



Practical exercise for FBIP training on Biodiversity data analysis: Creating a data collection app

First steps

- 1) Go to <https://www.kobotoolbox.org/>
- 2) Scroll down to the bottom of the page, where you can create an account under "GET STARTED"
- 3) You will need access to your email to activate your account, so bear this in mind when creating the account
- 4) Click on **Create an account**, selecting the option under **Researchers, Aid Workers & Everyone Else**, (unless you work for a Humanitarian Organisation). Follow the instructions to create an account. Save your username and password, and login.
- 5) Click on **NEW** to create a new project, and select **Build from scratch**.
- 6) Fill in the details in the menu as in the example below. We'll build a simple roadkill data collection app. Once you have filled in the details, click on **CREATE PROJECT**.

Create project: Project details

×

Project Name

Roadkill data collection

Description

App to collect observations of roadkill in the study site

Please specify the country and the sector where this project will be deployed.

Sector

Environment

×

▼

Country

South Africa

×

▼

☒ Help KoboToolbox improve this product by sharing the sector and country where this project will be deployed. All the information is submitted anonymously, and will not include the project name or description listed above.

BACK

CREATE PROJECT

- 7) Click on the **+** button on the left to add new questions to the app. Add each of the 5 questions shown in the image below to the data capture app. Start by entering the question text, then click on **+ Add Question**, and choosing the appropriate question type (note the icons next to each question below, that show what the question type is). Click on the **+** button to add each additional question.

Project

Roadkill data collection

SAVE*

×

👁

☰

📄

👤

Add from Library

Layout & Settings

📅

Enter today's date:

Question hint

⚙️

🗑

🔗

📎

abc

What is your name?

Question hint

⚙️

🗑

🔗

📎

📍

Record the location of the roadkill:

Question hint

⚙️

🗑

🔗

📎

📷

Take a photo of the observation.

Question hint

⚙️

🗑

🔗

📎

🗳

Which class does the roadkill belong to?

Question hint

⚙️

🗑

🔗

📎

🗑

Mammal

Value: AUTOMATIC

🗑

Bird

Value: AUTOMATIC

🗑

Reptile

Value: AUTOMATIC

🗑

Amphibian

Value: AUTOMATIC

🗑

Invertebrate

Value: AUTOMATIC

🗑

Unknown

Value: AUTOMATIC

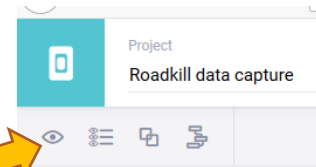
+

Click to add another response...

Value: AUTOMATIC

+

- 8) Once you have entered the 5 questions, click **SAVE** on the top right, and then preview the form (by **clicking on the eye icon** on the top left). Fill in each question in the form preview as a test.

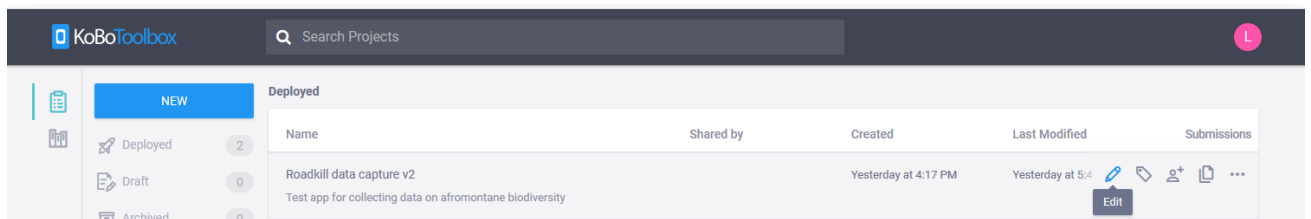


- 9) At the bottom of the Form Preview, click on **VALIDATE** to check and validate the form.

- 10) Then **close** the Form Preview window, and **SAVE** and close the draft app.

Changing data column names and making responses mandatory

- 11) Click on the **edit** button next to the app's name



The questions will appear. Click on the **settings** button for the first question.

- 12) The screen below will appear. Edit the **Data Column Name** to **eventDate** (which is the DarwinCore or DwC term for date) and click on **Yes**, next to **Mandatory Response**. This will ensure that the person filling in the form will have to enter a date before they can submit the form.

The screenshot shows a web-based form editor for a project titled "Roadkill data collection". The interface includes a top navigation bar with a "SAVE*" button and a "Layout & Settings" link. On the left, a sidebar contains a "Settings" section with sub-options: "Question Options", "Skip Logic", and "Validation Criteria". The main editing area is titled "Enter today's date:" and contains the following fields:

- Data Column Name:** A text input field containing "eventDate".
- Guidance Hint:** An empty text input field.
- Mandatory Response:** Three radio button options: "Yes" (selected), "No", and "Custom logic".
- Default Response:** An empty text input field.
- HXL:** Two input fields, the first containing "#tag" and the second labeled "Attributes".
- Appearance (Advanced):** A dropdown menu currently set to "select".

