

# MS ACCESS Database Design, Monitoring and Data Entry in Practice (Using ASTRA Example)

Dr Lu Han  
Research Fellow

Department of Health Sciences  
University of York  
Email: [Lu.Han2@york.ac.uk](mailto:Lu.Han2@york.ac.uk)

# 1. MS ACCESS Database Design

(ASTRA example)

The purposes of designing the database for this study are mainly to minimise the error likely conducted by human in the process of data entry and to facilitate all DB users for both stages of data collection and data analysis. For the data input introduced so far, this database has the primary advantage of automation with the key points given below:

# 1. Automatically opening all sections of the survey.

The screenshot shows the Microsoft Access interface with the following elements:

- Title Bar:** Youth00 : Database- P:\database\ASTRA DB\Final\Youth00.accdb (Access 2007 - 2016 file format) - Access
- File Tab:** Home, Create, External Data, Database Tools, Tell me what you want to do...
- Home Tab:** Filter, Sort & Filter (Ascending, Descending, Remove Sort, Advanced, Toggle Filter), Records (New, Save, Delete, Refresh All, Totals, Spelling, More), Find (Find, Replace, Go To, Select), Text Formatting (B, I, U, A, etc.).
- All Access Objects:** Search...
  - Forms:** a, aCon, b, c, d, e, f, g, h, **Login** (highlighted), schoolCantee, SchoolTPolicy, section1, trackingRecord
  - Modules:**
- Form View:** Record: 1 of 1, No Filter, Search
- Form Content:** Login form with fields for UserID (masked with asterisks) and Password (masked with asterisks), and an Enter button circled in red.

Input your User ID and the Password for log in

Click "Enter" for log in survey

# 1. Automatically opening all sections of the survey.

The screenshot displays the Microsoft Access 2016 interface. The title bar shows the file path: "Youth00 : Database- P:\database\ASTRA DB\Final\Youth00.accdb (Access 2007 - 2016 file format) - Access". The ribbon includes "File", "Home", "Create", "External Data", and "Database Tools". The "Database Tools" ribbon is active, showing options for "Sort & Filter", "Records", "Find", and "Text Formatting".

The "All Access Objects" pane on the left lists various forms, with "LogIn" highlighted. The main window displays the "section 1" form, which includes:

- Navigation buttons: "Add New Record", "Previous", "Next", "First", "Last", and "Find".
- Input fields: "Series No", "Student ID", and a date field with "year:", "Month:", and "Date:" labels.
- Survey questions:
  - [Sec\_1].1. Do you know your Date of Birth? (1=yes, 2=no, if yes, please specify)
  - [Sec\_1].2. How old are you? (Source: GYTS)
  - [Sec\_1].3. Please indicate your sex? (Source: GYTS)
  - [Sec\_1].4. In what grade/class are you? (Source: GYTS)

The status bar at the bottom indicates "Record: 1 of 1" and "No Filter". The taskbar at the very bottom shows "Section 1: You, your home and your family".

## 2. Automatically generating Series No (counter), once ID is input.

The screenshot shows the Microsoft Access interface with the following elements:

- Title Bar:** Youth00 : Database- P:\database\ASTRA DB\Final\Youth00.accdb (Access 2007 - 2016 file format) - Access
- Navigation Pane (Left):** All Access Objects. Forms: a, aCon, b, c, d, e, f, g, h, Login (highlighted), schoolCantee, SchoolTPolicy, section1, trackingRecord. Modules: (empty).
- Form View (Center):** section 1. Fields include:
  - Series No:
  - Student ID:  (highlighted with a red circle and arrow)
  - [Sec\_1].1. Do you know your Date of Birth? (1=yes, 2=no, if yes, please specify):
  - year:
  - Month:
  - Date:
  - [Sec\_1].2. How old are you? (Source: GYTS):
  - [Sec\_1].3. Please indicate your sex? (Source: GYTS):
  - [Sec\_1].4. In what grade/class are you? (Source: GYTS):
- Text Box (Right):** Input student ID: PKaUr1J01 into this field.
- Status Bar (Bottom):** Record: 1 of 1, No Filter, Search

## 2. Automatically generating Series No (counter), once ID is input.

The screenshot displays the Microsoft Access 2007 interface. The title bar shows the file path: "Youth00 : Database- P:\database\ASTRA DB\Final\Youth00.accdb (Access 2007 - 2016 file format) - Access". The ribbon includes "File", "Home", "Create", "External Data", and "Database Tools". The "Home" ribbon is active, showing options for "View", "Clipboard", "Sort & Filter", "Records", "Find", and "Text Formatting".

