Records and Fields *13*

Values *13*

Relational Databases 13

Objects in Access Database 13

Tables *13*

Queries *14*

Display forms including Data entry *14*

Reports *14*

Macros and VBA *15*

Planning for database objects 15

A Five-Step Design Method 16

First Step: The total design from thoughts to completion *16*

Second Step: Designing reports *17*

Third Step: Getting data designed *17*

Fourth Step: Designing tables *18*

Fifth Step: Designing forms *19*

Activity 20

CHAPTER 2 21

GETTING STARTED 21

The Access Welcome Screen 21

Creating an Empty Database 21

The Interface 25

The panel for Navigation *25*

Custom *25*

Object Type *26*

Tables and Related Views *26*

Date Designed *26*

Tweaked Date *26*

The Ribbon *27*

The toolbar for Quick Access *28*
ACTIVITY 28

PART II **29**

UNDERSTANDING ACCESS TABLES **29**

CHAPTER 3 ..... **30**

DESIGNING ACCESS TABLES **30**

DIVERSE TYPES OF TABLES 30
Object tables *30*
Transaction tables *30*
Join tables *30*
DESIGNING A NEW TABLE 31
Designing tables *31*
MAKING USE OF THE DESIGN TAB 33
Primary Key *33*
Insert Rows *34*
Delete Rows *34*
Property Sheet *34*
Indexes *34*
DEALING WITH FIELDS 34
Giving a field a name *34*
Identifying a type of data *35*
Inserting description for a field *37*
Specifying data validation rules *37*
CREATING TBL CUSTOMERS 38
Making use of AutoNumber fields *38*
Completing TBL customers *38*
ALTERING A TABLE DESIGN 38
Inserting a new field *38*
Deleting a field *39*
Modifying the location of a field *39*
Altering a field name *39*
Changing a field size *39*
Dealing with issues regarding data conversion *40*
ALLOCATING FIELD PROPERTIES 40
Common properties *41*
FORMAT 42
Field formats for number and currency *42*
Custom numeric format *43*
Built-in Date/Time formats *43*
Custom dates and time formats *43*
Long and Short Texts Formats *44*
Input Mask *44*
Caption *46*
VALIDATION RULE AND VALIDATION TEXT 46

Required *47*
Allow Zero Length *47*
Indexed *47*
HAVING AN UNDERSTANDING OF TBL CUSTOMERS' FIELD PROPERTIES 48
CONFIGURING THE PRIMARY KEY 48
Selecting a primary key *48*
Designing the Primary Key *49*
Creating Composite Primary Keys *49*
INDEXING ACCESS TABLES 50
The need for indexes *50*
Multiple-field indexes *51*
When to index tables *52*
PRINTING A TABLE DESIGN 52
SAVING THE COMPLETED TABLE 53
ADJUSTING TABLES 54
Renaming tables *54*
Deleting tables *54*
Transferring tables in a database *55*
MOVING A TABLE TO A DIFFERENT DATABASE 56
Including Records to a Database Table *56*
UNDERSTANDING ATTACHMENT FIELDS 57
Adding an attachment field in the Datasheet view *57*
Adding an attachment field in the Design view *57*
ACTIVITY 58

CHAPTER 4 59

KNOWING THE RELATIONSHIPS BETWEEN TABLES 59

BUILDING BULLETPROOF DATABASES 59
DATA NORMALIZATION AND DENORMALIZATION 60
First normal form *60*
Second normal form *60*
Identifying entities *61*
Less obvious entities *61*
Breaking the rules *61*
Third normal form *62*
Denormalization *62*
TABLE RELATIONSHIPS 63
Connecting the data *63*
One-to-one *63*
One-to-many *64*
Many-to-many *64*
INTEGRITY RULES 65
No primary key can contain a null value *66*
All foreign key values must be matched by a corresponding primary key *66*
KEYS 67
Making a Decision on a Primary Key *67*

Looking at the benefits of a primary key *68*
Designating a primary key *68*
Single-field versus composite primary key *68*
Natural versus surrogate primary keys *69*
Creating primary keys *69*
CREATING RELATIONSHIPS AND ENFORCING REFERENTIAL INTEGRITY 69
Specifying the join type between tables *70*
Enforcing referential integrity *71*
VIEWING ALL RELATIONSHIPS 72
Deleting relationships *72*
FOLLOWING APPLICATION-SPECIFIC INTEGRITY RULES 72
ACTIVITY 73

CHAPTER 5 74

WORKING WITH ACCESS TABLES 74

COMPREHENDING DATASHEETS 74
Looking at the Datasheet Window *74*
Moving within a datasheet *75*
Using the Navigation buttons *76*
Checking Out the Datasheet Ribbon *76*
Views *76*
Clipboard *76*
Sort & Filter *76*
Records *76*
Find *76*
Window *77*
Text formatting *77*
LAUNCHING A DATASHEET 77
ENTERING A NEW DATA 78
Saving the record *79*
HAVING AN UNDERSTANDING OF AUTOMATIC DATA-TYPE VALIDATION 79
UNDERSTANDING HOW PROPERTIES AFFECT DATA ENTRY 79
Standard text data entry *80*
Date/Time/data entry *80*
Number/Currency Data entry with data validation *80*
OLE object data entry *80*
Long Text field data entry *81*
MOVING BETWEEN RECORDS IN A DATASHEET 81
Moving between records *82*
LOOKING FOR A CERTAIN VALUE 82
GETTING VALUES IN DATASHEET ALTERED 83
Manually replacing an existing value *83*
Altering a value that exists *84*
USING THE UNDO FEATURE 85
COPYING AND PASTING VALUES 85
Replacing Values *86*

ADDING NEW RECORDS....87
Deleting Records....*87*
Displaying Records....*88*
Changing the field order....*88*
Changing the field display width....*88*
Changing the record display height....*89*
CHANGING THE DISPLAY FONTS....89
Showing all cell gridlines and different row colors....*89*
ARRANGING DATA IN COLUMNS....90
Concealing and Revealing columns....*90*
Freezing columns....*90*
SAVING THE CHANGED LAYOUT....91
Saving a record....*91*
FILTERING AND ARRANGING RECORDS IN A DATASHEET....91
Sorting records....*92*
Filtering a selection....*92*
FILTERING A FORM....93
AGGREGATING DATA....93
PRINTING RECORDS....94
Previewing Records....*94*
ACTIVITY....95

CHAPTER 6....96

IMPORTING AND EXPORTING DATA....96

ACCESS AND EXTERNAL DATA....96
Types of external data....*96*
Different methods of dealing with external data....*96*
When to link to external data....*97*
When to import external data....*97*
When to export data....*97*
VARIOUS CHOICES FOR IMPORTING AND EXPORTING....98
IMPORTING EXTERNAL DATA....98
Importing from another Access database....*98*
Importing from an Excel spreadsheet....*100*
IMPORTING A SHAREPOINT LIST....102
Importing data from text files....*102*
Delimited text files....*102*
Fixed-width text files....*103*
Importing and exporting XML documents....*104*
Importing and exporting HTML documents....*105*
IMPORTING ACCESS OBJECTS OTHER THAN TABLES....105
Importing an Outlook folder....*106*
EXPORTING TO EXTERNAL FORMATS....106
Exporting objects to other Access databases....*106*
Exporting through ODBC drivers....*107*
EXPORTING TO WORD....108

