Instructor’s Manual Materials to Accompany

EXPLORING MICROSOFT® ACCESS 2013

## ACCESS CHAPTER 5: DATA VALIDATION AND DATA ANALYSIS

### Available Instructor Resources

|  |  |  |
| --- | --- | --- |
| **Resource** | **File Name** | **Found** |
| **Student Data Files** | various | Online Instructor Resource Center |
| **Solution Files** | various | Online Instructor Resource Center |
| **Answer Keys** |  | Online Instructor Resource Center |
| Matching | a05\_answerkey\_match |
| Multiple Choice | a05\_answerkey\_mc |  |
| Concepts Checks | a05\_answerkey\_concepts |  |
| **Scorecards** | (example) a05b1Food\_scorecard | Online Instructor Resource Center |
| **Scoring Rubrics** | (example) a05m3Willow\_rubric | Online Instructor Resource Center |
| **Annotated Solution File** | (example) a05b1Food\_annsolution | Online Instructor Resource Center |
| Scripted Lecture (Script) | a05\_script | Online Instructor Resource Center |
| Scripted Lecture Solution | a05\_script\_solution |
| Scripted Lecture Data | a05\_script\_data |  |
| **PowerPoint Presentation** | a05\_powerpoint | Online Instructor Resource Center |
| **Testbank** | a05\_testbank | Online Instructor Resource Center |
| **Instructor's Manual (lesson plans incl.)** | a05\_instructormanual | Online Instructor Resource Center |
| **Assignment Sheet** | a05\_assignsheet | Online Instructor Resource Center |
| **Prepared Exam (Chapter & App)** |  | Online Instructor Resource Center |
| Prepared Exam-Chap instruction | a05\_exam\_chap\_instruction |
| Prepared Exam-Chap solution | a05\_exam\_chap\_solution |
| Prepared Exam-Chap Data | a05\_exam\_chap\_data |
| Prepared Exam-Chap Annotated Sol. | a05\_exam\_chap\_annsolution |
| Prepared Exam-Chap Scorecard | a05\_exam\_chap\_scorecard |
| **File Guide** | a05\_file\_guide | Online Instructor Resource Center |
| **Instructor Resource Card** | a05\_ircard | Online Instructor Resource Center |
| **Objective Map** | a05\_objectivesmap | Online Instructor Resource Center |
| **Online Chapter Review** | a05\_ocr | Companion Website for Students |
| **Grader Project** |  |  |
| Grader-instruction | a05\_grader\_instruction | Online Instructor Resource Center |
| Grader-solution | a05\_grader\_solution |
| Grader-data | a05\_grader\_data |
| Grader-annoted. Solution | a05\_grader\_annsolution |  |
| Grader-scorecard | a05\_grader\_scorecard |  |
| **Additional Projects (Practice & Mid Level)** |  | Online Instructor Resource Center |
| Additional Proj-Practice instruction | a05\_p\_addproject\_instruction |
| Additional Proj- Practice solutions | a05\_p\_addproject\_solution |
| Additional Proj-Practice Data | a05\_p\_addproject\_data |
| Additional Proj-Practice Ann Sol. | a05\_p\_addproject\_annsol |
| Additional Proj-Practice Scorecard | a05\_p\_addproject\_scorecard |
| Additional Proj-Mid Level instruction | a05\_ml\_addproject\_ instruction |  |
| Additional Proj-Mid Level solutions | a05\_ml\_addproject\_ solution |
| Additional Proj-Mid Level Data | a05\_ml\_addproject\_data |
| Additional Proj-Mid Level Ann Sol. | a05\_ml\_addproject\_ annsol |  |
| Additional Proj-Mid Level Scorecard | a05\_ml\_addproject\_scorecard |  |

### CHAPTER OBJECTIVES

#### When students have finished reading this chapter, they will be able to:

* Establish data validation
* Create an input mask
* Create and modify a lookup field
* Create a parameter query
* Use advanced functions in the expression builder
* Perform date arithmetic

### CHAPTER OVERVIEW

#### The students will now be asked to create validation data for using Access and analysis of data entered into Access..

#### The major sections in this chapter are:

1. **Establishing Data Validation.** In order to maintain data integrity, a designer may need to establish data validation rules.
2. **Creating an Input Mask.** Providing specific format rules may be necessary in many instances.
3. **Creating and Modifying a Lookup Field.** If you give your users a list of values from which to choose, you will always have valid data.
4. **Creating a Parameter Query.** You may need different information pulled from a query depending on the situation. A parameter query allows you to create one query and use it with different criteria many times.
5. **Using Advanced Functions in the Expression Builder.** The advanced functions in the Expression Builder provide many options to create functions and expressions in Access.
6. **Performing Date Arithmetic.** Finding the time frame between dates is often very helpful.

### CLASS RUN-DOWN

1. Have students turn in homework assignments.
2. Talk about chapter using discussion questions listed below.
3. Use PowerPoint presentation to help students understand chapter content.
4. Demonstrate Access 2013 data validation and advanced functions using the Expression Builder.
5. Run through scripted lecture for chapter.
6. Have students complete Capstone Exercise for Access Chapter 5.
7. Use MyITlab for in-class work or to go over homework
8. Give students Homework Handout for next class period.