- 13) Change the **Data Column Names** for each questions, using DwC as a guide, and make all questions **mandatory**, except for the photo question. Use the following DwC terms for each question respectively: *recordedBy*, *locality*, *media*, and *class*.
- 14) Press the **SAVE** button to make sure that all your changes are saved.

Skip Logic (or question relevance)

Let's add a question, and then make our form smarter, i.e., set it to only include questions if they are relevant to answers given in other questions.

- 15) Click on the **+ Add Question** button, and add a **Select one** question on mammalian orders, as in the image below, and click **SAVE**.

Project
Roadkill data collection

SAVE*

Which mammalian order does the roadkill belong to?
Question hint

Afrosoricida	Value: AUTOMATIC
Artiodactyla	Value: AUTOMATIC
Carnivora	Value: AUTOMATIC
Chiroptera	Value: AUTOMATIC
Eulipotyphla	Value: AUTOMATIC
Hyracoidea	Value: AUTOMATIC
Lagomorpha	Value: AUTOMATIC
Macroscelidea	Value: AUTOMATIC
Perissodactyla	Value: AUTOMATIC
Primates	Value: AUTOMATIC
Proboscidea	Value: AUTOMATIC
Rodentia	Value: AUTOMATIC
Tubulidentata	Value: AUTOMATIC
Unknown	Value: AUTOMATIC
+ Click to add another response...	Value: AUTOMATIC

The above question would only be relevant to complete if the roadkill belonged to the Class Mammalia, in the previous question. It would not be possible to fill in this question for birds, amphibians or reptiles.

- 16) Click on **Settings** for the Mammalian Orders question. Edit the **Data Column Name** to **order** and make this a required question.

Then click on **Skip logic** (on the left) and on **Add a condition** (see image below).

Project Roadkill data capture v2 SAVE

Add from Library
Layout & Settings

Settings
Question Options
Skip Logic
Validation Criteria

Data Column Name:
Guidance Hint:
Mandatory Response: ☒ Yes
Default Response:
HXL:
Appearance (Advanced):
Parameters: ☐ randomize
seed

Which mammalian class does the roadkill belong to?
Question hint

Settings
Question Options
Skip Logic
Validation Criteria

+ Add a condition
\$0 Manually enter your skip logic in XLSForm code

- 17) Click on **Selection question from list**, and choose the question “Which class does the roadkill belong to?” from the list and make sure this = Mammal. Click **SAVE**.

Which mammalian class does the roadkill belong to?
Question hint

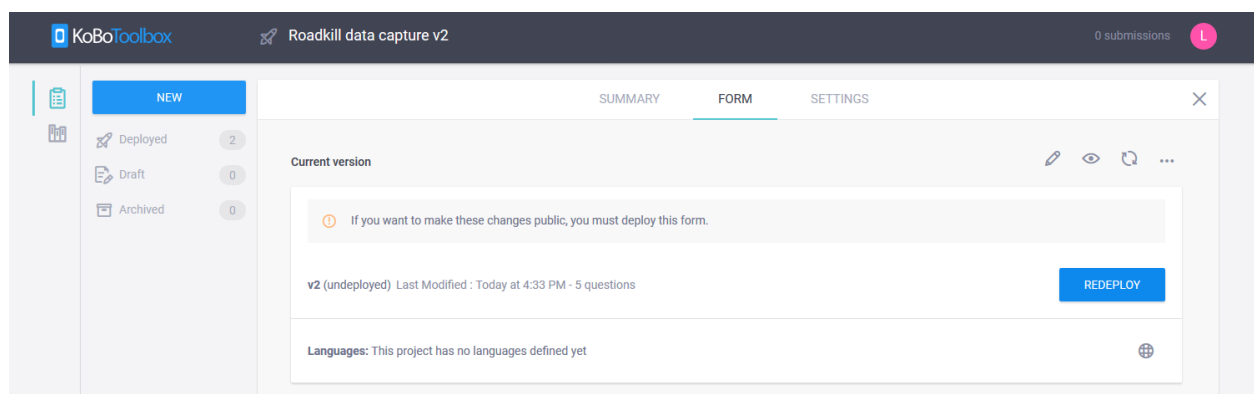
Settings
Question Options
Skip Logic
Validation Criteria

This question will only be displayed if the following conditions apply
Which class does the roadkill belong to? = Mammal
+ Add another condition

- 18) Now let's preview the form again. Fill in answers to all the questions. You will notice that the question about the mammalian orders is not visible until you select Mammals in the fifth question. Now select birds or any other class and the Mammal question will disappear.
- 19) Now **VALIDATE** your form and then close the form preview window. Close the edit screen by clicking on the X on the top left of the screen next to SAVE.