Merging data into Word *109*
PUBLISHING TO PDF OR XPS 110
ACTIVITY 111

CHAPTER 7 ..... **112**

EXTERNAL DATA LINKING **112**

LINKING EXTERNAL DATA 112
Locating linked tables *112*
Limitations of linked data *112*
LINKING TO OTHER ACCESS DATABASE TABLES 113
Linking to ODBC data sources *115*
Linking to non-database data *115*
Linking to Excel *115*
Linking to HTML files *116*
Linking to text files *117*
USING LINKED TABLES 117
SETTING VIEW PROPERTIES 118
CONFIGURING RELATIONSHIPS 118
Optimizing linked tables *118*
Deleting a linked reference *119*
Viewing or altering information for linked tables *119*
REFRESHING A DATA SOURCE AND ITS LINKED TABLES 119
SPLITTING A DATABASE 120
The benefits of splitting a database *120*
Knowing where to put which objects *121*
Making use of the Database Splitter add-in *121*
USING THE EDGE BROWSER CONTROL ON A FORM 122
Add an Edge Browser Control to a form *122*
Include a simple URL *122*
Add a URL with a query string *122*
Navigating to Local Files *123*
Trusted Domains Property *123*
ALTER THE POSITION AND SIZE OF THE EDGE BROWSER CONTROL 123
Modify the control source of an Edge Browser Control *123*
ACTIVITY 124

PART III **125**

WORKING WITH ACCESS QUERIES **125**

CHAPTER 8 ..... **126**

SELECTING DATA WITH QUERIES **126**

INTRODUCING QUERIES 126
What Queries can do *126*
What Queries return *126*
Designing a Query *127*

ADDING FIELDS TO YOUR QUERIES 128
Including a single field *128*
Adding multiple fields *129*
Running your query *129*
WORKING WITH QUERY FIELDS 129
Choosing a field in the QBD grid *130*
Altering field order *130*
RESIZING COLUMNS IN THE QBD GRID 130
Taking off a field *130*
Inserting a field *130*
Hiding a field *131*
Changing the sort order of a field *131*
ADDING CRITERIA TO YOUR QUERIES 131
Understanding selection criteria *131*
Entering simple string criteria *131*
Entering other simple criteria *132*
Printing a Query's Recordset *132*
SAVING A QUERY 132
Creating Multi-Table Queries *132*
Viewing table names *133*
Adding multiple fields *133*
GETTING TO KNOW THE LIMITATIONS OF MULTI-TABLE QUERIES 133
Overcoming query limitations *134*
Updating a unique index (primary key) *134*
Replacing existing data in a query with a one-many relationship *134*
Updating fields in queries *135*
WORKING WITH THE TABLE PANE 135
Looking at the join line *135*
Moving a table *135*
Removing a table *135*
Including more tables *136*
CREATING AND WORKING WITH QUERY JOINS 136
GETTING TO KNOW JOINS 136
Inner joins *136*
Outer joins *137*
Full outer join *137*
Cross joins *137*
Unequal join *137*
Leveraging ad hoc table joins *137*
Identifying the type of join *137*
Deleting joins *138*
ACTIVITY 138

CHAPTER 9 139

USING OPERATIONS AND EXPRESSIONS IN ACCESS 139

UNVEILING OPERATORS 139

TYPES OF OPERATORS 139
Mathematical operators *139*
Comparison operators *140*
String Operators *140*
Boolean (logical) operators *140*
Miscellaneous operators *141*
The Between……And operator *141*
The In operator *141*
The Is operator *141*
OPERATOR PRECEDENCE 141
The mathematical precedence *142*
The comparison precedence *142*
The Boolean precedence *142*
USING OPERATORS AND EXPRESSIONS IN QUERIES 142
Dealing with query comparison operators *143*
Knowing complex criteria *143*
Making use of functions in select queries *143*
Referencing fields in select queries *143*
INSERTING SINGLE-VALUE FIELD CRITERIA 143
Inserting character (Text or Memo) criteria *144*
The Like operator and wildcards *144*
Indicating non-matching values *144*
Entering numeric criteria *145*
Entering true or false criteria *145*
Entering OLE object criteria *145*
EMPLOYING THE USE OF MULTIPLE CRITERIA IN A QUERY 145
Understanding an OR operation *145*
Specifying multiple values with the Or operator *146*
Using the or cell or the QBD pane *146*
Using a list of values with the In operator *146*
Using And to specify a range *146*
Using the Between… and And operator *147*
Searching for null data *147*
ENTERING CRITERIA IN MULTIPLE FIELDS 147
Using And and Or across fields in a query *147*
Specifying Or criteria across fields in a query *147*
Utilizing And & Or together in different fields *148*
A complex query on different lines *148*
ACTIVITY 148

CHAPTER 10 149

GOING BEYOND SELECT QUERIES 149

AGGREGATE QUERIES 149
Creating an aggregate query *149*
ABOUT AGGREGATE FUNCTIONS 149
Group By *150*

Sum, Avg, Count, StDev, Var *150*
Min, Max, First, Last *150*
Expression, Where *151*
ACTION QUERIES 151
Make-table queries *151*
Delete queries *153*
Append queries *153*
Update queries *153*
Crosstab Queries *154*
DESIGNING A CROSSTAB QUERY USING THE CROSSTAB QUERY WIZARD 154
Creating a crosstab query manually *155*
Utilizing the query design grid to design your crosstab query *156*
Customizing your crosstab queries *156*
Defining criteria in a crosstab query *156*
Changing the sort order of your crosstab query column headings *156*
OPTIMIZING QUERY PERFORMANCE 157
Normalizing your database design *157*
Using indexes on appropriate fields *157*
Optimizing by improving query design *157*
Compacting and repairing the database regularly *158*
ACTIVITY 159

PART IV 160

DATA ANALYSIS IN MICROSOFT ACCESS 160

CHAPTER 11 161

TRANSFORMING DATA IN ACCESS 161

LOCATING AND REMOVING DUPLICATE RECORDS 161
Stating duplicate records *161*
Finding duplicate records *161*
Removing duplicate records *161*
COMMON TRANSFORMATION TASKS 162
Filling in blank fields *162*
Concatenating *162*
Concatenating fields *162*
AUGMENTING FIELD VALUES WITH YOUR OWN TEXT 162
Changing case *163*
Removing leading and trailing spaces from a string *163*
Finding and replacing specific text *163*
Adding your own text in key positions within a string *164*
PARSING STRINGS USING CHARACTER MARKERS 164
Query 1 ..... *164*
Query 2 ..... *164*
ACTIVITY 164

CHAPTER 12 165

WORKING WITH CALCULATIONS AND DATES 165

EMPLOYING THE USE OF CALCULATIONS IN YOUR ANALYSES 165
Common calculation scenarios 165
Using constants in calculations 165
Utilizing fields in calculations 165
Using the results of aggregation in calculations 165
Employing the use of the results of one calculation as an expression in another 166
Using a calculation as an argument in a function 166
Constructing calculations with the Expression Builder 166
FREQUENT CALCULATION ERRORS 166
Understanding the order of operator precedence 167
Looking out for the null values 167
Watching the syntax in your expressions 167
USING DATES IN YOUR ANALYSES 168
Simple date calculations 168
Advanced analysis using functions 168
The Date function 168
The Year, Month, Day, and Weekday functions 168
The Date add function 168
Grouping dates into quarters 169
The DateSerial function 169
ACTIVITY 169

CHAPTER 13 171

PERFORMING CONDITIONAL ANALYSES 171

MAKING USE OF PARAMETER QUERIES 171
How parameter queries work 171
Ground rules of parameter query 171
Dealing with parameter queries 172
Working with multiple parameter conditions 172
Bringing together parameters with operators 172
Combining parameters with wildcards 172
Utilizing parameters as calculation variables 172
Using parameters as function arguments 172
USING CONDITIONAL FUNCTIONS 172
The IIf function 173
Using IIf to avoid mathematical errors 173
Saving time with IIf 173
Meeting IIf functions for multiple conditions 173
Using IIf functions to create crosstab analysis 173
The switch function 173
GETTING TO COMPARE THE IIF AND SWITCH FUNCTIONS 174
ACTIVITY 174

