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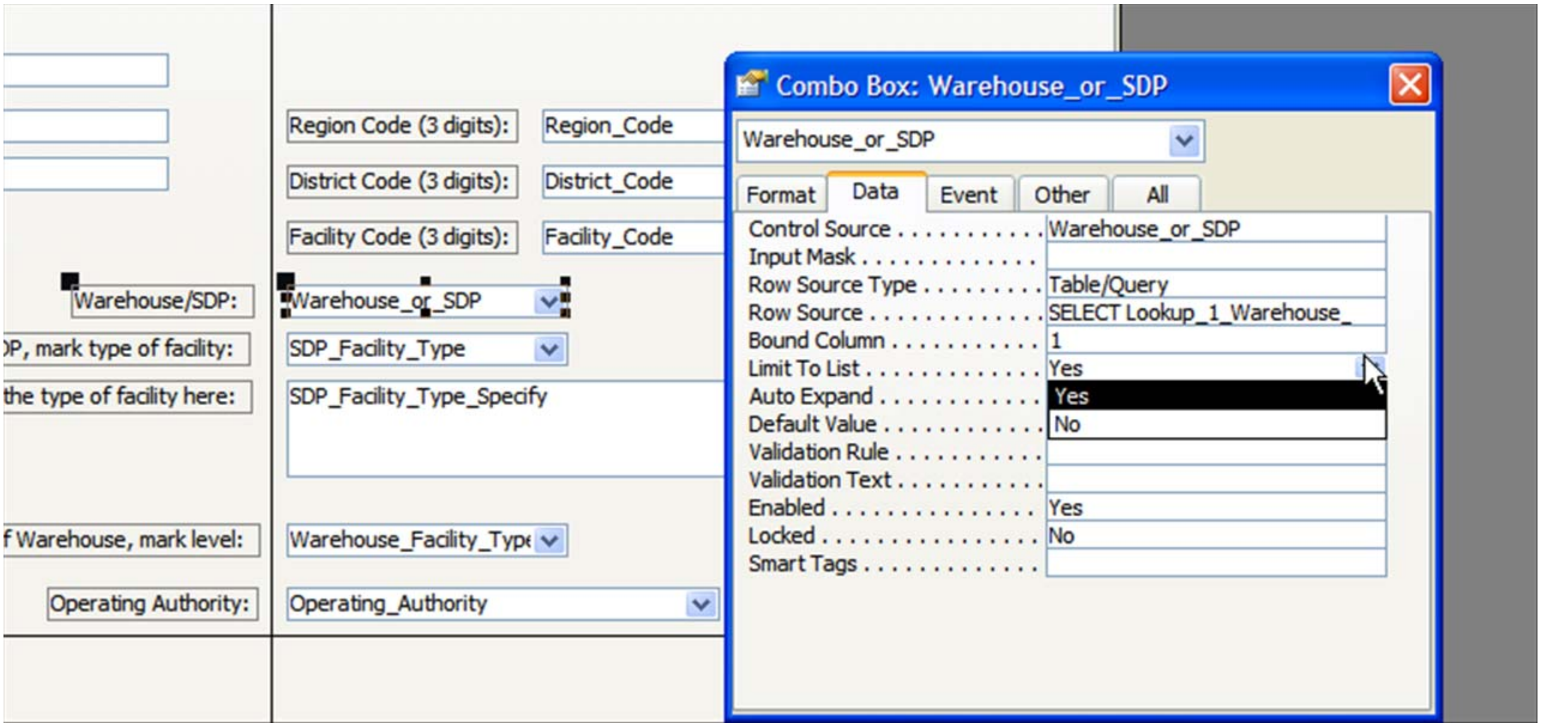
Data Entry Guidelines for the Logistics Indicators Assessment Tool (LIAT)



Region Code (3 digits): Region_Code
District Code (3 digits): District_Code
Facility Code (3 digits): Facility_Code
Warehouse/SDP: Warehouse_or_SDP
P, mark type of facility: SDP_Facility_Type
the type of facility here: SDP_Facility_Type_Specify
f Warehouse, mark level: Warehouse_Facility_Type
Operating Authority: Operating_Authority

Combo Box: Warehouse_or_SDP

Warehouse_or_SDP

Control Source . . . . Warehouse_or_SDP
Input Mask . . . .
Row Source Type . . . . Table/Query
Row Source . . . . SELECT Lookup_1_Warehouse_
Bound Column 1
Limit To List . . . . Yes
Auto Expand . . . . Yes
Default Value . . . . No
Validation Rule . . . .
Validation Text . . . .
Enabled . . . . Yes
Locked . . . . No
Smart Tags . . . .

MARCH 2011

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Data Entry Guidelines for the Logistics Indicators Assessment Tool (LIAT)

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USAID | DELIVER PROJECT, Task Order 1
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Contents

Database Preparation 1
  Country-Specific Needs 1
  Modifying your Microsoft Access Database 2
Guidelines for Training Data Entry Personnel 7
  Overview of the LIAT Questionnaire 7
  Using Microsoft Access for LIAT Data Entry 7
Checking Double Data Entry 13
  Getting Started 13
  Cross-Checking Data 16
  Correcting Errors 18
  Troubleshooting 18
  Other Useful Information 21
Data Entry Quick Start Guide 23

Tables

  1. Country-Specific Adaptations That Should Be Considered When Using the LIAT 1
  2. LIAT Questionnaire Sections 7

Database Preparation

Country-Specific Needs

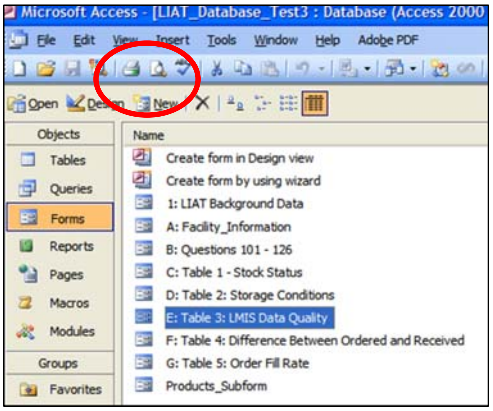
To facilitate the collection of quality data in a facility-based supply chain assessment, it is essential to adapt the Logistics Indicators Assessment Tool (LIAT) so that it addresses the specific parameters of a given country's supply chain. Among other elements, this includes referring to the exact products being assessed and corresponding logistics information (e.g., order interval), as well as to the logistics management forms that are in use. Table 1 summarizes key adaptations that should be considered.

Table 1. Country-Specific Adaptations That Should Be Considered When Using the LIAT

Elements	Location	Instructions
Country name and year	Form 1: LIAT Background Data	Enter the name of the country and the year in which the assessment is being conducted.
Products and units	Form 1: LIAT Background Data	Enter the names and units of count for products to be surveyed for Table 1: Stock Status. If a subset of products will be used for tables 3–5, check the *sample* box for those products. Enter the maximum stock level, minimum stock level, and order interval for each product at each level of the supply chain.
Form labels for question 102, responses A and B	Form B: Questions 101–126	Rename the labels for A and B so that they correspond with the country-specific form names.
Additional variables	Forms A–G	See page 4, Adding and Deleting a Skip, for an overview of the steps to add additional variables.

Modifying your Microsoft Access Database

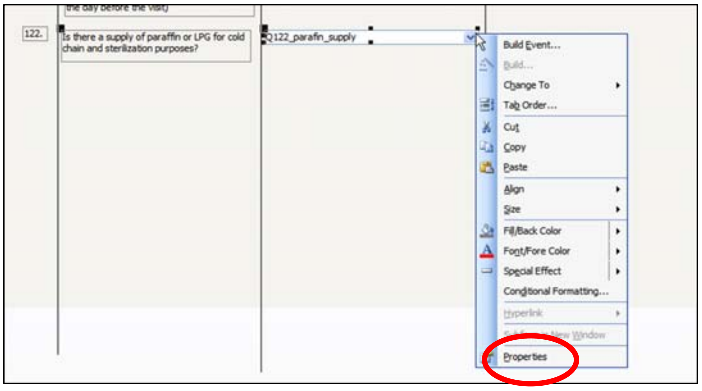
Most modifications made to your Access database will require you to open tables or forms in *Design View*. To do this, select the form or table so that it is highlighted on the screen, and then click on the *Design* button.


Microsoft Access - [LIAT_Database_Test3 : Database (Access 2000
File Edit View Insert Tools Window Help Adobe PDF
Open Design New
Objects
Tables
Queries
Forms
Reports
Pages
Macros
Modules
Groups
Favorites
Name
Create form in Design view
Create form by using wizard
1: LIAT Background Data
A: Facility_Information
B: Questions 101 - 126
C: Table 1 - Stock Status
D: Table 2: Storage Conditions
E: Table 3: LMIS Data Quality
F: Table 4: Difference Between Ordered and Received
G: Table 5: Order Fill Rate
Products_Subform

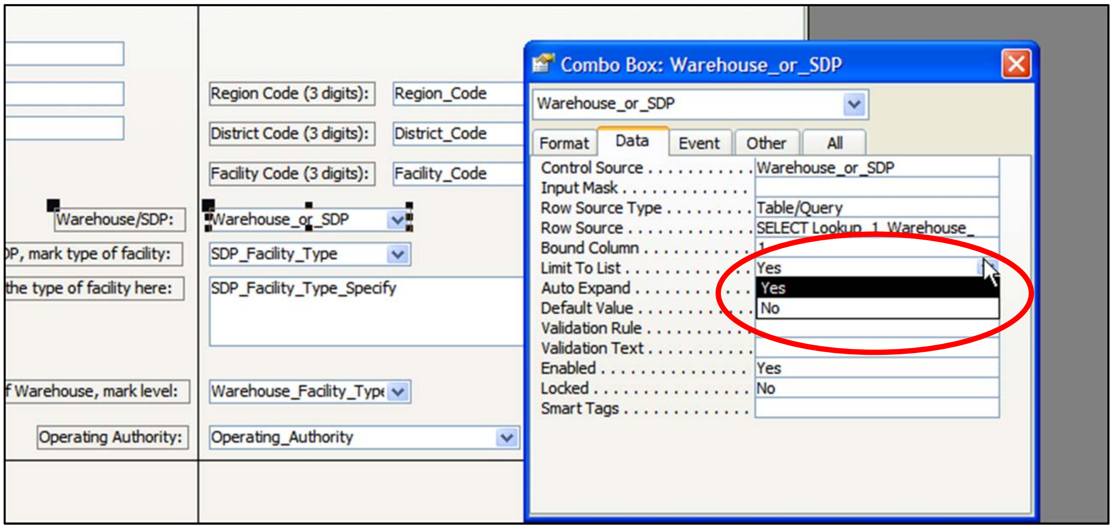
Limit to List

The *Limit to List* function is activated for many fields in the database to ensure that data entry personnel do not accidentally enter an incorrect response as they are tabbing through the forms. If an incorrect response is entered, a prompt comes up and stops the user from moving forward. If *Limit to List* blocks a user from entering a response the way it is recorded on the questionnaire, it is possible to disable the function:

1. Go to Design View.
2. Click on the field you wish to edit.
3. Right-click on the field to go to the Properties menu.


122.
Is there a supply of paraffin or LPG for cold chain and sterilization purposes?
Q122_parafin_supply
Build Event...
Build...
Change To
Tab Order...
Cut
Copy
Paste
Align
Size
Fill/Back Color
Font/Fore Color
Special Effect
Conditional Formatting...
Hyperlink
Properties

   a. Under the *Data* tab, find *Limit to list.*
   b. Change *Yes* to *No.*



Region Code (3 digits): Region_Code
District Code (3 digits): District_Code
Facility Code (3 digits): Facility_Code
Warehouse/SDP: Warehouse_or_SDP
P, mark type of facility: SDP_Facility_Type
the type of facility here: SDP_Facility_Type_Specify
f Warehouse, mark level: Warehouse_Facility_Type
Operating Authority: Operating_Authority

Warehouse_or_SDP

Control Source . . . . Warehouse_or_SDP
Input Mask . . . .
Row Source Type . . . . Table/Query
Row Source . . . . SELECT Lookup_1_Warehouse_
Bound Column 1
Limit To List . . . . Yes
Auto Expand . . . . Yes
Default Value . . . . No
Validation Rule . . . .
Validation Text . . . .
Enabled . . . . Yes
Locked . . . . No
Smart Tags . . . .

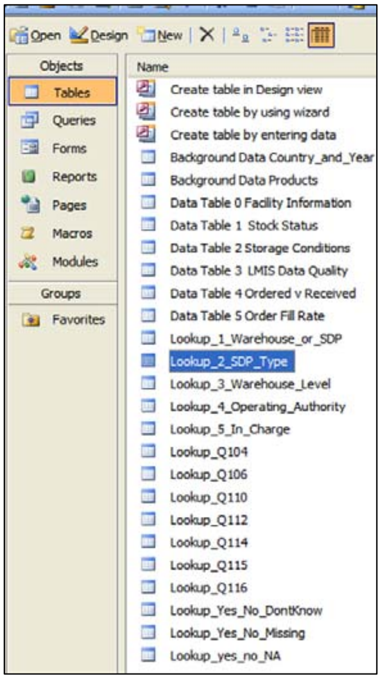
Look-Up Fields

Some fields in these forms are linked to drop-down menus that draw from *look-up* tables. You may need to make edits and additions to these tables during data collection. Most look-up tables are numbered either in the order they appear in the database or to correspond to a specific question in the LIAT. Some tables are used multiple times, such as those that contain the responses *Yes*, *No*, and *Missing*. These tables are not numbered.

To add a response to a Look-up table—

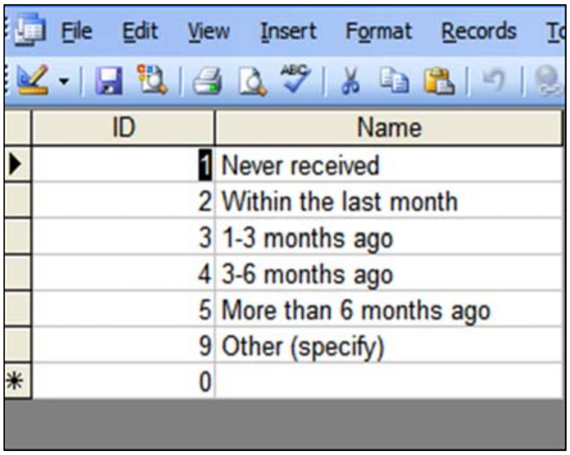
1. Close the form.

2. Go to the *Objects* menu and choose *Tables*.



Create table in Design view
Create table by using wizard
Create table by entering data
Background Data Country_and_Year
Background Data Products
Data Table 0 Facility Information
Data Table 1 Stock Status
Data Table 2 Storage Conditions
Data Table 3 LMIS Data Quality
Data Table 4 Ordered v Received
Data Table 5 Order Fill Rate
Lookup_1_Warehouse_or_SDP
Lookup_2_SDP_Type
Lookup_3_Warehouse_Level
Lookup_4_Operating_Authority
Lookup_5_In_Charge
Lookup_Q104
Lookup_Q106
Lookup_Q110
Lookup_Q112
Lookup_Q114
Lookup_Q115
Lookup_Q116
Lookup_Yes_No_DontKnow
Lookup_Yes_No_Missing
Lookup_yes_no_NA

3. Open the appropriate Look-up table.
4. At the bottom of the list, write the response as a new record on this list. You must enter both a number in the *ID* field and a text description in the *Name* field. Enter the wording exactly as it is recorded on the survey (unless it is only a minor spelling mistake).



ID	Name
1	Never received
2	Within the last month
3	1-3 months ago
4	3-6 months ago
5	More than 6 months ago
9	Other (specify)
0	

5. Save the table and close it to go back to the form.

Adding and Deleting a Skip

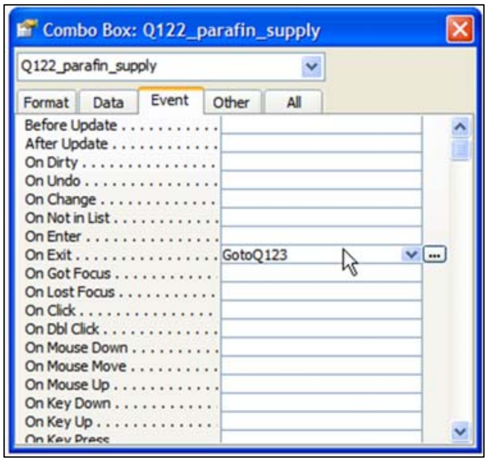
Data entry forms can be programmed so that the cursor moves to the next appropriate field based on skip instructions in the questionnaire. When new fields are added, the steps below should be taken before data entry begins to maintain the skip pattern. If there are questions in the paper-based forms that do not appear in the database, contact your survey administrator for help including them in the database.

1. Add a variable for the question in the appropriate table. Make sure that the variable is named in such a way as to make it clear where the question falls in the survey. Renumber the variables following your new variable, in order, in the table.
2. Include the variable in any queries that populate the database data entry forms (for standard LIAT databases, forms B–G are populated by queries).
3. Add the variable to the data entry form in *Design View*.
4. Renumber the other variables in the form to match the new order.
5. Add Skip patterns as *Macros* to the new variable if needed.

Sometimes this programming stops working and interferes with data entry. The Data Analyst should decide when a skip needs to be deleted. To delete a skip—

1. Go to Design View.
2. Go to the Properties menu for the field in question. This is done by selecting the field by left-clicking on it, and then right-clicking to bring up the pop-up menu where you can choose Properties (it is the last entry on the menu).

3. Under the Event tab, find the row with an entry (there is normally only one entry). On the far right side of that row, click on the three dots (…) that appear next to the row. A new window will then open.



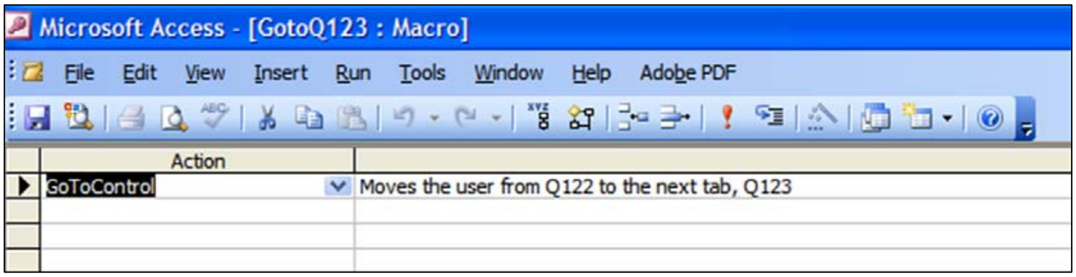
Combo Box: Q122_parafin_supply

Q122_parafin_supply

On Exit GotoQ123

Format
Data
Event
Other
All
Before Update
After Update
On Dirty
On Undo
On Change
On Not in List
On Enter
On Got Focus
On Lost Focus
On Click
On Dbl Click
On Mouse Down
On Mouse Move
On Mouse Up
On Key Down
On Key Up
On Key Press

4. Delete the commands in the new window, then click the "save" icon on the top left toolbar. Close the new window, and then close the properties menu. Save the form in design view and go back to form view to continue entering data.



Microsoft Access - [GotoQ123 : Macro]

Action	
GoToControl	Moves the user from Q122 to the next tab, Q123

File
Edit
View
Insert
Run
Tools
Window
Help
Adobe PDF

Guidelines for Training Data Entry Personnel

Training is centered on hands-on practice in entering data collected with the LIAT. If possible, use data from the pretest facilities that the data collectors visited during data collection training.

It is best to supervise data entry personnel during the practice data entry session, providing immediate feedback (instead of a review at the end of the session) to help resolve misunderstandings and errors. Similarly, personnel should be urged to ask questions before entering data. All efforts should be made to ensure that decisions on how to enter data for particular questions are clear to every member of the data entry team so that uniform databases are achieved.

Overview of the LIAT Questionnaire

Using table 2 below, explain to participants how the LIAT questionnaire is divided into seven sections for entry into the database: form A–G.