The main window shows a form view for "section 1". The form has a header with "1 2 3" and a "Add New Record" button. The "Series No" field contains the value "1", which is circled in red. The "Student ID" field contains "PKaUr1J01". Below these fields are several questions:

- [Sec\_1].1. Do you know your Date of Birth? (1=yes, 2=no, if yes, please specify)
- [Sec\_1].2. How old are you? (Source: GYTS)
- [Sec\_1].3. Please indicate your sex? (Source: GYTS)
- [Sec\_1].4. In what grade/class are you? (Source: GYTS)

Navigation buttons (back, forward, search) are visible on the right side of the form. The status bar at the bottom shows "Record: 1 of 1" and "No Filter".

The text box on the right contains the following text:

The input for student ID in section 1 is completed.

Then, you can find it is automatically shared with other sections in students survey). (see the next page)

### 3. Automatically sharing the ID and Series No. among all sections

The image displays a multi-section application interface with five sections (a, b, c, d, e) and a continuation of section a. Each section has an 'Add New Record' button and input fields for 'Series No' and 'StudentID'. The 'Series No' field is consistently set to '1' and the 'StudentID' field is consistently set to 'PKaUr1J01' across all sections, as indicated by red circles. The application also shows a taskbar with tabs for 'trackingRecord', 'section1', and sub-sections 'a', 'aCon', 'b', 'c', 'd', 'e', 'f'. Section c includes a dropdown menu with the text '[Sec c SLT].1. During the past 12'. Section b includes a dropdown menu with the text '[Sec\_b\_SLT].1. Respond to the following statements, regarding how likely the following are to occur from using smokeless tobacco (SLT). (Examples of SLT include the following: list will

**section a**

1 2 3 4 5 6 7 8

Add New Record

Series No: 1

StudentID: PKaUr1J01

**section c**

1 2 3 4

Add New Record

Series No: 1

StudentID: PKaUr1J01

[Sec c SLT].1. During the past 12

**Section a Continued (for Non SLT/s**

9 10 11 12

Add New Record

Series No: 1

StudentID: PKaUr1J01

**section d**

1 2 3 4 5

Add New Record

Series No: 1

StudentID: PKaUr1J01

**section b**

1 2 3 4 5

Add New Record

Series No: 1

StudentID: PKaUr1J01

[Sec\_b\_SLT].1. Respond to the following statements, regarding how likely the following are to occur from using smokeless tobacco (SLT). (Examples of SLT include the following: list will

**section e**

1 2 3 4 5 6

Add New Record

Series No: 1

StudentID: PKaUr1J01



## 4. Automatically sharing the navigation among all sections.

The screenshot shows the Microsoft Access interface with the following elements:

- File Name:** Youth00 : Database- P:\database\ASTRA DB\Final\Youth00.accdb (Access 2007 - 2016 file format) - Access
- Navigation Pane:** Lists forms (a, aCon, b, c, d, e, f, g, h, Login, schoolCantee, SchoolTPolicy, section1, trackingRecord) and modules.
- Form View:** Titled 'section 1', showing fields for 'Series No' (value: 1), 'Student ID' (value: PKaUr1J01), and four questions with dropdown menus.
- Find and Replace Dialog:** Opened over the form, with 'Find What' set to '1' and 'Look In' set to 'Current field'. The 'Find Next' button is highlighted.
- Annotations:** Three red boxes with text and arrows:
  - Box 1: "1.) to get the focus on 'Series No.', put the cursor in this filed" (points to the 'Series No' field).
  - Box 2: "2.) Click 'research'" (points to the search icon in the navigation bar).
  - Box 3: "3.) the window on the right displayed." (points to the 'Find and Replace' dialog).