CHAPTER 14 175

THE FUNDAMENTALS OF USING SQL 175

UNDERSTANDING BASIC SQL 175
The SELECT statement 175
Choosing specific columns 175
Choosing all columns 175
The WHERE clause 175
Knowing more about joins 176
Inner joins 176
Outer joins 176
GETTING FANCY WITH ADVANCED SQL STATEMENTS 176
Expanding your search with the Like operator 176
Selecting unique values and rows without grouping 176
Grouping and aggregating with the GROUP BY clause 177
Configuring the sort order with the ORDER BY Clause 177
CREATING ALIASES WITH THE AS CLAUSE 177
Creating a column alias 177
Creating a table alias 177
SHOWING ONLY THE SELECT TOP OR SELECT TOP PERCENT 178
Top values queries explained 178
The SELECT TOP statement 178
The SELECT TOP PERCENT Statement 178
PERFORMING ACTION QUERIES VIA SQL STATEMENTS 178
Make-table queries translated 178
Append Queries translated 178
Update queries translated 178
Delete queries translated 178
Creating Crosstabs with the TRANSFORM statement 179
USING SQL-SPECIFIC QUERIES 179
Merging data sets with the UNION operator 179
Creating a table with the CREATE TABLE statement 179
MANIPULATING COLUMNS WITH THE ALTER TABLE STATEMENT 179
Adding a column with the ADD clause 180
Altering a column with the ALTER COLUMN clause 180
Deleting a column with the DROP COLUMN clause 180
Dynamically adding primary keys with the ADD constraints clause 180
Creating pass-through queries 180
ACTIVITY 182

CHAPTER 15 183

SUBQUERIES AND DOMAIN AGGREGATE FUNCTIONS 183

MAKING SURE YOUR ANALYSES WITH SUBQUERIES ARE ENHANCED 183
Why use Subqueries? 183
Subquery ground rules 183
Creating Subqueries without typing SQL statements 184
Using IN and NOT IN with Subqueries 184

Using Subqueries with comparison operators *184*
Using Subqueries as Expressions *184*
Using correlated Subqueries *185*
Uncorrelated Subqueries *185*
Correlated Subqueries *185*
Making Use of a Correlated subquery as an Expression *185*
Using Subqueries with Action Queries *185*
A subquery in a make-table query *185*
A subquery in an append query *185*
A subquery in an update query *186*
A subquery in a delete query *186*
DOMAIN AGGREGATE FUNCTIONS 186
UNDERSTANDING THE DIFFERENT DOMAIN AGGREGATE FUNCTION 186
DSum *186*
DAvg *186*
DCount *187*
DLookup *187*
DMin and Dmax *187*
DFirst and DLast *187*
DStDev, DStDevp, DvarP *187*
EXAMINING THE SYNTAX OF DOMAIN AGGREGATE FUNCTIONS 187
Utilizing no criteria *187*
Using text criteria *187*
Making Use of Domain Aggregate Function *187*
Calculating the percent total *188*
Creating a running count *188*
Using a value from the previous record *188*
ACTIVITY 188

CHAPTER 16 189

RUNNING DESCRIPTIVE STATISTICS IN ACCESS 189

BASIC DESCRIPTIVE STATISTICS 189
Executive descriptive statistics with aggregate queries *189*
Determining rank, mode, and median *189*
Ranking the records in your data set *189*
Developing the mode of a data set *189*
Getting the median of a data set *189*
Pulling a random sampling from your data set *190*
ADVANCED DESCRIPTIVE STATISTICS 190
Calculating percentile making *190*
GETTING TO KNOW THE QUARTILE STANDING OF A RECORD 190
Making Frequency Distribution *191*
ACTIVITY 191

PART V 192

MICROSOFT ACCESS FORMS AND REPORTS 192

CHAPTER 17 193

CREATING BASIC ACCESS FORMS 193

USING FORM VIEWS 193
UNDERSTANDING DIFFERENT TYPES OF FORMS 194
Switchboard Form 194
Dialog Box form 194
Data Entry Form 194
Record Display Form 194
Creating new forms 194
Using the Form command 195
Using the Form Wizard 195
Looking at special types of forms 195
The navigation forms 195
Multiple-item forms 195
Split forms 196
Datasheet forms 196
Resizing the form area 197
Saving your form 197
WORKING WITH CONTROLS 197
Grouping controls 197
Adding a control 198
Using the Control Group 198
Using the field list 198
Selecting and deselecting controls 198
Selecting a single control 198
Selecting multiple controls 199
Deselecting controls 199
Manipulating controls 199
Resizing a control 199
Sizing controls automatically 199
Moving a control 199
Aligning controls 200
Altering the appearance of control 200
Grouping controls 200
Copying a control 200
Deleting a control 200
Reattaching a label to control 201
INTRODUCING PROPERTIES 201
Displaying the Property Sheet 201
Getting acquainted with the Property Sheet 202
Changing a control's property setting 202
Naming control labels and their captions 202
ACTIVITY 202

CHAPTER 18 203

WORKING WITH DATA ON ACCESS FORMS 203

USING FORM VIEW 203
LOOKING AT THE HOME TAB OF THE RIBBON 203
The views group 203
The Clipboard group 204
The Sort & Filter group 204
The Records group 204
The find group 205
The Window group 205
The Text Formatting group 205
Moving among fields 205
Moving among records in a form 205
Knowing which controls you can't edit 206
Using pictures and OLE objects 206
Entering data in the Long Text field 206
Inserting data in the Date field 206
Using option group 206
Using combo boxes and list boxes 207
Switching to Datasheet view 207
Saving a record 207
PRINTING FORM 208
Changing the title bar text with the Caption property 208
Creating a bound form 209
Specifying how to view the form 209
Removing the Record Selector 209
ADDING A FORM HEADER OR FOOTER 209
WORKING WITH SECTION PROPERTIES 209
The Visible property 209
The Height property 209
The Back Color property 209
The Special Effect property 210
The Display When property 210
The printing properties 210
ALTERING THE LAYOUT 210
Changing a control's properties 210
Setting the tab order 210
Modifying the format of text in a control 211
Using the Field List to add controls 211
SWITCHING A FORM TO A REPORT 211
ACTIVITY 211

CHAPTER 19 212

WORKING WITH FORM CONTROLS 212

SETTING CONTROL PROPERTIES 212
Customizing the default properties 212

Looking at common controls and properties *212*
The Text Box control *212*
The Command Button control *212*
The Combo Box and List Box controls *213*
The Checkbox and Toggle Button controls *213*
The Options Group control *213*
The Web Browser control *214*
Creating a Calculated Control *214*
WORKING WITH SUBFORMS 214
FORM DESIGN TIPS 214
USING THE TAB STOP PROPERTY 215
Tallying check boxes *215*
Setting up combo boxes and list boxes *215*
TACKLING ADVANCED FORMS TECHNIQUES 216
Using the Page Number and Date/Time controls *216*
Morphing a control *216*
Using the Format Painter *216*
Offering more end-user help *217*
Adding background pictures *217*
Limiting the records shown on a form *218*
Using the Tab Control *218*
USING DIALOG BOXES TO COLLECT INFORMATION 218
Designing the query *219*
Setting up the command buttons *219*
Adding a default button *219*
Setting a Cancel button *219*
Removing the control menu *219*
Designing a Form from Scratch *219*
Creating the basic form *219*
Creating a subform *220*
Adding the subform *221*
Changing the form's behavior *221*
Setting the form's properties *221*
Looking up values during data entry *221*
Saving the record *222*
Changing the form's appearance *222*