Table 2. LIAT Questionnaire Sections

Paper-based LIAT Section	Corresponding Database Form	Optional?
Facility Services and Infrastructure, Questions 01–05	A: Facility Information	No
Questions 101–126, including optional cold-chain questions 117–122	B: Questions 101–126	No (except Q117–122)
Table 1, Stock Status	C: Table 1, Stock Status	No
Table 2, Storage Conditions	D: Table 2, Storage Conditions	No
Table 3, LMIS Data Quality	E: Table 3, LMIS Data Quality	Yes
Table 4, Percentage Difference Between Quantity Ordered and Quantity Received	F: Table 4, Difference Between Ordered and Received	Yes
Table 5, Order Fill Rate to Be Calculated at Issuing Warehouses	G: Table 5, Order Fill Rate	Yes

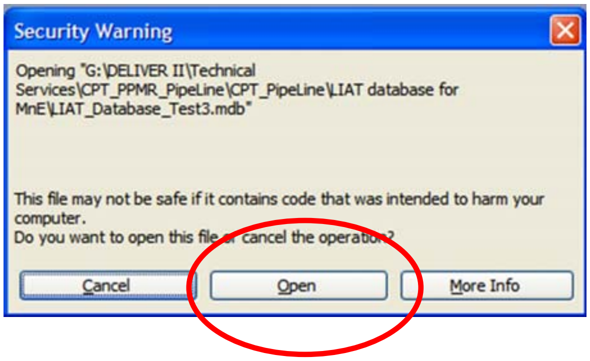
Remind trainees that it is important to check the paper copy of the survey completely to be sure they have entered *all* data before starting a new record.

Using Microsoft Access for LIAT Data Entry

Review the database structure and data entry forms, and go through several examples of how to enter sample data.

Begin by downloading a pre-prepared Microsoft Access database to your computer for display (preferably using a projector) to the trainees. The file will have a name like *LIATdatabase_2008.CoteIvoire.mdb*. Edit the year and country name as needed.

A security warning will pop up when you open the file. Select *Open* in response to the warning.



Opening "G:\DELIVER II\Technical Services\CPT_PPMR_PipeLine\CPT_PipeLine\LIAT database for MnE\LIAT_Database_Test3.mdb"

This file may not be safe if it contains code that was intended to harm your computer.
Do you want to open this file or cancel the operation?

Database Structure

Use the table below to explain to the participants that the data from the questionnaires will be entered into the MS Access database using seven different *forms*. There is one form for each section of the survey. Double-click on the form to open it, and then enter data from the paper survey on the form. The data they enter will be stored in seven different *tables*, one for each section of the questionnaire.

Data entered in Form:	**…is stored in table:**
A: Facility Information	Data Table 0 Facility Information
B: Questions 101–126	Data Table 0 Facility Information
C: Table 1, Stock Status	Data Table 1, Stock Status
D: Table 2, Storage Conditions	Data Table 2, Storage Conditions
E: Table 3, LMIS Data Quality	Data Table 3, LMIS Data Quality
F: Table 4, Difference Between Ordered and Received	Data Table 4, Ordered v. Received
G: Table 5, Order Fill Rate	Data Table 5, Order Fill Rate

Note that two additional tables, *Country_and_Year* and *Products*, will be populated by the data analyst before you begin entering data. Participants do not need to open or edit these tables unless the data analyst instructs them to do so.

Display the tables in *Design View* to view the labels for each field and to show how to toggle between the database and design views. However, do not alter data. If necessary, the data analyst should do this.

Entering Data

Participants should keep a copy of the Data Entry Quick Start Guide (see page 21 of this document) nearby to help remind them of the steps for entering survey data from the LIAT.

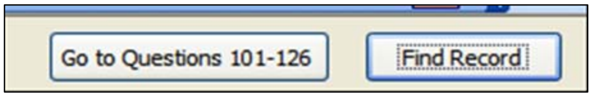
For practice, each participant will enter data for one facility at a time. **Do not split up the sections for one facility between participants**. When each trainee has finished entering all of the information for a facility into his or her database, the trainee should write his or her initials in the top left corner of the first page of the survey form. This will signify that the form is ready to be passed to another participant. Subsequent trainees should also initial at the top left corner after finishing data entry.

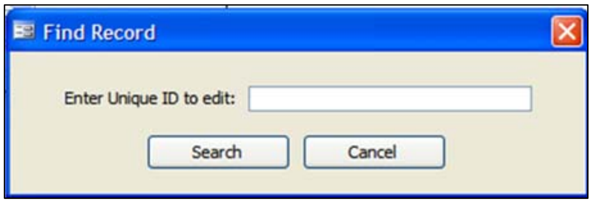
Data will be entered into the database forms using a data field for each question. Many fields have drop-down menus from which you can select a response that matches the response written on the questionnaire. In most cases, the drop-down menus have two columns: one on the left with numbers and one on the right with words. Participants should select the response that matches what is marked on the questionnaire. It may be easiest to type the marked numeric response from the questionnaire directly into each field. Although the drop-down lists include both numbers and descriptions, only the numbers will be displayed in the field and stored in the data tables.

Advise trainees that—

1. The numbers they enter in a field remain posted if they use the Tab key to toggle to the next field. It is always best to use the Tab key to move to the next field and next record, not the mouse. This is the fastest way to enter data and will allow the database to move the cursor automatically to the next appropriate field. If you use a mouse, it will take longer, and there is a greater chance for data entry errors. Furthermore, it is also advisable to avoid using a mouse with a rolling wheel in between the buttons because the wheel can sometimes scroll a user to the next blank record, increasing the possibility that data will be entered in the wrong field.
2. To go back to a previous field, use the arrow keys or press the Shift and Tab keys together.
3. There are automatic skips programmed into the database. After entering a response to a question with a skip and hitting the *Tab* button, the cursor will automatically go to the correct field and will gray out any unneeded fields.

When participants have completed data entry in one section of the database, they should use the *Go to…* button at the top of each form to open the next form. If you need to go back and edit data from a previously entered survey, finish the survey you are working on first, then go back to the appropriate form and edit the data from the previously entered survey. Open the form and click on the *Find Record* button to bring up the survey you wish to edit.





Other rules for trainees to keep in mind when entering data:

- Enter data exactly as they appear on the questionnaire.
- Dates should be entered using numbers. For example, write in 15, 2, 2007 for February 15, 2007.

- If you notice cases where *other (specify)* fits in one of the precoded categories, check with the data analyst.
- If a skip/filter is not followed in the questionnaire, record responses exactly as they appear on the questionnaire and make a note of this issue at the bottom of the form in the field called *Data Entry Comments*. If possible, go back to the data collectors to ask why the responses were recorded this way. In general, the *Data Entry Comments* field should be used to enter any explanations of problems encountered with the database, questions about the data themselves from the questionnaires, or actions taken that do not follow established guidelines. This information will be stored in the database and will be very helpful in the analysis phase.
- If you cannot understand a response written on the questionnaire, consult the data analyst. If necessary, circle the question in pencil and go back to the data collectors to ask what the response is.
- Finish entering all of the data for a particular form before taking a break.
- In the paper survey and the database, go all the way through tables 3, 4, and 5 (forms E, F and G) to ensure that any data that exist for those tables are entered.

Creating Unique ID Numbers

The data collection team leader should already have written a unique ID number on each survey packet and questionnaire. To explain how unique ID numbers are formulated, tell the participants—

1. Characters #1–2 of the unique ID should be *ID*. Each ID must begin with these two letters.
2. Characters #3–5 of the unique ID are the region code. This code is three digits long. Examples of region codes include 100, 003, and 025. Always enter the code as three digits, using zeroes where needed.
3. Characters #6–9 are the three-digit district code. This code is also three digits long. Always enter the code as three digits, using zeroes where needed.
4. Characters #10–12 of the unique ID are the three-digit facility code. Always enter the code as three digits, using zeroes where needed.

Summarize by saying that each completed survey should have a unique ID with the following structure: "ID" + Region Code + District Code + Facility Code, such as in the following examples:

- ID006001025 (ID + Region 006 + District 001 + Facility 025)
- ID055148003 (ID + Region 055 + District 148 + Facility 003)
- ID290014889 (ID + Region 290 + District 014 + Facility 889).

Types of Questions

Provide the examples below of all question formats found in the LIAT questionnaire and review the related guidelines on how to enter responses.

For *single response questions*, like #117 and #118 below, enter the number that corresponds to the response (e.g., 1 for *Yes* in #117).

117	Did your last supervision visit include drug management (e.g., stockcards checked, reports checked, expired stock removed, storage conditions checked)?	Yes No Don't know	1 0 9
118	When was the last time you sent an order/report for products at this facility?	Never Within the last month 2 months ago 3 months ago More than 3 months ago	0 1 2 3 4

For *multiple response questions*, like #109 below, there is a field for each of the letter options. None of these fields should be left blank: enter a 1 to indicate *yes* for every item that is circled and a 0 to indicate *no* for items not circled. Enter 9 in all fields for *missing* when the entire question appears to have been overlooked.

In the particular example of #109 below, *W* is offered for responses not otherwise listed. If a respondent circled *W*, data entry personnel would enter a 1 (yes) for *W* and record the written response from the questionnaire in the text field called *other (specify)*. If *W* is chosen, but nothing is written, *nothing written* should be typed into the *other (specify)* field.

109	How did you learn to complete the forms/records used at this facility? (Circle all that apply.)	During a logistics workshop On-the-job training Never been trained Other (specify)	A B C W

For *numeric response questions*, such as #107, write the number that is recorded on the questionnaire. If nothing is recorded, make a note under Data entry comments and request instructions from the data analyst. Do not write 00 if the question is blank on the questionnaire.

107	How many facilities are supposed to send LMIS reports to this facility?	________________

For *open-ended response questions*, type the response exactly as it appears on the completed questionnaire.

Saving Data

Advise the participants that the Microsoft Access file will automatically save most changes as they are made (however, when prompted, users must choose whether to save).

At the end of each day, close all the forms you have been working in and back up the database file onto a separate external flash drive. To back up the file, go to *File* menu and select *Backup Database* , or, if you are using a version of Windows without the *Backup* command, use *Save as*, making sure to back up to an external drive and not the computer's hard drive.