## 4. Automatically sharing the navigation among all sections.

The screenshot displays the Microsoft Access interface for a database named 'Youth00'. The current view is a data entry form for 'section1'. The 'Series No' field contains the value '1', and the 'Student ID' field contains 'PKaUr1J01'. A 'Find and Replace' dialog box is open, with the 'Find' tab selected. The 'Find What' field contains the number '2'. The 'Find Next' button is highlighted with a red circle. A red arrow points from the 'Find Next' button to a callout box that says '5.) Click "Find Next"'. Another red arrow points from the '2' in the 'Find What' field to a callout box that says '4.) Input your targeted "Series No" for searching. Here, we type 2, as an example.'

4.) Input your targeted "Series No" for searching. Here, we type 2, as an example.

5.) Click "Find Next"

## 4. Automatically sharing the navigation among all sections.

The screenshot shows the Microsoft Access interface with the following elements:

- Top Ribbon:** File, Home, Create, External Data, Database Tools, Tell me what you want to do...
- Navigation Pane (Left):** Lists Forms (a, aCon, b, c, d, e, f, g, h, Login, schoolCantee, SchoolTPolicy, section1, trackingRecord) and Modules.
- Form View (Center):** Titled 'section 1', showing fields: Series No (value: 2), Student ID (value: PKaUr1J02), [Sec\_1].1. Do you know your Date of Birth? (value: 1), [Sec\_1].2. How old are you? (Source: GYTS), [Sec\_1].3. Please indicate your sex? (Source: GYTS), [Sec\_1].4. In what grade/class are you? (Source: GYTS).
- Find and Replace Dialog (Bottom Right):** Opened to the 'Find' tab. 'Find What' is set to '2'. 'Look In' is 'Current field'. 'Match' is 'Whole Field'. 'Search' is 'All'. 'Search Fields As Formatted' is checked. A red box highlights the 'Close' button.
- Annotations:** A red oval highlights the 'Student ID' field in the form. A red box highlights the 'Close' button in the dialog. A red arrow points from the 'Close' button to the 'Student ID' field.

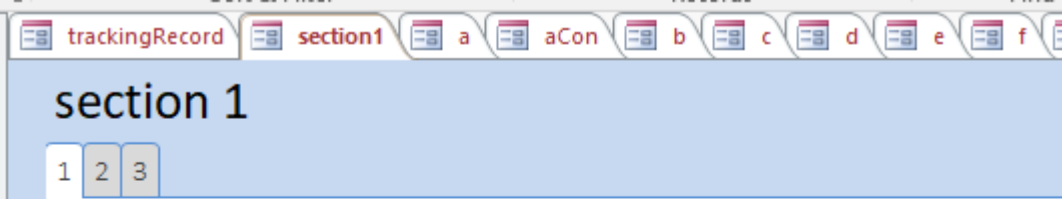
7.) Click "Close" button

6.) Then, your targeted has become a current record.