CHAPTER 20 223

DATA PRESENTATION WITH ACCESS REPORTS 223

BRINING IN REPORTS 223
IDENTIFYING THE DIFFERENT TYPES OF REPORTS 223
Tabular reports *223*
Columnar reports *223*
Mailing label reports *223*
Distinguishing between reports and forms *223*
DESIGNING A REPORT FROM BEGINNING TO END 224

Defining the report layout *224*
Assembling the data *224*
Building a report with the Report Wizard *224*
Creating a new report *224*
Selecting the grouping levels *225*
Stating the group data *225*
Selecting the sort order *225*
Selecting summary options *226*
Choosing the layout *226*
Opening the report design *226*
Modifying the report's layout *226*
Choosing a theme *226*
Designing new theme color schemes *227*
Using the Print Preview window *227*
Publishing in alternate formats *227*
Viewing the report in Design view *227*
Printing or viewing the report *227*
Printing the report *227*
Viewing the report *228*
Saving the Report *228*
BANDED REPORT DESIGN CONCEPTS 228
The Report Header section *228*
The Page Header section *228*
The Group Header section *228*
The Detail section *229*
The Group Footer section *229*
The Page Footer section *229*
The Report Footer section *229*
BUILDING A REPORT FROM SCRATCH 229
Creating a new report and binding it to a table *229*
Defining the report page size and Layout *229*
Placing controls on the report *230*
Modifying the size of a section *231*
Modifying the appearance of a text in a control *231*
Working with Text BOX controls *231*
Adding and using Text Box controls *231*
Entering an expression in a Text box control *231*
Sizing a Text Box control or Label control *231*
Deleting and cutting attached labels from Text Box controls *231*
Pasting labels into a report section *231*
Moving Label and Textbox controls *232*
Modifying the appearance of multiple controls *232*
Changing Label and Textbox control properties *232*
Growing and shrinking Text Box controls *232*
SORTING AND GROUPING DATA 232
Creating a group header or footer *232*

Sorting data within groups *232*
Removing a group *233*
Hiding a section *233*
Sizing a section *233*
Moving controls between sections *233*
Adding page breaks *233*
IMPROVING THE REPORT'S APPEARANCE 233
Adjusting the page header *234*
Creating an expression in the group header *234*
Creating a report header *234*
ACTIVITY 234
CHAPTER 21 235
ADVANCED ACCESS REPORT TECHNIQUES 235
GROUPING AND SORTING DATA 235
Grouping alphabetically *235*
Grouping on date intervals *235*
Hiding repeating information *236*
Hiding a page header *236*
Starting a new page number for each group *236*
FORMATTING DATA 236
Creating numbered lists *237*
Creating bulleted lists *237*
Adding emphasis on the run time *237*
Avoiding empty reports *237*
Inserting vertical lines between columns *237*
Adding a blank line *238*
Even-odd page printing *238*
USING DIFFERENT FORMATS IN THE SAME TEXT BOX 238
Centering the title *238*
Aligning control labels *238*
Micro-adjusting controls *239*
ADDING DATA 239
Adding more information to a report *239*
Adding the user's name to a bound report *239*
ADDING EVEN MORE FLEXIBILITY 239
Displaying all reports in a combo box *239*
Fast printing from queried data *240*
Using snaking columns in a report *240*
Exploiting two-pass report processing *240*
Assigning unique names to controls *240*
PART VI 241
MICROSOFT ACCESS PROGRAMMING FUNDAMENTALS 241
CHAPTER 22 242

USING ACCESS MACROS 242

AN INTRODUCTION TO MACROS 242
Creating a macro 242
Note that macros can also be executed from the Navigation pane. 243
Assigning a macro to an event 243
UNDERSTANDING MACRO SECURITY 243
Enabling sandbox mode 243
The Trust Center 244
Digital Signature 245
COMMERCIAL SECURITY CERTIFICATE 245
Self-signed certificate 245
DIGITALLY SIGN AN ACCESS PACKAGE TO DISTRIBUTE A DATABASE 245
Digitally sign an Access database 246
MULTI-ACTION MACROS 246
SUBMACROS 246
CONDITIONS 247
Opening reports using conditions 247
Multiple actions in conditions 247
TEMPORARY VARIABLES 247
Enhancing a macro you've already created 247
Using temporary variables to simplify macros 248
Using temporary variables in VBA 248
ERROR HANDLING AND MACRO DEBUGGING 248
The OnError action 248
The MacroError object 248
Debugging macros 248
Embedded Macros 249
MACROS VERSUS VBA STATEMENTS 249
Choosing between macros and VBA 249
Converting existing macros to VBA 249
ACTIVITY 249

CHAPTER 23 251

ACCESS DATA MACROS 251

INTRODUCING DATA MACROS 251
UNDERSTANDING TABLE EVENTS 251
"Before events 251
"After" events 251
USING THE MACRO BUILDER FOR DATA MACROS 251
UNDERSTANDING THE ACTION CATALOG 252
Program flow 252
Data blocks 252
Data actions 252
CREATING YOUR FIRST DATA MACRO 252
MANAGING MACRO OBJECTS 253

Collapsing and expanding macro items *253*
Moving macro items *253*
Saving a macro as XML *253*
RECOGNIZING THE LIMITATIONS OF DATA MACROS 253
ACTIVITY 253

CHAPTER 24 254

GETTING STARTED WITH ACCESS VBA 254

INTRODUCING VISUAL BASIC FOR APPLICATIONS 254
UNDERSTANDING VBA TERMINOLOGY 254
STARTING WITH VBA CODE BASICS 254
Creating VBA Programs *255*
Modules *255*
Procedures and functions *255*
WORKING IN THE CODE WINDOW 255
White space *255*
Line continuation *256*
MULTI-STATEMENT LINES 256
IntelliSense *256*
Compiling procedures *256*
Saving a module *256*
UNDERSTANDING VBA BRANCHING CONSTRUCTS 257
Branching *257*
The If keyword *257*
The Select case…End Select statement *257*
.Looping *257*
The Do... Loop statement *257*
.The For... Next statement *258*
WORKING WITH OBJECTS AND COLLECTIONS 258
PROPERTIES AND METHODS 258
Properties *258*
Methods *258*
The With statement *258*
The For Each statement *259*
EXPLORING THE VISUAL BASIC EDITOR 259
The Immediate window *259*
The Project Explorer *259*
THE OBJECT BROWSER 259
VBE options *259*
The Editor tab of the Options dialog box *259*
The Project Properties dialog box *260*

CHAPTER 25 261

MASTERING VBA DATA TYPES AND PROCEDURES 261

USING VARIABLES 261

Naming variables *261*
Declaring variables *261*
The Dim keyword *262*
The Public keyword *262*
The Private keyword *262*
WORKING WITH DATA TYPES 262
Forcing explicit declarations *262*
Using a naming convention with variables *262*
UNDERSTANDING VARIABLE SCOPE AND LIFETIME 263
Examining scope *263*
Determining a variable lifetime *263*
Deciding on a variable's scope *263*
Using constants *263*
Declaring constants *263*
Using a naming convention with constants *264*
WORKING WITH ARRAYS 264
Fixed arrays *264*
Dynamic arrays *264*
Array functions *264*
UNDERSTANDING SUBS AND FUNCTIONS 264
Understanding where to create a procedure *265*
CALLING VBA PROCEDURES 265
Creating subs *265*
Creating Functions *265*
HANDLING PARAMETERS 265
Calling a function and passing parameters *265*
Simplifying Code with Named Arguments *266*
DEPLOY AN ACCESS APPLICATION 266
Plan for deployment *266*
Should the data and the logic be separated? *266*
WHAT WILL THE NETWORK ENVIRONMENT BE LIKE? 267
Home network *267*
Local Area Network (LAN) *267*
Wide Area Network (WAN) *267*
Azure file shares *267*
Will users have access? *267*
Deploy an Access application *268*
Prepare the database as an application solution *268*
INSTALLING AND UPGRADE AN ACCESS FRONT-END DATABASE 269
UNDERSTAND AND DOWNLOAD THE ACCESS RUNTIME 270
Create an installation package *270*
Design a signed package *271*