When you are finished backing up the file on the external drive, remember to remove it immediately afterward and store it in a safe place. Be sure to work on the hard drive version every day when you start again.

Checking Double Data Entry

To reduce the likelihood of errors, information from completed surveys is entered into two separate Access databases. The databases are then cross-checked to identify discrepancies, and to facilitate the creation of a single, final version of the database. The survey administrator is responsible for the double data entry checking and reconciling process.

When organizing an assessment in which data will be collected from more than 100 facilities, it is recommended that four data entry personnel be hired to work in teams of two. For smaller assessments, it is usually sufficient to have two data entry personnel working separately. In both cases, a double data entry data approach should be used. Sufficient office space should be secured to enable members of the same data team to sit together and work from the same set of completed LIAT forms, and a proper place should always be reserved to store all forms after they have been entered.

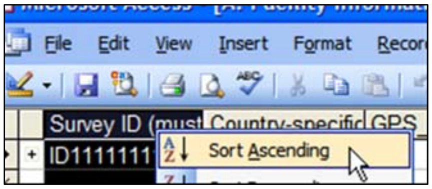
Cross-checking is performed using Excel; tasks can be automated by using macros. Commands for macros are written in a programming language called Visual Basic for Applications (VBA). **Macro for Data Cleaning.xls** is a macro that has been programmed in VBA to check whether the information in a cell on one database sheet (called *First Try*) is the same as in a second database sheet of the same type (called *Second Try*).[1] Discrepancies are automatically listed in a third sheet (called *Errors Explained*). It is therefore essential that double entry databases be structured exactly the same and contain all information in the identical order.

Getting Started

Step 1. Exporting Tables from Access to Excel

The following steps must be repeated for every table.

1. Open the table you wish to export by clicking on *Tables* in the *Object* start-up screen, and then double-clicking on the table.
2. Right-click on the *Survey ID* column and left-click on *Sort Ascending*. (It will be very important for comparison that the two tables are sorted alphabetically either A–Z or Z–A but not both.)



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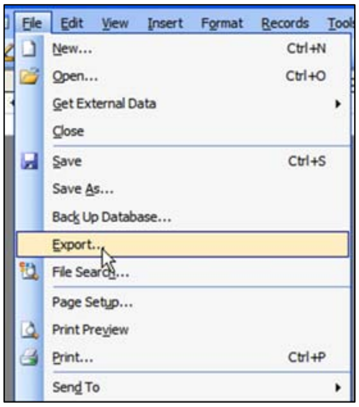
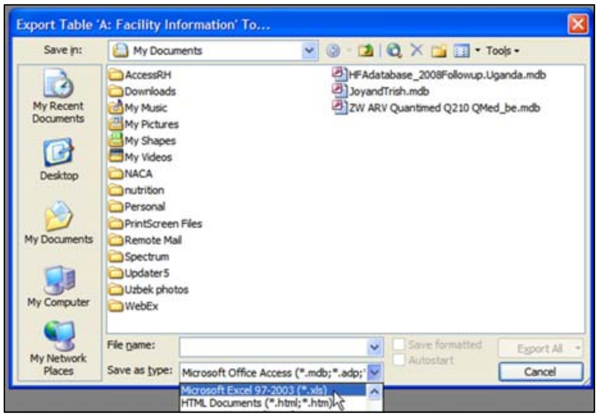
[1] At this time, we are unable to identify the origin of the macro.

3. Go to: *File > Export.*


File Edit View Insert Format Records Tools
New... Ctrl+N
Open... Ctrl+O
Get External Data
Close
Save Ctrl+S
Save As...
Back Up Database...
Export...
File Search...
Page Setup...
Print Preview
Print... Ctrl+P
Send To

4. In *Save as type*, select *Microsoft Excel 97–2003*. The file name will automatically be the current table name. It is essential to recognize which table is from which database. It may be useful want to add *dataclerk1* or *dataclerk2* as a suffix to the file name.


Export Table 'A: Facility Information' To...
Save in:
My Documents
Tools
My Recent Documents
Desktop
My Documents
My Computer
My Network Places
AccessRH
Downloads
My Music
My Pictures
My Shapes
My Videos
NACA
nutrition
Personal
PrintScreen Files
Remote Mail
Spectrum
Updater5
Uzbek photos
WebEx
HFAdatabase_2008Followup.Uganda.mdb
JoyandTrish.mdb
ZW ARV Quantimed Q210 QMed_be.mdb
File name:
Save formatted
Autostart
Export All
Cancel

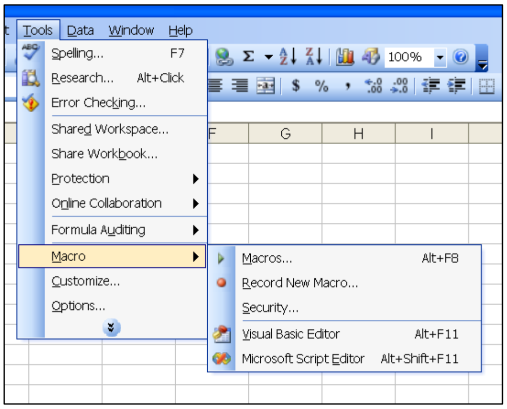
Save as type: Microsoft Office Access (*.mdb;*.adp;
Microsoft Excel 97-2003 (*.xls)
HTML Documents (*.html;*.htm)

5. Select *Export All.*

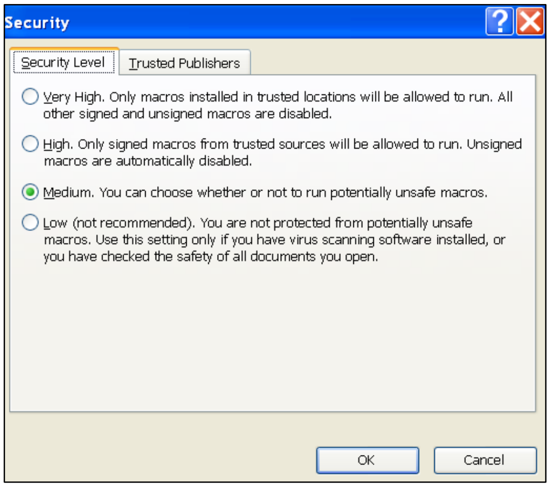
6. Repeat steps for all tables that you are checking so that you now will just be working in Excel.

Step 2. Preparing Excel

1. Make sure Excel is set to *Medium Security* so that the macro can run (this only needs to be done once). Do this by opening any Excel workbook and going to *Tools>Macro>Security*.


Tools Data Window Help
Spelling... F7
Research... Alt+Click
Error Checking...
Shared Workspace...
Share Workbook...
Protection
Online Collaboration
Formula Auditing
Macro
Customize...
Options...
Macros... Alt+F8
Record New Macro...
Security...
Visual Basic Editor Alt+F11
Microsoft Script Editor Alt+Shift+F11
100%
F
G
H
I

2. On "Security Level" Tab select Medium and click *OK*.



○ Very High. Only macros installed in trusted locations will be allowed to run. All other signed and unsigned macros are disabled.

○ High. Only signed macros from trusted sources will be allowed to run. Unsigned macros are automatically disabled.

● Medium. You can choose whether or not to run potentially unsafe macros.

○ Low (not recommended). You are not protected from potentially unsafe macros. Use this setting only if you have virus scanning software installed, or you have checked the safety of all documents you open.

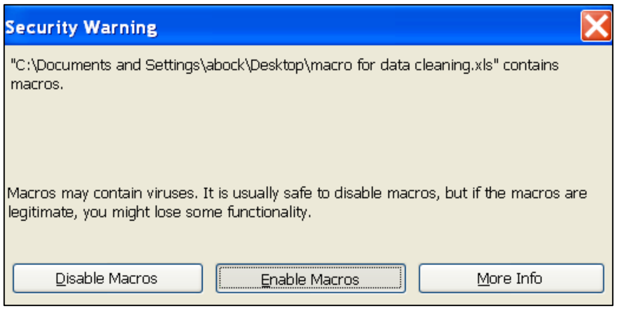
3. Close Excel by going to *File>Exit*.

Step 3. Ensuring that the Macro File Is Clean

Warning

Viruses can be transmitted through macros. Changing your settings to *Medium* will mean that unsigned macros are not automatically disabled. Although Macro for Data Cleaning.xls is unsigned, its source is known and is safe. If you do not change your settings back to *High* or *Very High* following this exercise, you should be very careful opening up any files you receive, especially those with macros.

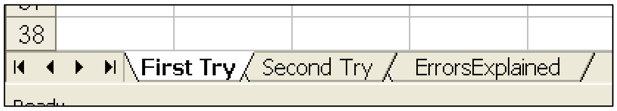
1. Open the "Macro for Data Cleaning.xls" file.
2. Select *Enable Macros* when security warning appears.



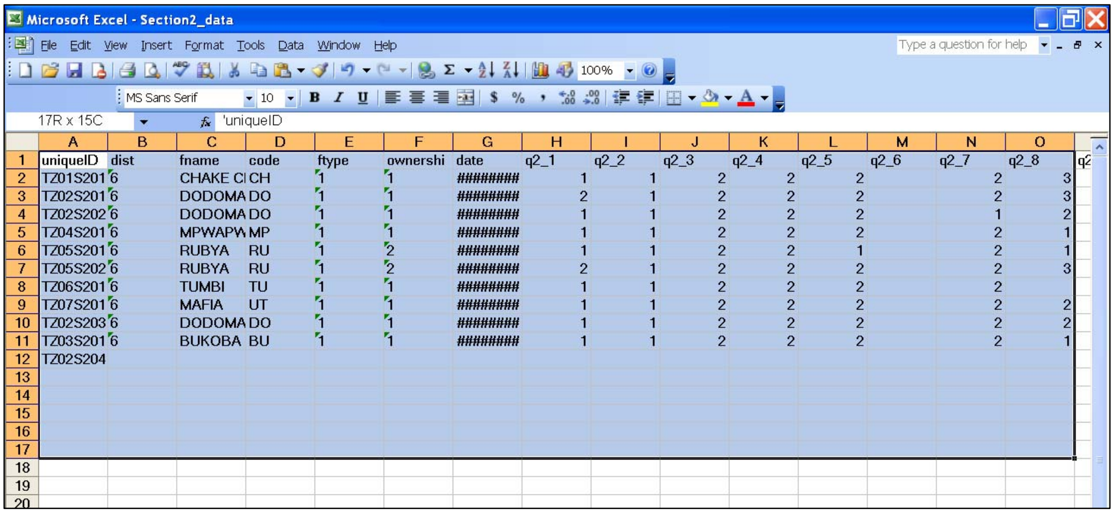
"C:\Documents and Settings\abock\Desktop\macro for data cleaning.xls" contains macros.