### LEARNING OBJECTIVES

#### At the end of this lesson students should be able to:

* Create data validation rules
* Create an input mask for a database field
* Create and modify a look up field
* Use a parameter query and report in Access
* Use built-in functions in Access
* Create advanced functions with the Expression Builder
* Perform date arithmetic

### KEY TERMS

**Data Macro** - Enables you to execute programming tasks whenever data in a table is changed.

**Data validation** - A set of constraints or rules that help control how data is entered into a field.

**Date arithmetic** - Used to create expressions to calculate lapsed time.

**Date formatting** - Affects the date’s display without changing the actual underlying value in the table.

**Date function** - An Access function which calculates the current date.

**DatePart function** - An Access function that examines a date and returns a portion of the date, and it works well for this case.

**IIf function** - An Access function, which evaluates an expression and displays one value when the expression is true and another value when the expression is false.

**Input Mask** - Forces users to conform to a specific data-entry format for a given field.

**Input Mask Wizard** - Frequently used to generate data restrictions (an input mask) for a field based on responses to a few questions.

**IsNull function** - An Access function that checks whether a field has no value.

**Lookup field** - Provides the user with a finite list of values to choose from in a menu.

**Nesting functions** - When one function is within another function.

**Parameter query** - A select query where the user provides the criterion at run time.

**Round function** - An Access function that returns a number rounded to a specific number of decimal places.

**Validation rule** - Limits the type or range of data a user can enter into a field.

**Validation Text** -Provides the error message telling users what they did wrong and giving them instructions on what they need to do to fix it.

### DISCUSSION QUESTIONS

▪ Why would it be important to validate the data that users put into your Access database?

▪ What is an example of data that may need to have an input mask?

▪ Why would you need to create a lookup field? What is an example of a lookup field that you have used in a form that you filled out?

▪ What is some information that you may need to mathematically manipulate in a database?

How would you use date arithmetic in a job?

### WHEN USING SCRIPTED LECTURE IN CLASS, DEMONSTRATE HOW TO:

* Define Required Fields and Set Default Values
* Define Validation Rules and Validation Text
* Utilize the Input Mask Wizard
* Create a Lookup Field
* Modify the Lookup Field
* Create a Parameter Query
* Use Date and Round Functions
* Use IIF and IsNull Functions
* Use Date Arithmetic

### CONNECTIONS PRACTICAL PROJECTS AND APPLICATIONS

* Find an online database (perhaps one that you enter to make a purchase from a Web site). What data validation tools have they used?
* Create a database of your friends and family. Using date arithmetic, determine how old (in days) the people in your database are.
* Create a database of your household items. Include the value of each item as one of the fields. Create several parameter queries to pull items that are valued at less than $100, more than $500, or other values based on your household items.

### TEACHING NOTES

#### Data Validation in Tables

*Using data validation can help ensure accurate data entry and make your data more usable.*

* **Teaching Tips:** Before creating your database, plan what information you need and what format the data needs to be in. This will help you design a usable database.

1. Establishing Data Validation
   * Determine what specific information you need and what format is needed.
   * **Teaching Tips**: Discuss options for validation: required, default value, validation rules, validation text, input masks, lookup lists, multiple-value fields and data macros.

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1. Creating an Input Mask
   * Some items need specific formats.
   * **Teaching Tips:** Discuss what items, such as phone numbers and Social Security numbers need specific formats.
   * **Teaching Tips:** Discuss the importance of protecting sensitive information such as Social Security numbers and passwords. Students may want to discuss if they want others around them to see their phone number.
2. Creating and Modifying a Lookup Field
   * Lookup fields limit the types of data that users can enter.
   * **Teaching Tips:** Discuss the value of limiting choices for the users. Should you have the option to enter “Other”?
   * **Teaching Tips:** Remind students that you should always be willing to update database information. Do you need to change your lookup fields? Cover steps in adding, deleting, or modifying lookup fields.

#### Data Analysis Using Advanced Select Queries

*Creating advanced queries will provide data that is easily usable by the organization.*

1. Creating a Parameter Query
   * The queries that an organization needs may change.
   * **Teaching Tips:** Explain the use of a parameter query. How can you enter the parameter to fit the specific need instead of always using a query with the same parameter?
   * **Teaching Tips**: Discuss how to put a parameter query into a report.
2. Using Advanced Functions in the Expression Builder
   * Explain how the Expression builder can be implemented into queries and tables to create custom calculated fields.
   * **Teaching Tips:** Explain how to use the Expression Builder so that students can create custom expressions. The functions that you may want to cover are Date, Round, IsNull, IIF, Nested functions.

* **Teaching Tips:** Explain how nested functions can accomplish a task that a single function cannot.

1. Performing Date Arithmetic
   * Explain how the Date function is useful for working with dates.
   * **Teaching Tips**: Give some examples of when a business could use date arithmetic. Be sure to include data validation rules when working with dates so that all of the dates are in a similar format.