## 4. Automatically sharing the navigation among all sections.

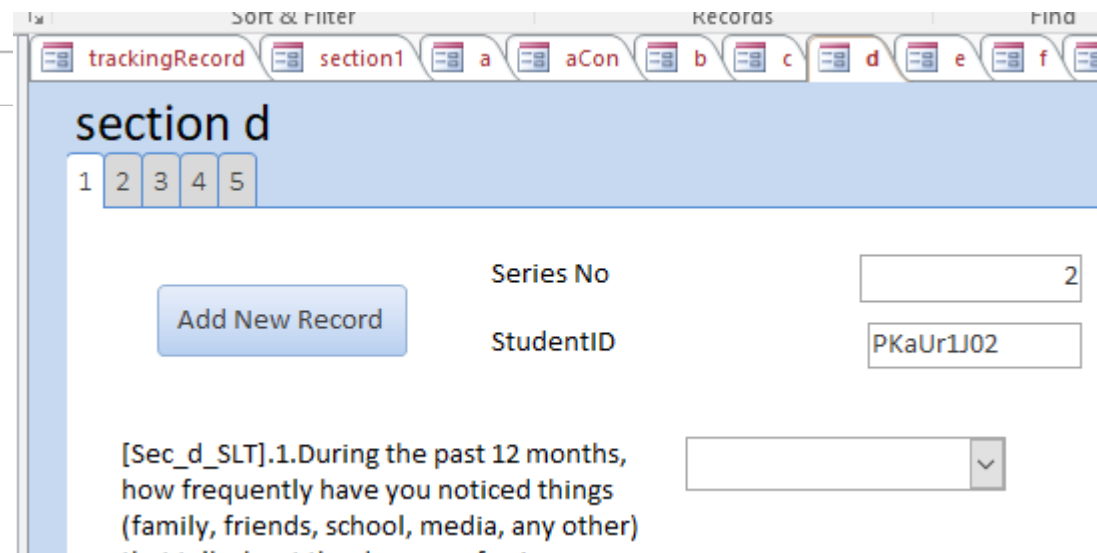
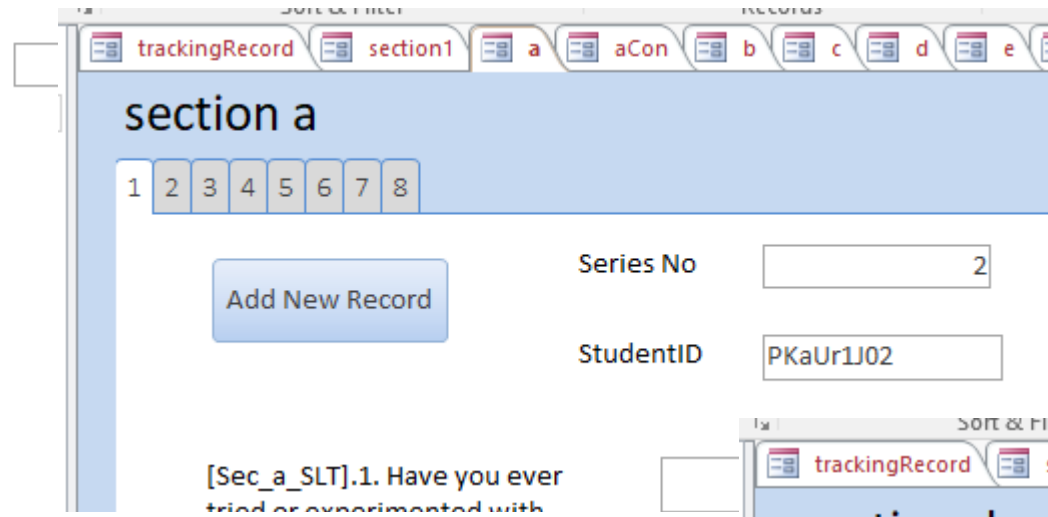
The screenshot shows the Microsoft Access interface with the following details:

- Window Title:** Youth00 : Database- P:\database\ASTRA DB\Final\Youth00.accdb (Access 2007 - 2016 file format) - Access
- Navigation Pane (Left):** Lists Forms (a, aCon, b, c, d, e, f, g, h, Login, schoolCantee, SchoolTPolicy, section1, trackingRecord) and Modules.
- Form View (Center):** Titled 'section 1', showing fields for Series No, Student ID (PKaUr1J02), and four questions with dropdown menus. A 'Find Record' button with a magnifying glass icon is circled in red.
- Text Box (Right):** Contains the text: "8.) Click 'Search' again. Then, the current record in other sections are updated automatically."
- Status Bar (Bottom):** Shows 'Record: 2 of 2', 'No Filter', and a 'Search' field.



4. Automatically sharing the navigation among all sections.

[Sec\_1].1. Do you know your Date of Birth?  
(1=yes, 2=no, if yes, please specify)



The selected sample of other sections.  
The current record has been updated to 2.