Macros may contain viruses. It is usually safe to disable macros, but if the macros are legitimate, you might lose some functionality.

3. Check in the lower left-hand portion of the screen to ensure that the file has three sheets: *First Try*, *Second Try*, and *Errors Explained*.



4. Make sure that all three sheets are clean (empty) before you paste in the data. Click on cell A1 and, while holding down the left button, drag your mouse, highlighting all cells, until the last column and row with information inside. **Do not click the cell in far upper left-hand corner of the spreadsheet to delete information because this will also delete the programming in the macro.**


Microsoft Excel - Section2_data
File Edit View Insert Format Tools Data Window Help
Type a question for help
100%
MS Sans Serif
10
17R x 15C
'uniqueID

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	uniqueID	dist	fname	code	ftype	ownershi	date	q2_1	q2_2	q2_3	q2_4	q2_5	q2_6	q2_7	q2_8
2	TZ01S201	6	CHAKE CI	CH	1	1	########	1	1	2	2	2		2	3
3	TZ02S201	6	DODOMA	DO	1	1	########	2	1	2	2	2		2	3
4	TZ02S202	6	DODOMA	DO	1	1	########	1	1	2	2	2		1	2
5	TZ04S201	6	MPWAPW	MP	1	1	########	1	1	2	2	2		2	1
6	TZ05S201	6	RUBYA	RU	1	2	########	1	1	2	2	1		2	1
7	TZ05S202	6	RUBYA	RU	1	2	########	2	1	2	2	2		2	3
8	TZ06S201	6	TUMBI	TU	1	1	########	1	1	2	2	2		2	
9	TZ07S201	6	MAFIA	UT	1	1	########	1	1	2	2	2		2	2
10	TZ02S203	6	DODOMA	DO	1	1	########	1	1	2	2	2		2	2
11	TZ03S201	6	BUKOBA	BU	1	1	########	1	1	2	2	2		2	1
12	TZ02S204														
13															
14															
15															
16															
17															
18															
19															
20															

Cross Checking Data

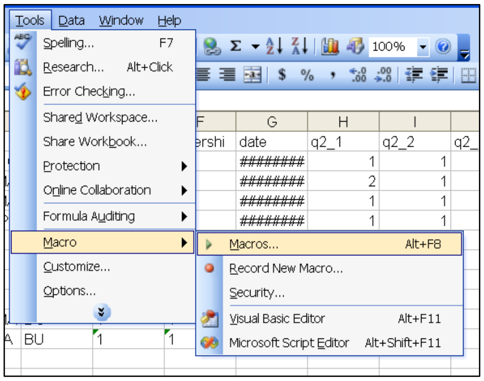
Step 1. Adding Data to a Macro File

Open the first exported table (e.g., TableA-dataclerk1.xls) and paste into the *First Try* sheet of the Macro file. Copy data from the second table and paste it into the *Second Try* sheet. **If data were not sorted previously in the Access database based on "unique ID," this must be done before copying and pasting data into the Excel macro.**

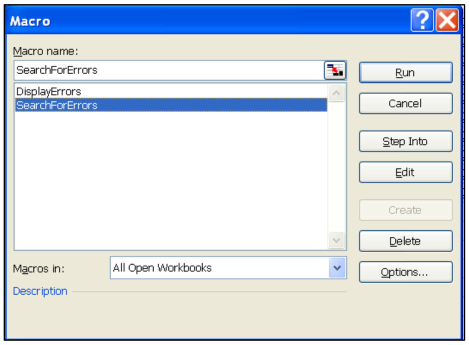
Step 2. Running Macro

At this point, complete tables should be in the *First Try* and *Second Try* sheets.

1. Click on *Tools>Macro>Macros…* (or Alt+F8).


Tools Data Window Help
Spelling... F7
Research... Alt+Click
Error Checking...
Shared Workspace...
Share Workbook...
Protection
Online Collaboration
Formula Auditing
Macro
Customize...
Options...
Macros... Alt+F8
Record New Macro...
Security...
Visual Basic Editor Alt+F11
Microsoft Script Editor Alt+Shift+F11
100%
G
H
I
date
q2_1
q2_2
########
BU

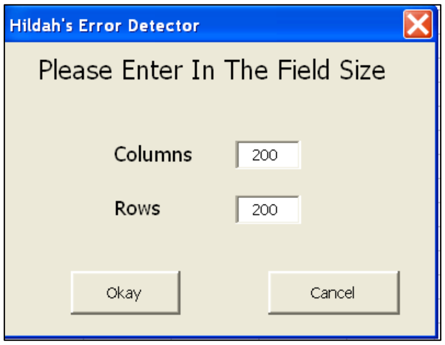
2. Select *Search for Errors* and click on *Run.*


Macro
DisplayErrors
SearchForErrors
Run
Cancel
Step Into
Edit
Create
Delete
Options...
Description

Macro name: SearchForErrors

Macros in: All Open Workbooks

3. Enter the number of columns and rows into the *Hildah's Error Detector* dialog box and click *Okay*. The workbook will automatically be directed to the Error Explain, where discrepancies between tables 1 and 2 will be shown. If the two tables are identical, the sheet will be empty and no message will be displayed. **An empty sheet could also mean that the macro was deleted from the workbook (possibly during step 3 of *Getting Started*). If you think this might have happened, close the Excel sheet without saving and start over.**


Hildah's Error Detector
Okay
Cancel

Please Enter In The Field Size

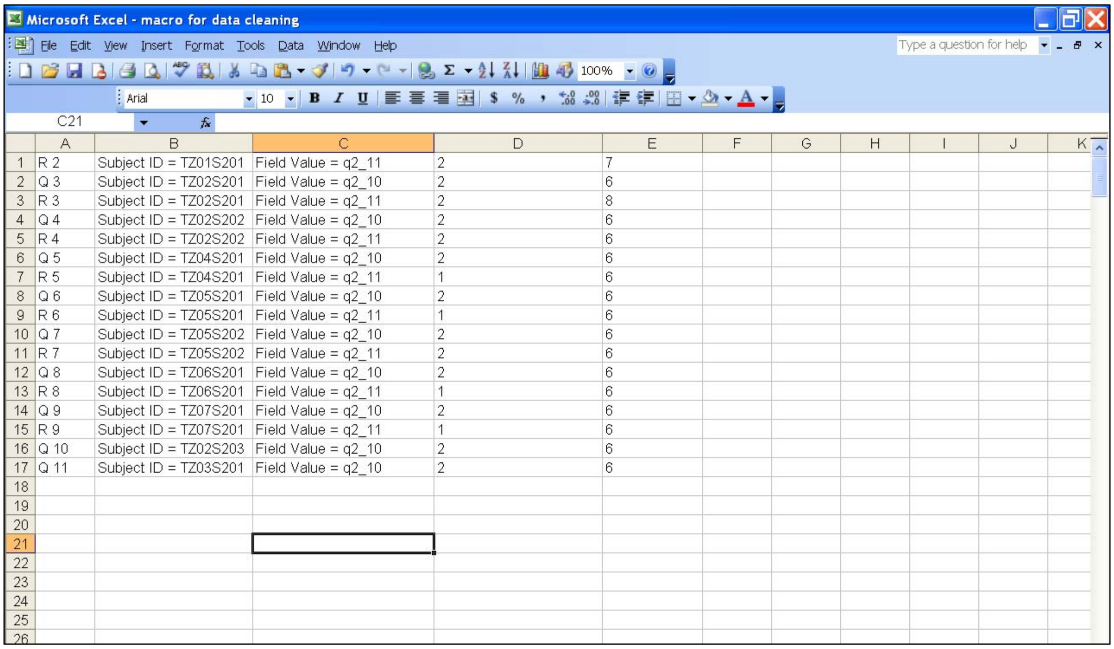
Columns 200

Rows 200

Step 3: Understanding the Error Explain Sheet

- **Column A** identifies the cells in which there is a discrepancy between the *First Try* and *Second Try* sheets.
- **Column B** provides the "UniqueID" of records with discrepancies (or the data listed in column A in the *First Try* sheet).
- **Column C** shows the question numbers containing discrepancies (or the data listed in Row 1 of the *First Try* sheet).
- **Column D** lists corresponding data from the *First Try* sheet.
- **Column E** lists corresponding data from the *Second Try* sheet.

Consult the "Troubleshooting" section of this document (beginning on the next page) to resolve common problems with the sheet that may be preventing you from easily understanding discrepancies that were identified.