CHAPTER 26 272

UNDERSTANDING THE ACCESS EVENT MODEL 272

PROGRAMMING EVENTS 272

Understanding how events trigger VBA code 272
Creating event procedures *272*
Identifying Common Events 272
Form event procedures *273*
Essential form events *273*
Form mouse and key-board events 274
Form data events *274*
Control event procedures 275
Report event procedures *275*
Report section event procedures *275*
Paying Attention to Event Sequence 276
Looking at common event sequences *276*
Writing simple form and control event procedures 277
Opening a form with an event procedure 277
Running an event procedure when closing a form *277*
Using an event procedure to confirm record deletion *277*
Activity 277

CHAPTER 27 278

DEBUGGING ACCESS APPLICATIONS 278

Organizing VBA Code 278
Testing Your Applications 278
Testing functions *279*
Compiling VBA code *279*
Traditional Debugging Techniques 279
Using MsgBox *279*
Using Debug.Print *279*
Using the Access Debugging Tools 280
Running code with the Immediate Window *280*
Suspending execution with breakpoints 280
Looking at variables with the Locals window 280
Setting watches with the Watches window *281*
Using conditional watches *281*
Using the Call Stack window *281*
Trapping Errors in Your Code 281
Understanding error trapping *282*
On Error Resume Next *282*
On Error Goto 0 ....*282*
On Error GoTo Label *282*
The Resume keyword 282
The Err object 282
Including error handling in your procedures 283

PART VII 284

ADVANCED ACCESS PROGRAMMING TECHNIQUES 284

CHAPTER 28 285

ACCESSING DATA WITH VBA 285

Working with Data 285
Understanding DAO Objects 286
The DAO DBEngine object 286
The DAO Workspace object 286
The DAO Database object 286
The DAO TableDef object 287
The DAO QueryDef object 287
The DAO Recordset object 287
Navigating recordsets 288
Deleting the record set end or beginning 288
Counting records 288
The DAO Field objects (recordsets) 288
Understanding ADO Objects 288
The ADO Connection object 289
The ADO Command object 289
The ADO Recordset object 289
Writing VBA Code to Update a Table 289
Updating fields in a record using ADO 289
Updating a calculated control 290
Checking the status of a record deletion 290
Eliminating repetitive code 290
Adding a new record 290
Deleting a record 290
Deleting related records in multiple tables 290
Activity 290

CHAPTER 29 291

ADVANCED DATA ACCESS WITH VBA 291

Adding an Unbound Combo Box to a Form to Find Data 291
Using the Find a Record method 291
Using a bookmark 291
Filtering a form 291
Filtering with code 292
Filtering with a query 292
Creating a parameter query 292
Creating an interactive filter dialog box 292
Linking the dialog box to another form 292
Migrate Access data to Dataverse 292
Begin: quick checklist 293
Begin: obtain needed software licenses 293
Begin: configure a Dataverse environment 293
Dataverse 294
Dataverse for Teams 294

MIGRATE ACCESS DATA TO DATAVERSE 295
Select data source and destination *295*
Migrate: validate exported data *296*
Migrate: preview results in Access *296*
Migrate: preview results in Dataverse *296*

CHAPTER 30 297

CUSTOMIZING THE RIBBON 297

THE RIBBON HIERARCHY 297
Controls for Access Ribbons *297*
SPLITBUTTON 297
Menu *297*
Gallery *298*
Button *298*
ToggleButton *298*
ComboBox *298*
CheckBox *298*
Special Ribbon Features *298*
SuperTips *298*
Collapsing the Ribbon *298*
EDITING THE DEFAULT RIBBON 299
WORKING WITH THE QUICK ACCESS TOOLBAR 299
DEVELOPING CUSTOM RIBBONS 299
The Ribbon creation process *299*
USING VBA CALLBACKS 300
CREATING A CUSTOM RIBBON 300
Step 1: Design the Ribbon and build the XML *300*
Step 2: Write the callback routines *300*
Step 3: Create the USysRibbons table *301*
Step 4: Add XML to USysRibbons *301*
Step 5: Specify the custom Ribbon property *301*
THE BASIC RIBBON XML 301
Adding Ribbon Controls *301*
Specifying imageMso *301*
The Label controls *302*
The Button control *302*
Separators *302*
The CheckBox control *302*
The Dropdown control *302*
The SplitButton Control *302*
ATTACHING RIBBONS TO FORMS AND REPORTS 303
Removing the Ribbon Completely *303*

CHAPTER 31 304

PREPARING YOUR ACCESS APPLICATION FOR DISTRIBUTION 304

DEFINING THE CURRENT DATABASE OPTIONS 304
Application options *304*
Application Icon *304*
Display Form *304*
Display Status Bar *304*
Document Window Options *304*
Use Access Special Keys *305*
Compact on Close *305*
REMOVE PERSONAL INFORMATION FROM FILE PROPERTIES ON SAVE 305
Use Windows Theme Controls on Forms *305*
Enable Layout View *305*
ENABLE DESIGN CHANGE FOR TABLES IN DATASHEET VIEW 305
Check for Truncated Number Fields *305*
Picture Property Storage Format *305*
Navigation options *306*
The Display Navigation Pane checkbox *306*
The Navigation Options button *306*
RIBBON AND TOOLBAR OPTIONS 306
Ribbon Name *306*
Shortcut Menu Bar *306*
Allow Full Menus *306*
Allow Default Shortcut Menus *306*
Name AutoCorrect Options *307*
DEVELOPING THE APPLICATION 307
Building to a specification *307*
Creating documentation *307*
Documenting the code you write *307*
Documenting the application *307*
Testing the application before distribution *307*
Polishing Your Application *308*
GIVING YOUR APPLICATION A CONSISTENT LOOK AND FEEL 308
Adding common professional components *308*
A splash screen *308*
AN APPLICATION SWITCHBOARD 308
An about box *308*
The status bar *309*
A progress meter *309*
Making the application easy to start *309*
BULLETPROOFING AN APPLICATION 309
Using error trapping on all Visual Basic procedures *309*
Maintaining usage logs *309*
SEPARATING TABLES FROM THE REST OF THE APPLICATION 310
Building bulletproof forms *310*
Validating user input *310*
Using the /runtime option *310*
Encrypting or encoding a database *310*

REMOVING A DATABASE PASSWORD 311
Protecting Visual Basic code *312*
SECURING THE ENVIRONMENT 312
Setting the startup option in the code *312*
Disabling startup bypass *312*
SETTING PROPERTY VALUES 313
GETTING PROPERTY VALUES 313