## 5. Automatic Activate/Deactivate the linked questions.

The screenshot displays the Microsoft Access 2016 interface. The title bar shows the file path: Youth00 : Database- P:\database\ASTRA DB\Final\Youth00.accdb (Access 2007 - 2016 file format) - Access. The ribbon includes File, Home, Create, External Data, Database Tools, and Tell me what you want to do... The Home ribbon is active, showing options for Filter, Sort & Filter, Records, Find, and Text Formatting. The left-hand pane shows the 'All Access Objects' list with 'Forms' expanded, listing 'a', 'aCon', 'b', 'c', 'd', 'e', 'f', 'g', 'h', 'Login', 'schoolCantee', 'SchoolTPolicy', 'section1', and 'trackingRecord'. The 'Login' form is selected. The main window displays the 'section a' form in Form View. The form has a header with tabs 1 through 8. Below the header, there is an 'Add New Record' button, a 'Series No' field with the value '1', and a 'StudentID' field with the value 'PKaUr1J01'. There are navigation buttons (back, forward, search) and a search icon. The form contains two questions: '[Sec\_a\_SLT].1. Have you ever tried or experimented with using any form of smokeless tobacco (SLT) products? (Source:GYTS) (If the answer is 'No', please go to question 13)' and '[Sec\_a\_ST].1. Have you ever tried or experimented with any form of smoking tobacco (ST) products? (If the answer is 'No', please go to question 13)'. Both questions have dropdown menus with values '1' and '2' respectively. The status bar at the bottom shows 'Record: 1 of 1', 'No Filter', and a search box. The bottom right corner of the screen shows the Windows taskbar with 'Num Lock' and system icons.

# 5. Automatic Activate/Deactivate the linked questions.

Youth00 : Database- P:\database\ASTRA DB\Final\Youth00.accdb (Access 2007 - 2016 file format) - Access

File Home Create External Data Database Tools Tell me what you want to do... Sign in

Views Filter Sort & Filter Records Find Text Formatting

trackingRecord section1 a aCon b c d e f g h School T Policy schoolCantee

**Section a Continued (for Non SLT/ST users ONLY)**

9 10 11 12

Add New Record

Series No 1

StudentID PKaUr1J01

[Sec\_a\_SLT].14. At any time during the next 12 months do you think you will use any form of smokeless tobacco (SLT)? (If no, go to Q15)

[Sec\_a\_ST].14. At any time during the next 12 months do you think you will smoke tobacco (ST)? (If no, go to Q15)

Record: 1 of 1 No Filter Search

Form View Num Lock

# 6. Message reminder:

The screenshot shows the Microsoft Access application window. The title bar reads "Youth00 : Database- P:\database\ASTRA DB\Final\Youth00.accdb (Access 2007 - 2016 file format) - Access". The ribbon includes "File", "Home", "Create", "External Data", "Database Tools", and "Tell me what you want to do...". The ribbon tabs are "Filter", "Sort & Filter", "Records", "Find", and "Text Formatting". The ribbon icons include "Filter", "Ascending", "Descending", "Remove Sort", "Selection", "Advanced", "Toggle Filter", "Refresh All", "New", "Save", "Delete", "Totals", "Spelling", "More", "Find", "Go To", "Select", "Text Formatting" (Bold, Italic, Underline, Font Color, Paragraph, Styles, Table, Grid, Chart, PivotTable, PivotChart, Data Entry, Print, Refresh, Undo, Redo, Zoom, Help).

The left-hand pane shows "All Access Objects" with a search bar and a list of "Forms" (a, aCon, b, c, d, e, f, g, h, Login, schoolCantee, SchoolTPolicy, section1, trackingRecord) and "Modules". The "Login" form is selected.

The main window displays a form titled "section a" with a tabbed interface (1-8). The form contains two questions, each with a dropdown menu:

- [Sec\_a\_SLT].13. Have you ever received help or advice to help you stop using smokeless tobacco (SLT) ? (Select only one response) (GYTS) [Dropdown: 3]
- [Sec\_a\_ST].13. Have you ever received help or advice to help you stop smoking? (Select only one response) (GYTS) [Dropdown]

A red circle highlights the "Save Record" button at the bottom right of the form. Another red circle highlights the text "Click 'Save Record' and see what could happen in next" with an arrow pointing to the button.