Microsoft Excel - macro for data cleaning
File Edit View Insert Format Tools Data Window Help
Type a question for help
Arial
10
100%
C21

	A	B	C	D	E
1	R 2	Subject ID = TZ01S201	Field Value = q2_11	2	7
2	Q 3	Subject ID = TZ02S201	Field Value = q2_10	2	6
3	R 3	Subject ID = TZ02S201	Field Value = q2_11	2	8
4	Q 4	Subject ID = TZ02S202	Field Value = q2_10	2	6
5	R 4	Subject ID = TZ02S202	Field Value = q2_11	2	6
6	Q 5	Subject ID = TZ04S201	Field Value = q2_10	2	6
7	R 5	Subject ID = TZ04S201	Field Value = q2_11	1	6
8	Q 6	Subject ID = TZ05S201	Field Value = q2_10	2	6
9	R 6	Subject ID = TZ05S201	Field Value = q2_11	1	6
10	Q 7	Subject ID = TZ05S202	Field Value = q2_10	2	6
11	R 7	Subject ID = TZ05S202	Field Value = q2_11	2	6
12	Q 8	Subject ID = TZ06S201	Field Value = q2_10	2	6
13	R 8	Subject ID = TZ06S201	Field Value = q2_11	1	6
14	Q 9	Subject ID = TZ07S201	Field Value = q2_10	2	6
15	R 9	Subject ID = TZ07S201	Field Value = q2_11	1	6
16	Q 10	Subject ID = TZ02S203	Field Value = q2_10	2	6
17	Q 11	Subject ID = TZ03S201	Field Value = q2_10	2	6

Correcting Errors

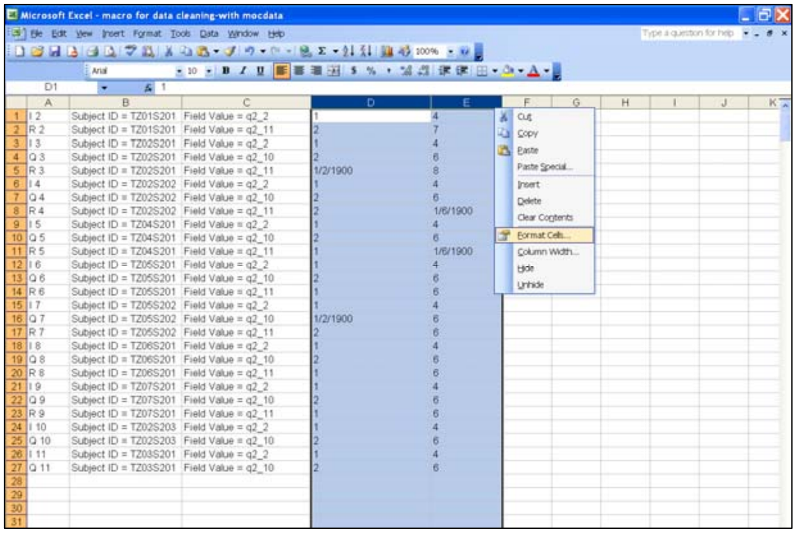
1. Determine whether the *First Try* sheet or *Second Try* sheet has fewer errors by looking at the discrepancies and determining the correct information that should appear (this often requires consulting the hand-written surveys from which data was entered). It is best to make corrections to the sheet that contains fewer initial errors, and then save that version as the final database that will be used for analysis. **Make sure that all corrections in all sections are made to the same database sheet.**
2. Click inside the *uniqueID* box as if you are about to enter a new facility.
3. Using your mouse, click on the *Find Record* button in the *Form view* (located on the right-hand side of screen).
4. Enter the survey ID you wish to edit in a given space.
5. Locate the question and make corrections as needed.

Troubleshooting

Common Problem 1: Numbers Appearing as Dates

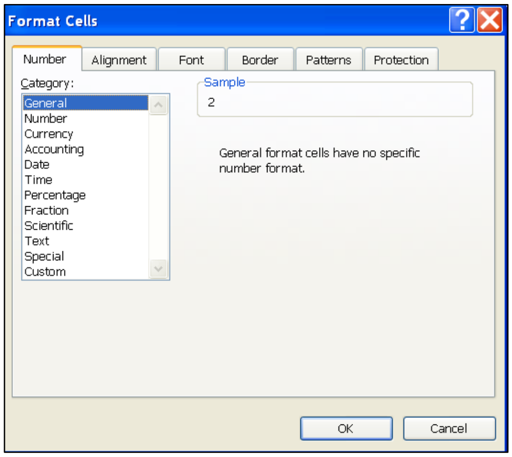
If a date (e.g., 1/21/2010) appears in column D or E when it should be a number:

1. Left-click on the column heading, and then right-click, selecting Format Cells in the pop-up menu.


Microsoft Excel - macro for data cleaning-with mocdata
File Edit View Insert Format Tools Data Window Help
Type a question for help
Arial
10
100%
D1
1
Cut
Copy
Paste
Paste Special...
Insert
Delete
Clear Contents
Format Cells...
Column Width...
Hide
Unhide

	A	B	C	D	E
1	I 2	Subject ID = TZ01S201	Field Value = q2_2	1	4
2	R 2	Subject ID = TZ01S201	Field Value = q2_11	2	7
3	I 3	Subject ID = TZ02S201	Field Value = q2_2	1	4
4	Q 3	Subject ID = TZ02S201	Field Value = q2_10	2	6
5	R 3	Subject ID = TZ02S201	Field Value = q2_11	1/2/1900	8
6	I 4	Subject ID = TZ02S202	Field Value = q2_2	1	4
7	Q 4	Subject ID = TZ02S202	Field Value = q2_10	2	6
8	R 4	Subject ID = TZ02S202	Field Value = q2_11	2	1/6/1900
9	I 5	Subject ID = TZ04S201	Field Value = q2_2	1	4
10	Q 5	Subject ID = TZ04S201	Field Value = q2_10	2	6
11	R 5	Subject ID = TZ04S201	Field Value = q2_11	1	1/6/1900
12	I 6	Subject ID = TZ05S201	Field Value = q2_2	1	4
13	Q 6	Subject ID = TZ05S201	Field Value = q2_10	2	6
14	R 6	Subject ID = TZ05S201	Field Value = q2_11	1	6
15	I 7	Subject ID = TZ05S202	Field Value = q2_2	1	4
16	Q 7	Subject ID = TZ05S202	Field Value = q2_10	1/2/1900	6
17	R 7	Subject ID = TZ05S202	Field Value = q2_11	2	6
18	I 8	Subject ID = TZ06S201	Field Value = q2_2	1	4
19	Q 8	Subject ID = TZ06S201	Field Value = q2_10	2	6
20	R 8	Subject ID = TZ06S201	Field Value = q2_11	1	6
21	I 9	Subject ID = TZ07S201	Field Value = q2_2	1	4
22	Q 9	Subject ID = TZ07S201	Field Value = q2_10	2	6
23	R 9	Subject ID = TZ07S201	Field Value = q2_11	1	6
24	I 10	Subject ID = TZ02S203	Field Value = q2_2	1	4
25	Q 10	Subject ID = TZ02S203	Field Value = q2_10	2	6
26	I 11	Subject ID = TZ03S201	Field Value = q2_2	1	4
27	Q 11	Subject ID = TZ03S201	Field Value = q2_10	2	6

2. In the *Format Cells* dialog box, go to the *General* tab and select *Number*. Then click *OK*.

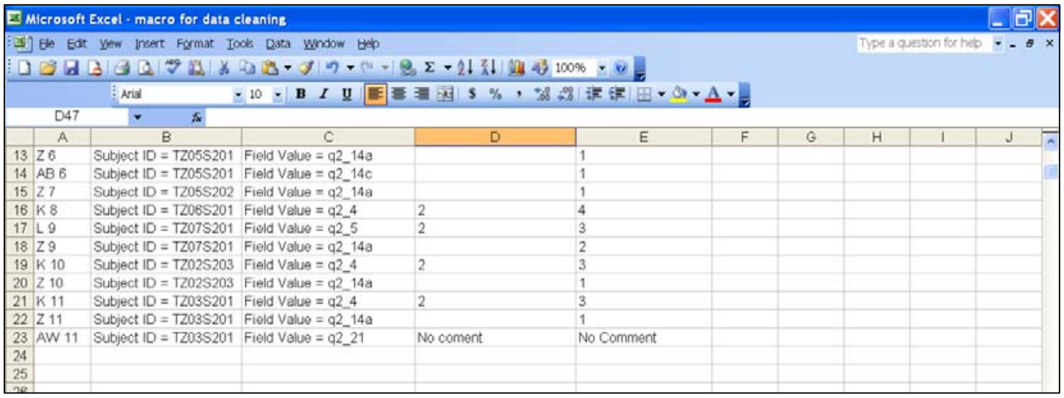

Format Cells
Number
Alignment
Font
Border
Patterns
Protection
Category:
General
Number
Currency
Accounting
Date
Time
Percentage
Fraction
Scientific
Text
Special
Custom
OK
Cancel

Sample
2

General format cells have no specific number format.

Common Problem 2: Discrepancies Caused by Typographical Errors (and the like)

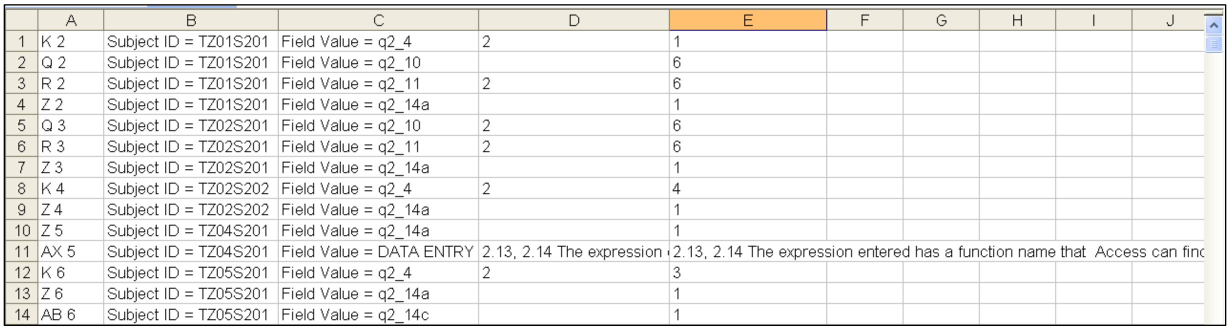
It is important to remember that the macro has been programmed to check whether the information in a cell on the first sheet is the *exactly* the same as that on the second sheet. Therefore, it will still report a discrepancy for identical responses that have been entered differently. For example, line 23 in the figure below shows the same response for both sheets, but a discrepancy is shown because the words *No* and *Comment* are capitalized in the second response, but only the word *No* is capitalized in the first. Similarly, discrepancy reports will occur as the result of spelling mistakes, missing words, or extra spaces between words.