CHAPTER 32 314

INTEGRATING ACCESS WITH SHAREPOINT 314

INTRODUCING SHAREPOINT 314
UNDERSTANDING SHAREPOINT SITES 314
SharePoint documents *314*
SharePoint lists *315*
SHARING DATA BETWEEN ACCESS AND SHAREPOINT 315
Linking to Sharepoint lists *315*
IMPORTING SHAREPOINT LISTS 315
EXPORTING ACCESS TABLES TO SHAREPOINT 316
MOVING ACCESS TABLES TO SHAREPOINT 316
USING SHAREPOINT TEMPLATES 316
ACTIVITY 316
CONCLUSION 316
EXTRAS 317
SHORTCUT KEYS ON MICROSOFT ACCESS 317
Frequently used shortcuts *317*
NAVIGATE THE RIBBON WITH ONLY THE KEYBOARD 318
USE THE KEYBOARD TO WORK WITH RIBBON TABS 318
WORK WITH DATABASE FILES 318
Open and save databases *318*
Print database information *319*
NAVIGATE IN THE ACCESS WORKSPACE 319
Switch from tabbed documents to windowed documents *319*
Move in the Access workspace *319*
WORK WITH MENUS, DIALOG BOXES, WIZARDS, AND PROPERTY SHEETS 320
Use menus *320*
Use dialog boxes *321*
Use wizards *321*
USE PROPERTY SHEETS 321
WORK WITH TEXT BOXES, COMBO BOXES, AND LIST BOXES 322
Edit a text box *322*
Use a combo or list box *322*
WORK WITH OBJECTS 323
Edit and navigate the Object list *323*
Navigate and open objects *323*
Common shortcuts for the Design, Layout, and Datasheet views *323*
USE A GRID PANE 324

Move around in tables or cells *325*
GET HELP WITH ACCESS 325
MISCELLANEOUS KEYBOARD SHORTCUTS 326
INDEX 327

INTRODUCTION

Data is everywhere.

In your workplace. In your reports. In your spreadsheets. In your daily decisions.

But here's the truth most people never admit:

Most professionals don't struggle because they lack data.
They struggle because they don't know how to control it.

Messy spreadsheets. Broken formulas. Repeated manual entry. Confusing reports. Lost information. Wasted hours.

The real problem isn't information overload — it's the absence of structure.

That's where Microsoft Access changes everything.

Microsoft Access is more than a database program. It is a powerful data management and automation system capable of transforming scattered information into structured, searchable, automated solutions. It allows you to build relational databases, enforce referential integrity, create intelligent queries, design professional reports, automate workflows with Macros, and unlock advanced capabilities using SQL and VBA.

And yet, most people never fully harness its power.

Not because it's too complex.
But because they were never taught properly.

Microsoft Access Mastery for Beginners is your complete, step-by-step blueprint to moving from confusion to confidence. From beginner to capable database designer. From manual data entry to intelligent automation.

Inside this book, you will not only learn what Access can do — you will learn how to apply it strategically in real-world scenarios.

Imagine building your own database solutions.
Imagine automating repetitive tasks.
Imagine generating accurate reports in minutes instead of hours.
Imagine being the person in the room who understands how data truly works.

That transformation begins here.

This is not just another software guide.
It is your gateway to control, efficiency, and professional advantage.

Open this book.
Build the system.
Master your data.

Overview of This Book

This unique book on Microsoft Access has been carefully written to ensure that readers can comprehend with ease all of the information contained in this book. In this book, you will learn all you need to know to make the best of Microsoft Access which also includes all necessary tips on VBA and macros.

Below is a sneak peek into what you will learn when you purchase this guide;

Chapter 1: Development of Databases

In this chapter, you will learn about the various vocabularies that are being used in Microsoft Access databases. In this section, you will learn about various databases, tables, records fields, and values and you will also learn about other relational databases. Objects in the Access Database which include tables, queries, display forms that include data entry, reports macros and VBA will also be discussed in detail in this chapter. Lately, you will learn about the various step design methods that should be embarked upon when making plans for database objects.

Chapter 2: Getting Started

Now you are ready to get started with the proper use of Microsoft Access. You will be introduced to the welcome screen, how to design an empty database, the interface which includes a panel for navigation, custom, object type tables and related views, data designed, tweaked date, and the ribbon and you will also learn about the toolbar for quick Access.

Chapter 3: Designing Access Tables

As you will get to understand later on when you are reading this book, the importance of tables in Microsoft Access, in this chapter, you will learn about the diverse types of tables used in Microsoft Access which include object tables, transaction tables, and join tables. You will also learn about the perfect way wherein you can design a New Table. This section includes learning about giving a field a name, knowing a type of data, giving a field description, and also getting to specify validation rules. This chapter will also introduce you to making use of the design tab where you will learn about the primary key, insert rows, delete rows, property sheet, indexes, and a host of others. You will also learn how to make a TBL customer as well as how best you can alter a table design which includes deleting a field you are no longer in use of and modifying the location of a field amongst others. Allocation of properties is another very important factor you will learn about in this chapter. Here you will learn about the common properties, format, custom numeric format, long and short text formats, input mask, and caption. Furthermore in this chapter, you will learn about indexing Access Tables which includes learning about the need for indexes, and multiple-field indexes, and you will also learn about when to index tables. Lastly in this chapter, you will learn about moving a table to a different database, adding records to a database table, having a perfect understanding of attachment fields, including an attachment field in the Datasheet view, and also including an attachment field in the design view.

Chapter 4: Knowing the Relationships between Tables

As earlier explained Access has a lot to do with tables, in this chapter, you will learn the various relationships that exist between tables. You will learn how to build bulletproof databases, and you will learn about the normalization and denormalization of data. Various table relationships will be discussed

in detail in this chapter. Relationships like connecting data, one-to-one, one-to-many and so on will be discussed in this chapter. You will also learn about the various integrity rules, the creation of relationships, and the enforcing of referential integrity and you will also learn how you can get to view the relationships and how you can get to follow application-specific integrity rules.

Chapter 5: Working with Access Tables

So much about tables, yeah? In this chapter, you will learn about making effective use of Access Tables. You will learn about comprehending datasheets, looking at the datasheet window, moving in a datasheet, making use of the navigation buttons, and you will also learn about how best to check out the datasheet ribbon. Furthermore in this chapter, you will learn how to open a datasheet, insert new data, have a perfect understanding of how properties affect data entry, and gain an understanding of how properties affect data entry. In this chapter still, you will learn how to move between records to locate a particular value, getting values in the Datasheet. Making use of the undo feature, copying and pasting values, inclusion of new records, showing and deleting records, and altering display fonts are some of the other things you will be exposed to in this chapter. Arranging data in columns, saving the altered layout, filtering and organizing records in a datasheet, filtering a form, aggregating data, printing records, and previewing records are some of the other details you will get to learn in this chapter! Quite robust I must confess!

Chapter 6: Importing and Exporting Data

Data can be imported and exported. In this chapter, you will learn about the various ways in which Access works with external data. You will learn about the various types of external data, ways in which you can work with external data, when to import external data, and when to export it. You will also learn about the various options for importing and exporting which include importing from another Access database, importing from an Excel spreadsheet, importing data from text files, importing and exporting HTML documents, and lots more. You will also learn how to export external formats which includes exporting objects to other Access databases, exporting through ODBC drivers, and exporting through to Word.

Chapter 7: External Data Linking

In this chapter, you will learn about linking external data, getting to know tables that have been linked, linking to other Access database tables, linking to ODBC data sources, and linking to non-database data. Furthermore, you will learn about working with linked tables, configuring view properties, configuring relationships, optimizing linked tables, deleting a linked reference, viewing or altering information, refreshing a data source and its linked tables, and splitting a database. You will also get to learn about the various places to put certain objects and you will also learn how to make use of the edge browser control.

Chapter 8: Selecting Data with Queries

In this chapter, you will be introduced to queries where you will learn about what queries can do and what they return. You will also learn how to create a query, include various fields in your queries, run your query, work with query fields, and resize columns in the QBD grid which includes removing a field, inserting a field, and also concealing a field. You will also learn how best you can include criteria in your queries, you will gain more information on how to print a query record and save a query and you will also learn how to design multi-table queries. Furthermore in this chapter, you will learn about working with table pane, you will learn how to create and work with query joins and you will also be provided with

sufficient information about joins which includes inner joins, outer joins, full outer joins, cross joins, specifying the type of join and you will learn how to delete join.