### ONLINE CHAPTER REVIEW

To find an online chapter review to help your students practice for tests, visit the Companion Web site at <http://www.pearsonhighered.com/exploring/>.

### ADDITIONAL WEB RESOURCES

1. Access 2013 Tutorial Parameter Queries   
   <http://www.youtube.com/watch?v=Zt8MVkU-LUc>
2. Use Parameters and Queries in Reports  
   <http://office.microsoft.com/en-us/access-help/use-parameters-in-queries-and-reports-HA010096314.aspx>
3. Using Data Validation Rules to Ensure Accurate Data Entry  
   <http://www.techrepublic.com/blog/msoffice/use-access-validation-rules-to-ensure-accurate-data-entry/7156>

### PROJECTS AND EXERCISES

|  |  |  |
| --- | --- | --- |
|  | **Data File** | **Save As** |
| Hands-On Exercise 1 | a05h1Tommys.accdb | a05h1Tommys\_LastFirst.accdb |
| Hands-On Exercise 2 | a05h1Tommys\_LastFirst.accdb | a05h2Tommys\_LastFirst.accdb |
| Practice Exercise 1 | a05p1Physicians.accdb | a05p1Physicians\_LastFirst.accdb |
| Practice Exercise 2 | a05p2PCTS.accdb | a05p2PCTS\_LastFirst.accdb |
| Mid-Level Exercise 1 | a05m1Hotel.accdb | a05m1Hotel\_LastFirst.accdb |
| Mid-Level Exercise 2 | a05m2Traders.accdb a05m2Traders.docx | a05m2Traders\_LastFirst.accdb a05m2Traders\_LastFirst.docx |
| Collaboration | a05m3Willow.accdb a05m3WillowAnalysis.docx | a05m3Willow\_LastFirst.accdb a05m3Willow\_GroupName.accdb a05m3WillowAnalysis\_LastFirst.docx a05m3WillowAnalysis\_GroupName.docx |
| Beyond the Classroom 1:  General | a05b1Food.accdb | a05b1Food\_LastFirst.accdb |
| Beyond the Classroom 2: Research | a05b2Builder.accdb | a05b2Builder\_LastFirst.accdb |
| Beyond the Classroom 3: Disaster Recovery | a05b3Longevity.accdb | a05b3Longevity\_LastFirst.accdb |
| Beyond the Classroom 4:  sVideo Case | a05b4Applicants.xlsx | a05b4Applicants\_LastFirst.accdb |
| Capstone 1 | a05c1Replace.accdb | a05c1Replace\_LastFirst.accdb |

### CHAPTER REVIEW/ANSWERS TO END OF CHAPTER MATERIAL

**Key Terms Matching Answer Key**

1. **Data validation (A)\_** A set of constraints or rules that help control how data is entered into a field. p. 310

2. **Validation Rule (O)\_** Restricts the data values that can be entered into a field. p. 312

3. **Input Mask (G)\_**Enables you to restrict the data being input into a field by specifying the exact format of the data entry. p. 313

4. **Lookup Wizard (K)\_** Creates the menu of finite values by asking you six questions and using your answers to create the options list. p. 316

5. **Lookup Field (J)\_**Provides the user with a finite list of values to choose from in a menu. p. 315

6. **Input Mask Wizard (H)\_**Frequently used to generate data restrictions for a field based on responses to a few questions. p. 313

7. **Parameter Query (M)\_**A select query where the user provides the criterion at run time. p. 325

8. **Date Function (D)\_**Calculates the current date. p. 329

9. **Round Function (N)\_**Returns a number rounded to a specific number of decimal places. p. 330

10. **IsNull Function (I)\_**Checks whether a field has no value. p. 331

11. **IIf Function (F)\_**Evaluates an expression and displays one value when the expression is true and another value when the expression is false. p. 331

12. **Nesting Functions (L)\_**Using one function within another function. p. 334

13. **Date Arithmetic (D)\_**Used to create expressions to calculate lapsed time. p. 335

14. **Date Formatting (C)\_**Affects the date’s display without changing the actual underlying value in the table. p. 335

15. **DatePart Function (E)\_**An Access function that examines a date and returns a portion of the date. p. 335

**Multiple Choice Answer Key**

1. Which of the following is not an example of a data validation technique?

(**a) Descriptive field names**

2. To make a field required, you should:

**(c) Set the Required property in the Field Properties pane in the table’s Design view.**

3. Which field data type enables users to choose from a list of options while entering data?

**(a) Lookup field**

4. The string of characters !\(999") "000\-0000;0;\_ represents which of the following?

**(c) Input mask**

5. To alter the number of options in a lookup field, you should:

**(a) Add, change, or delete the records in the lookup table.**

6. A parameter query enables you to:

**(a) Specify criteria for a field when you run the query.**

7. Which of the following statements about the Round function is false?

**(b) A Round function with a precision of 1 rounds to the nearest integer**

8. Which of the following statements is false?

**(c) A null value means that the value is zero for any type of field.**

9. Which of the following is not a valid condition for an IIf function?

**(b) TodaysDate − 90**

10. Which of the following cannot be extracted by the DatePart function?

**(d) All of the above can be extracted.**