At the bottom of the window, the status bar shows "Record: 1 of 1", "No Filter", and a "Search" box. The system tray at the very bottom includes "Num Lock" and icons for the taskbar.



## 6. Message reminder:

Youth00 : Database- P:\database\ASTRA DB\Final\Youth00.accdb (Access 2007 - 2016 file format) - Access

File Home Create External Data Database Tools Tell me what you want to do...

Views Clipboard Sort & Filter Records Find Text Formatting

All Access Ob... trackingRecord section1 a aCon b c d e f g h School T Policy schoolCantee

Search...

Forms

- a
- aCon
- b
- c
- d
- e
- f
- g
- h
- Login
- schoolCantee
- SchoolITPolicy
- section1
- trackingRecord

Modules

section a

1 2 3 4 5 6 7 8

[Sec\_a\_SLT].13. Have you ever received help or advice to help you 3

[Sec\_a\_ST].13. Have you ever received help or advice to help you stop smoking? (Select only one response) (GYTS)

Please check if it needs completion

If so, please complete the question(s) below:

- Q 2 (SL)
- Q 3 (SL)
- Q 4 (SL)
- Q 5 (SL)
- Q 7 (SL)
- Q 8 (SL)
- Q 9 (SL)
- Q 10 (SL)
- Q 11 (SL)
- Q 12 (SL)
- Q 13 (smoking)

Save Record

OK

Continued

The message box turns up telling you that the uncompleted questions:

For SL:

Q2-12

For Smoking tobacco:

Q13

Then, **click OK** button and go back to the questions to check if we need to complete them. If not, we just leave them as blanks (missing values)

## 6. Message reminder:

The screenshot shows the Microsoft Access interface with the following elements:

- Title Bar:** Youth00 : Database- P:\database\ASTRA DB\Final\Youth00.accdb (Access 2007 - 2016 file format) - Access
- File Tab:** File, Home, Create, External Data, Database Tools, Tell me what you want to do...
- Home Tab:** Filter, Sort & Filter (Ascending, Descending, Remove Sort), Selection (Advanced, Toggle Filter), Refresh All, New, Save, Delete, Records (Totals, Spelling, More), Find, Replace, Go To, Select, Text Formatting (Bold, Italic, Underline, Font Color, Paragraph, Styles).
- Navigation Pane:** All Access Objects, Search..., Forms (a, aCon, b, c, d, e, f, g, h, Login, schoolCantee, SchoolTPolicy, section1, trackingRecord), Modules.
- Form View:** section a, Record 1 of 1, No Filter, Search.
- Form Content:** Two questions with dropdown menus:
  - [Sec\_a\_SLT].13. Have you ever received help or advice to help you stop using smokeless tobacco (SLT)? (Dropdown: 3)
  - [Sec\_a\_ST].13. Have you ever received help or advice to help you stop smoking? (Select only response) (GYTS) (Dropdown: 1)
- Message Box:** Congratulation, Well Done!, Please click OK, OK button.
- Text Box:** Continued. Once all have been complete, the message box confirms you that there is no missing value via the message "well done!". Then, just click OK button.

## 2. Data Monitoring in MS ACCESS (tracking record)

File Home Create External Data Database Tools Tell me what you want to do...

View Paste Copy Format Painter Filter Ascending Descending Remove Sort Selection Advanced Toggle Filter Refresh All Delete More

Records New Save Delete More Totals Spelling Find Replace Go To Select

Text Formatting

All Access Objects

Search...