Chapter 9: Using Operators and Expressions in Access

In this chapter, you will be introduced to the use of operators. You will get to learn about the various types of operators which include mathematical, string, Boolean, etc. Operator precedence will also be discussed in this chapter where you will get to learn about the mathematical precedence, comparison precedence, as well as Boolean precedence. Furthermore in this chapter, you will learn about the use of operators and expressions in queries. You will gain insight into how to use query comparison operators, and have a perfect understanding of complex criteria, make use of functions in select queries, and reference fields in select queries. Entering IF single-value field criteria will also be discussed in this chapter which includes learning about the like operator and wildcards, specifying non-match values, and inserting true or false criteria. You will learn about the use of multiple criteria in a query which includes how to specify more than one value with the Or operator, making use of the Or cell or the QBD pane, making use of AND for the specification of a range, and using the between and And operator. Also in this chapter, you will learn how to insert criteria in various fields which includes making use of And and Or across diverse fields in a query, indicating OR criteria across fields in a query, and using And and Or simultaneously in different fields amongst others.

Chapter 10: Going Beyond Select Queries

In this chapter, you will be introduced to all other types of queries. You will learn about aggregate queries, and aggregate functions which include Group By, Sum, Avg, Count, Expression, Where, etc. You will also learn about action queries which include queries such as make table, append, update, crosstab, creating a crosstab query, making use of the query design in the creation of your crosstab query, and designing your crosstab queries. Also in this chapter, you will learn how to optimize query performance which will include normalizing your database design, making use of indexes on appropriate fields, optimizing by the improvement of query design, and compacting and repairing the database promptly.

Chapter 11: Transforming Data in Access

Here as the title of the chapter connotes, you will learn how to alter data. Things you will learn in this chapter include; finding and removing duplicate records, defining duplicate records, and removing duplicate records. You will also learn about common transformation tasks which include; filling in blank fields, concatenating, and concatenating fields. You will also learn about how to augment field values using your text by gaining knowledge on changing cases, removing leading and trailing spaces from a string, finding and replacing a certain text, and adding your text in key positions within a string.

Chapter 12: Working with Calculations and Dates

In this chapter, you will learn how to make use of a calculator when performing your analyses. Here you will learn about common calculation scenarios, how to make use of constants in calculation, make use of fields in calculations, make use of the results of aggregation in calculations, make use of calculation as an argument in a function, and will also learn how to construct calculations with the use of the Expression Builder. Furthermore in this chapter, you will learn about the various common calculation errors, and you will learn how to make use of dates in your analyses which includes learning about simple date

calculations, advanced analysis with the use of functions, the date functions, and you will also learn about how to group dates into quarters.

Chapter 13: Performing Conditional Analyses

In this chapter, you will learn how to make use of parameter queries which includes gaining insight into how parameter queries work, learning more about ground rules of parameter query, working with parameter queries, combining parameters with operators, and making use of parameters as function arguments. The use of conditional functions will also be discussed in this chapter where you will get to learn about the IIF function, how to use the IIF function to avoid mathematical errors, getting to save time with IIF, and how to make use of the IIF functions for the creation of crosstab analysis. Lastly in this chapter, you will learn about the major difference between IIF and switch functions.

Chapter 14: The Fundamentals of Using SQL

In this chapter, you will learn about the basics of SQL which includes the Select statement, how to select all columns, the use of the Where clause, and making sense of joins(inner and outer joins). Furthermore, you will learn how to expand your search with the Like operator, and how to choose Unique values and rows without having to group and configure the sort order with the use of the ORDER BY clause. More in this chapter are details on how to show just the Select Top Percent, performing action queries with the use of SQL statements, making use of SQL-specific queries, and you will also learn how to manipulate columns with the use of Alter Table statement which includes how to add a column with the use of the ADD clause, altering a column with the use of the Alter Column clause, adding primary keys with the use of the ADD constraints clause, and you will also learn how to create pass-through queries.

Chapter 15: Subqueries and Domain Aggregate Functions

In this chapter, you will start by learning how to enhance your analyses with the Subqueries. Here you will get to know why Subqueries should be used, various subquery ground rules, how to create Subqueries without SQL statements, and how to make use of IN and NOT IN with Subqueries. Furthermore, you will learn how to make use of correlated Subqueries, uncorrelated Subqueries, and making use of Subqueries with action queries. Furthermore, you will learn about domain aggregate functions and you will gain insight as regards the various domain aggregate functions which include using no criteria, using text criteria, using domain aggregate function, creating a running count, and lastly, you will learn how to make use of a value from the previous record.

Chapter 16: Running Descriptive Statistics in Access

In this chapter, you will learn about basic descriptive statistics which includes executing descriptive statistics with aggregate queries, determining rank, mode, and median, ranking the records in your data set, getting the mode and median in a data set as well as pulling random sampling from your data set. Also in this chapter, you will learn about advanced descriptive statistics where you will be introduced to how to calculate percentile making, determine the quartile standing of a record, and create a frequency distribution.

Chapter 17: Creating Basic Access Forms

In this chapter, you will learn how to work with various form views, and you will get to learn more about the various types of forms which include the switchboard form, dialog box form, data entry form, record display form, etc. You will also be introduced to various controls in this chapter, you will learn how to categorize controls and add a control, and you will also learn how to make use of the control group. Using the field list, selecting and deselecting controls, selecting just one control, choosing various controls, manipulating controls, moving and aligning controls, altering the appearance of controls, grouping controls, deleting control, reattaching a label to control as well as introducing properties are sub-topics that will be discussed in this chapter.

Chapter 18: Working with Data on Access Forms

In this chapter, you will learn how to make use of the form views and you will also get to familiarize yourself with the ribbon where you will learn how to view groups, make use of the clipboard group, sort and filter groups, record group, find group, window group, and the text formatting group. You will also learn how to make use of pictures and OLE objects, enter data in a long text field, enter data in the date field, make use of the option group, make use of combo boxes and list boxes, switch to datasheet view, and save records. Printing form, adding a form header or footer, and dealing with section properties which include the visible property, back color property, and special effect property will all be discussed in these chapters. Modifying layout as well as the conversion of a form to a report will also be highlighted in this chapter.

Chapter 19: Working with Form Controls

In this chapter, you will get to learn about the use of form controls. You will learn how to configure control properties, make use of subforms, gain necessary tips on the design of forms, and make use of the tab stop property. Also in this chapter, you will learn how to deal with advanced form techniques which include making use of page number and the date or time controls, morphing a control, making use of the format painter, reducing the records shown on a form, and making use of the tab control. Lastly, you will learn about the use of dialog boxes to collect information where you will get to learn how to design query, configure the command buttons, set a cancel button, take off the control menu, create a form from scratch, design a subform, configuring forms properties, saving form record and also changing the appearance of the form.

Chapter 20: Data Presentation with Access Reports

In this chapter, you will be introduced to reports. Here you will learn how to perfectly identify the various types of reports which include tabular reports, columnar reports, and mailing label reports, and you will also learn how best you can differentiate between reports and forms. Creating a report from scratch and defining the report layout will also be highlighted in this chapter. Under this subtopic, you will learn how best to create a new report, choose the various grouping levels, choose the sort order, choose the summary options, choose a theme, make use of the print preview window, view the report in design view, print, and view report will also be discussed in this chapter in details. Banded report design concepts are also another aspect that will be discussed in this chapter. Under this subtopic, you will learn about the report header section, the page header section, the group header section, the detail section, the group footer section, the page footer section, and resizing a section will also all be discussed in this chapter.