Microsoft Excel - macro for data cleaning
File Edit View Insert Format Tools Data Window Help
Type a question for help
Arial
10
100%
D47

	A	B	C	D	E	F	G	H	I	J
13	Z 6	Subject ID = TZ05S201	Field Value = q2_14a		1					
14	AB 6	Subject ID = TZ05S201	Field Value = q2_14c		1					
15	Z 7	Subject ID = TZ05S202	Field Value = q2_14a		1					
16	K 8	Subject ID = TZ06S201	Field Value = q2_4	2	4					
17	L 9	Subject ID = TZ07S201	Field Value = q2_5	2	3					
18	Z 9	Subject ID = TZ07S201	Field Value = q2_14a		2					
19	K 10	Subject ID = TZ02S203	Field Value = q2_4	2	3					
20	Z 10	Subject ID = TZ02S203	Field Value = q2_14a		1					
21	K 11	Subject ID = TZ03S201	Field Value = q2_4	2	3					
22	Z 11	Subject ID = TZ03S201	Field Value = q2_14a		1					
23	AW 11	Subject ID = TZ03S201	Field Value = q2_21	No coment	No Comment					
24										
25										

Common Problem 3: Hidden text

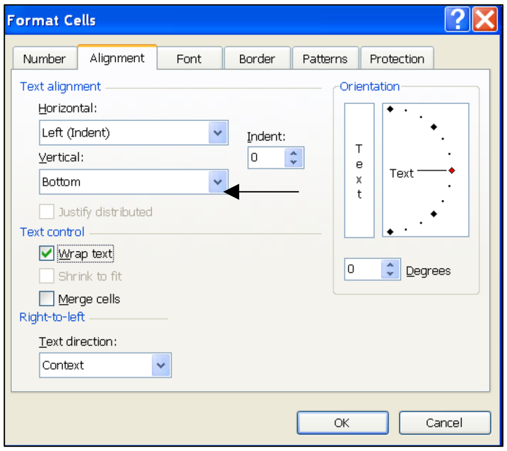
When text cannot be seen because it extends beyond the end of a cell, such as in cells D11 and E11 in the image below, can be adjusted to "wrap" inside the cell.



	A	B	C	D	E	F	G	H	I	J
1	K 2	Subject ID = TZ01S201	Field Value = q2_4	2	1					
2	Q 2	Subject ID = TZ01S201	Field Value = q2_10		6					
3	R 2	Subject ID = TZ01S201	Field Value = q2_11	2	6					
4	Z 2	Subject ID = TZ01S201	Field Value = q2_14a		1					
5	Q 3	Subject ID = TZ02S201	Field Value = q2_10	2	6					
6	R 3	Subject ID = TZ02S201	Field Value = q2_11	2	6					
7	Z 3	Subject ID = TZ02S201	Field Value = q2_14a		1					
8	K 4	Subject ID = TZ02S202	Field Value = q2_4	2	4					
9	Z 4	Subject ID = TZ02S202	Field Value = q2_14a		1					
10	Z 5	Subject ID = TZ04S201	Field Value = q2_14a		1					
11	AX 5	Subject ID = TZ04S201	Field Value = DATA ENTRY	2.13, 2.14 The expression	2.13, 2.14 The expression entered has a function name that Access can fin					
12	K 6	Subject ID = TZ05S201	Field Value = q2_4	2	3					
13	Z 6	Subject ID = TZ05S201	Field Value = q2_14a		1					
14	AB 6	Subject ID = TZ05S201	Field Value = q2_14c		1					

To wrap text inside a cell—

1. Highlight column(s) in which the cells appear by left-clicking on the column heading.
2. Go to *Format* > *Cells* in the main menu.
3. In the Format Cells dialog box, go to the *Alignment* tab and select *Wrap Text*. Then click *OK*. Adjust the row width if it does not change automatically at this point.


Format Cells
Number
Alignment
Font
Border
Patterns
Protection
Text alignment
Orientation
Text
Text
Degrees
Text control
Right-to-left
OK
Cancel

Horizontal: Left (Indent)

Indent: 0

Vertical: Bottom

☐ Justify distributed

☑ Wrap text

☐ Shrink to fit

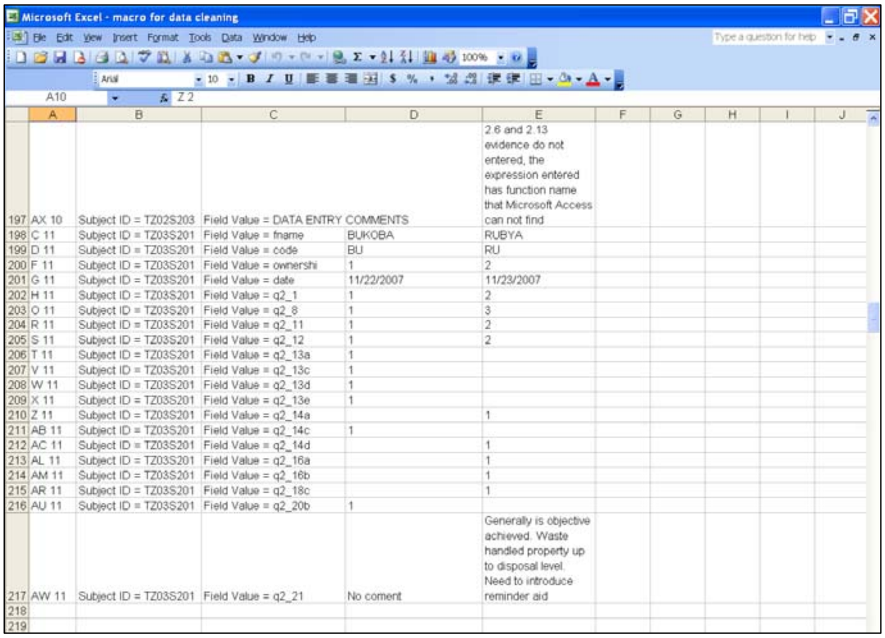
☐ Merge cells

Text direction: Context

0 Degrees

Common Problem 4: An Unusually Large Number of Reported Errors

In surveys where data are collected from numerous facilities, it is common to find a large number of discrepancies in double-entered data. However, in particularly long lists of reported errors, you may notice certain patterns, such as repeating records (see column B in the figure below) or repeating question numbers (see column C in the figure below). In this case, you should check whether the same number of records is included on each sheet. If not, identify the missing records. You should also check that sorting by UniqueID was done before pasting data into the Excel macro. If not, go back to each sheet and sort by UniqueID. (See the next page for directions on sorting in Excel.)

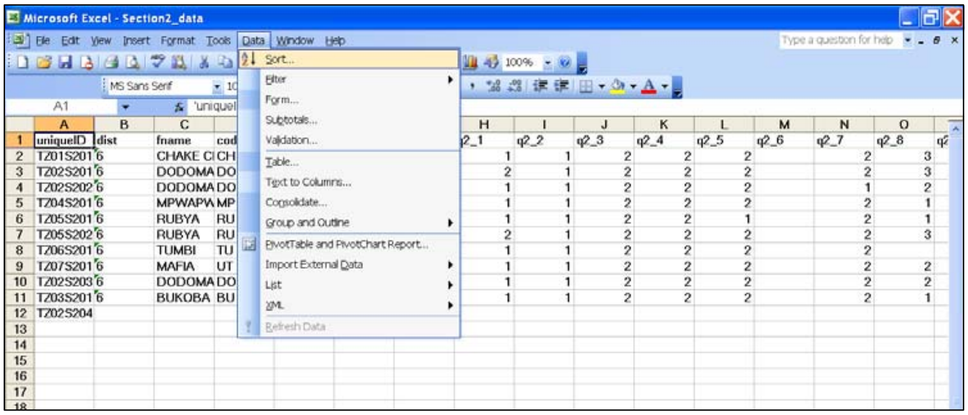

Microsoft Excel - macro for data cleaning
File Edit View Insert Format Tools Data Window Help
Type a question for help
Arial
10
100%
A10
Z 2

	A	B	C	D	E	F	G	H	I	J
197	AX 10	Subject ID = TZ02S203	Field Value = DATA ENTRY COMMENTS		2.6 and 2.13 evidence do not entered, the expression entered has function name that Microsoft Access can not find					
198	C 11	Subject ID = TZ03S201	Field Value = fname	BUKOBA	RUBYA					
199	D 11	Subject ID = TZ03S201	Field Value = code	BU	RU					
200	F 11	Subject ID = TZ03S201	Field Value = ownershi	1	2					
201	G 11	Subject ID = TZ03S201	Field Value = date	11/22/2007	11/23/2007					
202	H 11	Subject ID = TZ03S201	Field Value = q2_1	1	2					
203	O 11	Subject ID = TZ03S201	Field Value = q2_8	1	3					
204	R 11	Subject ID = TZ03S201	Field Value = q2_11	1	2					
205	S 11	Subject ID = TZ03S201	Field Value = q2_12	1	2					
206	T 11	Subject ID = TZ03S201	Field Value = q2_13a	1						
207	V 11	Subject ID = TZ03S201	Field Value = q2_13c	1						
208	W 11	Subject ID = TZ03S201	Field Value = q2_13d	1						
209	X 11	Subject ID = TZ03S201	Field Value = q2_13e	1						
210	Z 11	Subject ID = TZ03S201	Field Value = q2_14a		1					
211	AB 11	Subject ID = TZ03S201	Field Value = q2_14c	1						
212	AC 11	Subject ID = TZ03S201	Field Value = q2_14d		1					
213	AL 11	Subject ID = TZ03S201	Field Value = q2_16a		1					
214	AM 11	Subject ID = TZ03S201	Field Value = q2_16b		1					
215	AR 11	Subject ID = TZ03S201	Field Value = q2_18c		1					
216	AU 11	Subject ID = TZ03S201	Field Value = q2_20b	1						
217	AW 11	Subject ID = TZ03S201	Field Value = q2_21	No coment	Generally is objective achieved. Waste handled property up to disposal level. Need to introduce reminder aid					
218										
219										