Forms

- a
- aCon
- b
- c
- d
- e
- f
- g
- h
- Login**
- schoolCantee
- SchoolTPolicy
- section1
- trackingRecord

Modules

trackingRecord section1 a aCon b c d e f g h School T Policy schoolCantee

tracking Record

IDv

varNameV

olddataV

newdataV

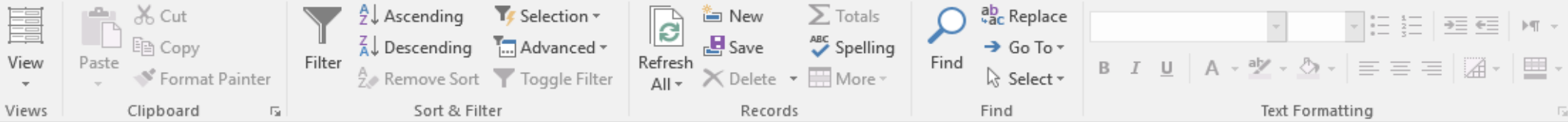
userV/Form name

timeStampV

partiID

**Case 1** indicates that the current tracking is the 1<sup>st</sup> record (series no) in the tracking database.

The user, eH3qwyi logs in the database at the time stamp 25/07/2019 11:25:19



All Access Ob... &lt;&lt;

Search...

## Forms

- a
- aCon
- b
- c
- d
- e
- f
- g
- h
- Login
- schoolCantee
- SchoolTPolicy
- section1
- trackingRecord

## Modules

## tracking Record

IDv	<input type="text" value="10"/>
varNameV	<input type="text" value="Q13aSL"/>
olddataV	<input type="text" value="1"/>
newdataV	<input type="text" value="3"/>
userV/Form name	<input type="text" value="a"/>
timeStampV	<input type="text" value="25/07/2019 11:47:54"/>
partiID	<input type="text" value="PKaUr1J01"/>

**Case 2** indicates that the current tracking is the 10<sup>nd</sup> record in the tracking database.

The same user changes the value of 1 into 2 for the variable Q13aSL [Q13 (Smokeless Tobacco) in Section a] for the participant PKaUR1J01 at the time stamp 25//07/2019 11:47:54

File Home Create External Data Database Tools Tell me what you want to do... Sign in

View Filter Sort & Filter Records Find Text Formatting

Ascending Descending Selection Advanced Refresh All New Save Delete More Spelling Find Replace Go To Select

B I U A ab Text Formatting

All Access Objects

Search...

Forms

- a
- aCon
- b
- c
- d
- e
- f
- g
- h
- Login**
- schoolCantee
- SchoolTPolicy
- section1
- trackingRecord

Modules

trackingRecord section1 a aCon b c d e f g h School T Policy schoolCantee

### tracking Record

IDv

varNameV

olddataV

newdataV

userV/Form name

timeStampV

partiID

Record: 12 of 25 No Filter Search

**Case 4** indicates that the current tracking is the 23<sup>rd</sup> record in the tracking database.

The same user logs off the database at the time stamp 25//07/2019 13:22:16

### 3. Data Entry Plan for Data Management

## Step 0: Double Data Entry (DDE) Plan

### Master DB:

Entry person 1 (E1)  
Checker (C)

### Copy DB:

Entry person 2 (E2)  
Checker (C)

Step 1: E1 and E2 enter first 20 questionnaires

Step 2: York team merges and check if there is any mismatch.

Criteria (Section 2.2.3): according to the error rate (ER), York team will suggest one of the three actions below:

- 1). do the rectification
- 2). re-check the whole sample
- 3). no further action

Step 3.1: if there is any mismatch.

Step 4.1: York team needs to communicate with C any actions required based on [Section 2.2.3 criteria](#). C will resolve the issue and record the “corrections” in master DB. Then, E1 and E2 enter the next 30 questionnaires. And repeat steps 2 onwards.

Step 3.2: if there is no mismatch,

Step 4.2: E1 and E2 enter the next 30 questionnaires. And repeat steps 2 onwards.

Step 5: Once 50 questionnaires have been completed further instructions will be provided.

Note: the checker for Master DB and the checker for the copy DB can be two different persons. If so, York team in Step 4.1 will communicate with the checker for the Master DB.



## Bangladesh Team: Youth Study

<b>Master DB: Youth01B</b>	<b>Copy DB: Youth01B_Copy</b>	<b>Group 1</b>
E1: David	E2: Rachel	
C: Andrew	C: Andrew	

Thank You