Chapter 21: Advanced Access Report Techniques

In this chapter, you will get to know more about the grouping and sorting of data. You will learn how to group data alphabetically, group on date intervals, conceal repeating information, conceal a page header, and commence a new page number. Also in this chapter, you will learn how to format data which includes creating numbered lists, and bulleted lists, including an emphasis on the run time, including a blank line, making use of various formats in the same text box, centering the title, aligning control labels, and micro-adjusting controls. Adding data and adding more flexibility which deals with the display of all reports in a combo box, fast printing from queried data, making use of snaking columns in a report, and assigning unique names to controls will also be discussed in this chapter.

Chapter 22: Using Access Macros

In this chapter, you will be introduced to the use of macros. Here you will learn how to create a macro and assign a macro to an event. You will also gain more insight on the use of macro security where you will get to know how best to enable sandbox mode, utilize the trust center, and also employ the use of digital signature. Furthermore in this chapter, you will learn about multi-action macros, submacros, conditions, temporary variables, error handling, and macro debugging where you will also get to learn about OnError action, the macroError object, debugging macros, and embedded macros.

Chapter 23: Access Data Macros

In this chapter, you will be introduced to data macros and also have a perfect understanding of table events which include before events and after events. Furthermore in this chapter, you will learn how to make use of the macro builder for data macros, have a perfect understanding of the actin catalog, design your first data macro, manage macro objects which includes collapsing and expanding macro items, dragging macro items, saving macro as XML, and recognizing the limitations of Data macros.

Chapter 24: Getting Started with Access VBA

In this chapter, you will be introduced to Visual Basic for applications where you will get to learn VBA code basics, how to create VBA programs, working in the code window which includes the use of white space, and line continuation. Moving forward, you will learn about multi-statement lines which include intellisense, compiling procedures, and saving a module; you will learn about VBA branching constructs which include branching, making use of the If keyword, .looping, using the Do and Loop statement, and also making use of the For and the Next statement. Furthermore in this chapter, you will learn how to make use of the objects and collections, properties and methods, you will learn how best to explore the Visual Basic Editor and you will also learn how to make use of the object browser which includes VBE options, the editor tab of the options dialog box as well as the project properties dialog box.

Chapter 25: Mastering VBA Data Types and Procedures

In this chapter, you will learn about the use of variables which includes naming variables, declaring variables, the use of the Dim keyword, the public keyword, and the private keyboard. You will also learn how best to work with data types which includes forcing explicit declarations, making use of a naming convention, having a perfect understanding of variable scope and lifetime, examining scope, making use of constants, clearing constants, working with arrays, etc.

Understanding Subs and functions, calling VBA procedures, simplifying code with Named Arguments, and deploying an access application are some of the other topics that will be discussed in this chapter.

Chapter 26: Understanding the Access Event Model

In this chapter you will learn about various Access Events, you will learn about programming events, gain an understanding of just how events trigger VBA code, and create event procedures. You will also learn how to identify common events which include form event procedures, essential form events, and form data events. Also in this chapter, you will learn how to control event procedures, pay special attention to event sequence, write simple forms and control event procedures, and open a form with the use of an event procedure which also includes executing an event procedure when closing a form and also making use of an event procedure for the confirmation of the record deletion.

Chapter 27: Debugging Access Applications

In this chapter, you will learn how best to arrange VBA code, get your applications tested, employ the use of traditional debugging techniques, and you will also learn how best to make use of the Access debugging tools. Furthermore in this chapter, you will learn how to suspend execution with breakpoints, look at variables with the use of the local's window, make use of conditional watches, trap eros in your code, make use of the resume keyword and you will also learn how to include error handling in your procedures.

Chapter 28: Accessing Data with VBA

In this chapter, you will get to work with data, have a perfect understanding of DAO objects, and ADO objects, and learn how best to write a VBA code to get a table updated which includes updating fields in a record with the use of ADO, updating calculated control, checking the status of a record deletion, removing repetitive code, including a new record as well as deleting a record.

Chapter 29: Advanced Data Access with VBA

In this chapter, you will learn how to add an unbound combo box to s form to find data, filter a form which includes filtering with a code, filtering with a query, creating a parameter query, creating an interactive filter dialog box, and also you will learn how to migrate access data to Dataverse.

Chapter 30: Customizing the Ribbon

In this chapter, you will learn all that has to do with the use of the ribbon which includes editing the default ribbon, working with the quick access toolbar, developing custom ribbons, and making use of VBA callbacks and you will also learn about the basic ribbon controls.

Chapter 31: Preparing your Access Application for Distribution

In this chapter, you will learn how to define the current database choices and remove personal information from file properties on Save which includes making use of Windows Theme controls on forms and enabling layout view. You will also learn how to enable design change for tables in the datasheet view, how best to make use of the navigation options, ribbon, and toolbar options and you will also learn how to develop an application.

Chapter 32: Integrating Access with Sharepoint

In this chapter, you will be introduced to SharePoint, you will learn how to share data between Access and Sharepoint, Import SharePoint lists, export Access tables to Sharepoint, move access tables to SharePoint, and you will also learn how best to make use of Sharepoint templates.

PART 1

GET ACCESS TO FUNDAMENTAL INFORMATION

About what a building block is, this book has been designed to take you gradually from one step to another with each part containing chapters and also examples that are detailed and drive home the point. This section will cover several fundamental subjects that are required for you to successfully use a database. You will also learn how to make sure that data is properly implemented and normalized so that your table will function well. Make sure you give this section more time so you can gain all the necessary foundational knowledge. However, if you are already knowledgeable about database design, you may quickly go through the pages as a revision tool and perhaps pick up some new information.

CHAPTER 1
DEVELOPMENT OF DATABASES

Database development is unique and it is not the same way you play around with your computer. As against other applications like PowerPoint and Excel where you just have to be creative, there's a need for you to have basic foundational knowledge in database development. This chapter covers basic fundamental knowledge that you need to learn and cannot do without as it pertains to this application and the development of databases in general.

The vocabulary used in Access Databases

Nearly all of the fundamental terminology used in databases may be used with Access. Records, tables, fields, the database itself, and values that display a hierarchy from the smallest to the largest and vice versa are among these terms. Except for structured query language (SQL), all of the words listed above are equally utilized in practically all database systems.

Databases

An organized method of gathering data or data that has been electronically saved in a computer is known as a database. A database management system often oversees a database (DBMS). A database system, sometimes just referred to as a database, includes data and DBMSs as well as the numerous applications that are connected to them. Even though I've spoken about electronic databases, manual databases—also referred to as file systems or manual database systems—also exist. When using manual database systems, form completion is essentially limited to one method. Accessing information manually involves opening a filing cabinet, removing a file or folder, and then finding a specific piece of paper. Users will complete the forms using whichever approach is most convenient for them. Spreadsheets can also be used for data analysis or to present the data in an eye-catching way. To facilitate quick data processing and querying, data contained in the most popular databases used today are primarily arranged in rows and columns across a variety of tables. This will make it easy to access, alter, control, organize, and modify the data. It should be noted that most databases write and query data using the Structured Query Language (SQL). Different kinds of databases exist. The one you choose to utilize primarily depends on how the company intends to use the information.

In the sections below, you will find just a few databases that will be discussed in this book;

- **Relational database**: In the 1980s, this database gained popularity. A relational database is organized with its items in a well-organized set of tables with rows and columns. One of the most effective and versatile ways to access well-structured data is through relational database technology.
- **Object-oriented database**: Information found in an object-oriented database is represented in the form of objects similar to object-oriented programming.
- **Distributed databases**: This type of database has about two or more files that can be found in different locations. The database can be saved on various computers that are found right within the same location or diverged over various networks.

Access databases are merely an automated way to perform a paper file system's filing and retrieval tasks. Access databases make it easier to store information in an organized way. A database management