Other Useful Information

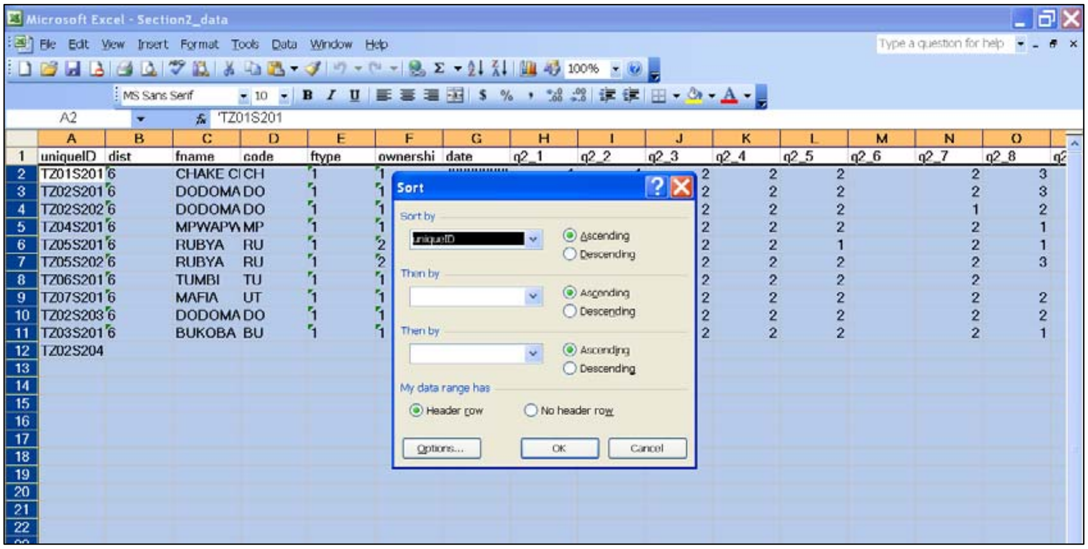
Sorting in Excel

1. Click on cell A1.
2. Go to *Data >Sort* in the menu.


Microsoft Excel - Section2_data
File Edit View Insert Format Tools Data Window Help
Type a question for help
MS Sans Serif
10
100%
A1
'uniqueI
Sort...
Filter
Form...
Subtotals...
Validation...
Table...
Text to Columns...
Consolidate...
Group and Outline
PivotTable and PivotChart Report...
Import External Data
List
XML
Refresh Data

	A	B	C		H	I	J	K	L	M	N	O
1	uniqueID	dist	fname	cod	2_1	q2_2	q2_3	q2_4	q2_5	q2_6	q2_7	q2_8
2	TZ01S201	6	CHAKE CI	CH	1	1	2	2	2		2	3
3	TZ02S201	6	DODOMA	DO	2	1	2	2	2		2	3
4	TZ02S202	6	DODOMA	DO	1	1	2	2	2		1	2
5	TZ04S201	6	MPWAPW	MP	1	1	2	2	2		2	1
6	TZ05S201	6	RUBYA	RU	1	1	2	2	1		2	1
7	TZ05S202	6	RUBYA	RU	2	1	2	2	2		2	3
8	TZ06S201	6	TUMBI	TU	1	1	2	2	2		2	
9	TZ07S201	6	MAFIA	UT	1	1	2	2	2		2	2
10	TZ02S203	6	DODOMA	DO	1	1	2	2	2		2	2
11	TZ03S201	6	BUKOBA	BU	1	1	2	2	2		2	1
12	TZ02S204											
13												
14												
15												
16												
17												

3. In the Sort dialog box, select Header row and Ascending. Then click *OK*. If sorting does not occur, or if only certain rows are sorted, check whether all row numbers are highlighted in blue at the left edge of the sheet.


Microsoft Excel - Section2_data
File Edit View Insert Format Tools Data Window Help
Type a question for help
MS Sans Serif
10
100%
A2
'TZ01S201
Sort
Options...
OK
Cancel

Sort by: uniqueID ● Ascending ○ Descending

Then by: ● Ascending ○ Descending

Then by: ● Ascending ○ Descending

My data range has: ● Header row ○ No header row

	A	B	C	D	E	F	J	K	L	M	N	O
1	uniqueID	dist	fname	code	ftype	ownershi	q2_3	q2_4	q2_5	q2_6	q2_7	q2_8
2	TZ01S201	6	CHAKE CI	CH	1	1	2	2	2		2	3
3	TZ02S201	6	DODOMA	DO	1	1	2	2	2		2	3
4	TZ02S202	6	DODOMA	DO	1	1	2	2	2		1	2
5	TZ04S201	6	MPWAPW	MP	1	1	2	2	2		2	1
6	TZ05S201	6	RUBYA	RU	1	2	2	2	1		2	1
7	TZ05S202	6	RUBYA	RU	1	2	2	2	2		2	3
8	TZ06S201	6	TUMBI	TU	1	1	2	2	2		2	
9	TZ07S201	6	MAFIA	UT	1	1	2	2	2		2	2
10	TZ02S203	6	DODOMA	DO	1	1	2	2	2		2	2
11	TZ03S201	6	BUKOBA	BU	1	1	2	2	2		2	1
12	TZ02S204											

Data Analysis

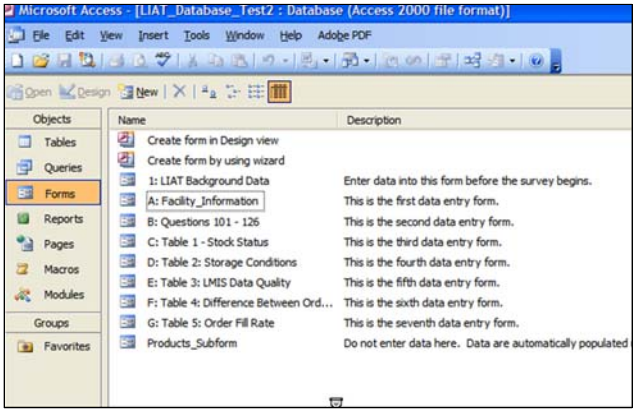
SPSS is recommended for data analysis. After data entry is complete—

1. Transfer data to SPSS using Stat/transfer.
2. Run frequencies of each variable using the SPSS syntax files that were provided to you.
3. Review the SPSS outputs to identify any areas of the data that need cleaning and proceed to clean them.

Backup Access and SPSS files in a secure place.

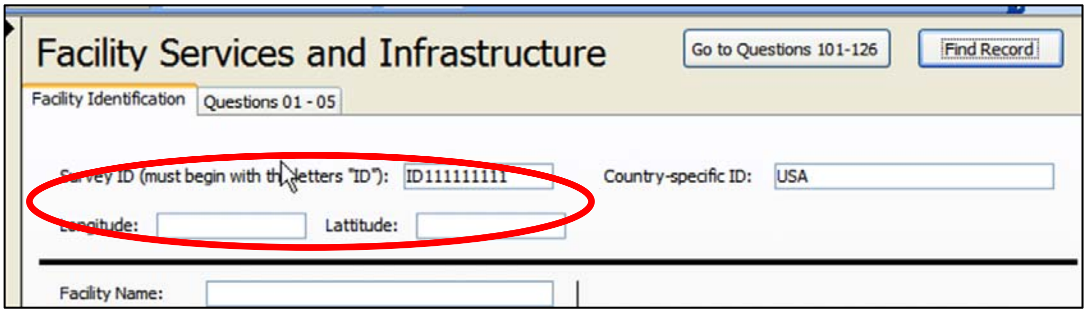
Data Entry Quick Start Guide

1. Start in the *Forms* section of the database.


Microsoft Access - [LIAT_Database_Test2 : Database (Access 2000 file format)]
File Edit View Insert Tools Window Help Adobe PDF
Open Design New
Objects
Tables
Queries
Forms
Reports
Pages
Macros
Modules
Groups
Favorites

Name	Description
Create form in Design view	
Create form by using wizard	
1: LIAT Background Data	Enter data into this form before the survey begins.
A: Facility_Information	This is the first data entry form.
B: Questions 101 - 126	This is the second data entry form.
C: Table 1 - Stock Status	This is the third data entry form.
D: Table 2: Storage Conditions	This is the fourth data entry form.
E: Table 3: LMIS Data Quality	This is the fifth data entry form.
F: Table 4: Difference Between Ord...	This is the sixth data entry form.
G: Table 5: Order Fill Rate	This is the seventh data entry form.
Products_Subform	Do not enter data here. Data are automatically populated

2. Open the first form, *1: LIAT Background Data* and ensure that data have been entered. If not, contact your survey administrator before proceeding. The survey administrator should populate this table before the survey begins.
3. Each form in the database corresponds to a specific section of the paper-based LIAT. Begin entering data on form *A: Facility_Information*. Each survey that you enter must have a unique identification number. This *always* begins with the letters *ID*, and is followed by three sets of numbers. These numbers correspond to the region code, district code, and facility code, each of which is three digits long.


Facility Services and Infrastructure
Go to Questions 101-126
Find Record
Facility Identification
Questions 01 - 05
Longitude:
Lattitude:
Facility Name:

Survey ID (must begin with the letters "ID"): ID111111111

Country-specific ID: USA

4. After entering the survey ID, fill in any other fields being used at the top of the form. These fields are optional, and may also be left blank.
    a. If using the Longitude and Latitude fields, the standard used is WGS84 (World Geodetic System 1984, updated in 2004). Data should be entered as Positive or Negative (*POS* = Positive, *NEG* = Negative), followed by two digits and a period, then followed by five digits (e.g., POS_12.15555 or NEG_12.15555).
    b. If you need to make changes to a survey ID, do so in form *A: Facility Identification*. The changes will automatically update to all other tables. Similarly, after you create the survey ID

on form A, the products used for tables 1, 3, 4, and 5 will automatically be entered for you into forms C, E, F, and G.

5. After you have completed data entry on form *A: Facility_Identification*, you will find a button on the last tab that will automatically take you to the next form in the survey, *Form B*. At the end of form B, you will find a button that will take you to form C, and so on through the end of the forms.
6. Note that forms A and B have multiple tabs. Ensure that you have entered data on all the tabs before proceeding to the next form.
7. Once you have entered all data in the survey, look for the button on form F (the last form) that will begin a new record for you in form A.
8. SPSS is recommended for data analysis. After data entry is complete—
    a. Transfer data to SPSS using Stat/transfer.
    b. Run frequencies of each variable using the SPSS syntax files that were provided to you.
    c. Review the SPSS outputs to identify any areas of the data that need cleaning and proceed to clean them.
    d. Backup Access and SPSS files in a secure place.

For more information, please visit deliver.jsi.com.

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