App deployment

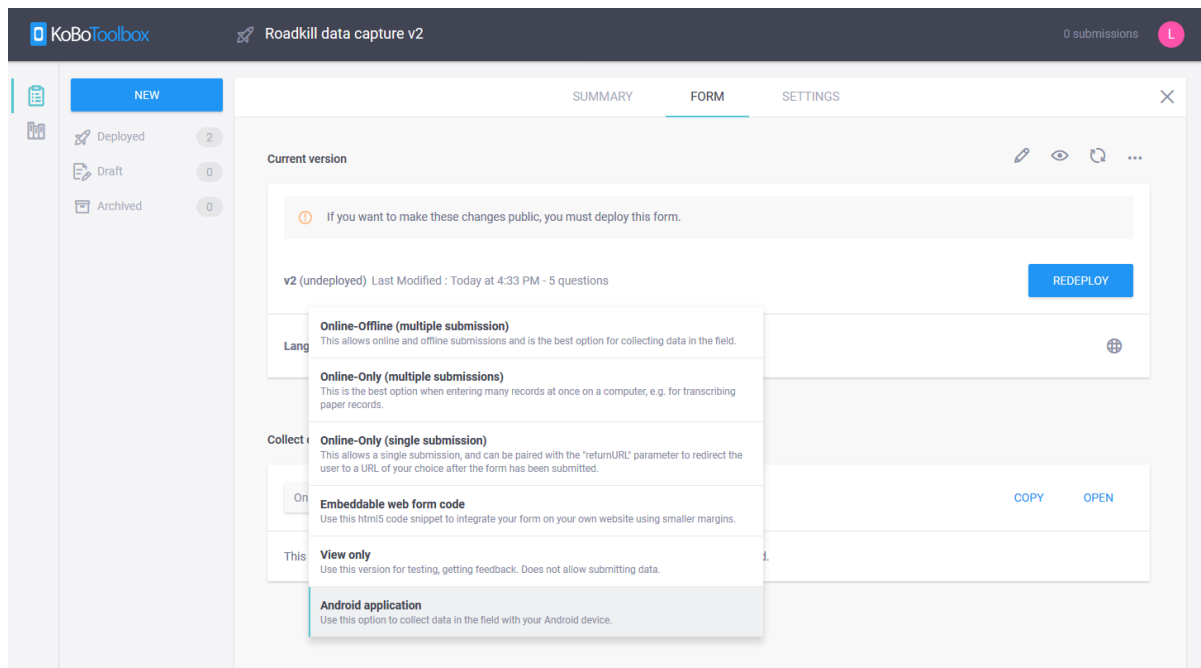
- 20) The app should now be ready to be deployed. Click on the blue **DEPLOY (or REDEPLOY)** button



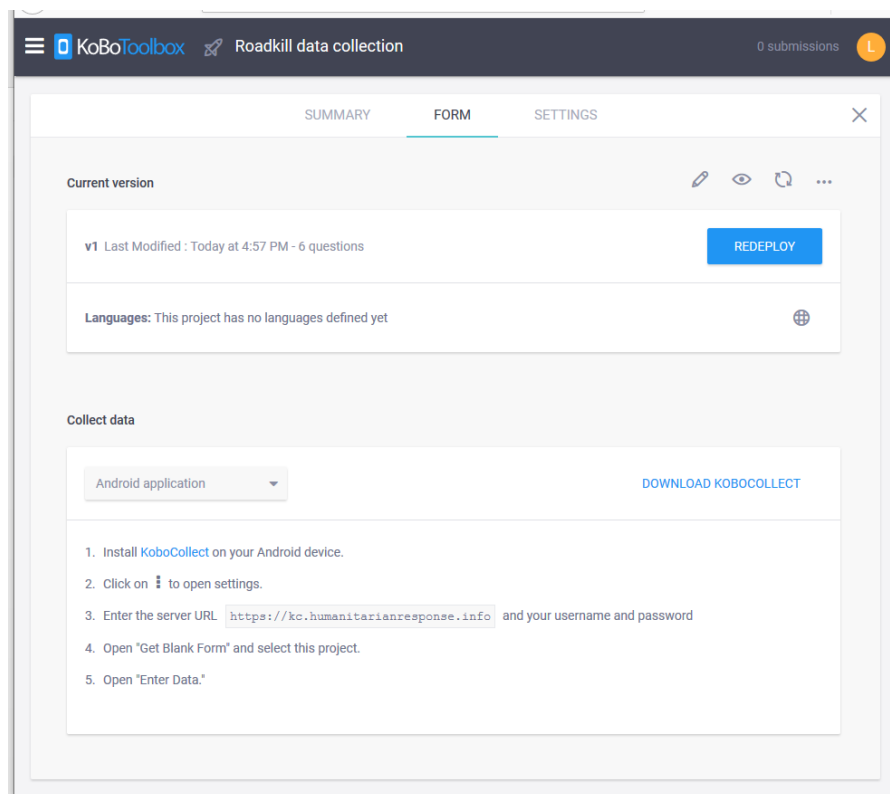
Once deployed, you can choose several options for data collection.

a) Android phones

If you have an Android phone, you can select **Android application** from the Collect data drop-down menu. However, you will need to install KoBoCollect from the Google Play Store on your mobile device.



Once you have installed KoBo Collect on your Android phone, follow the instructions on the KoBoToolbox website on how to upload your data collection app to your mobile device (see image below).

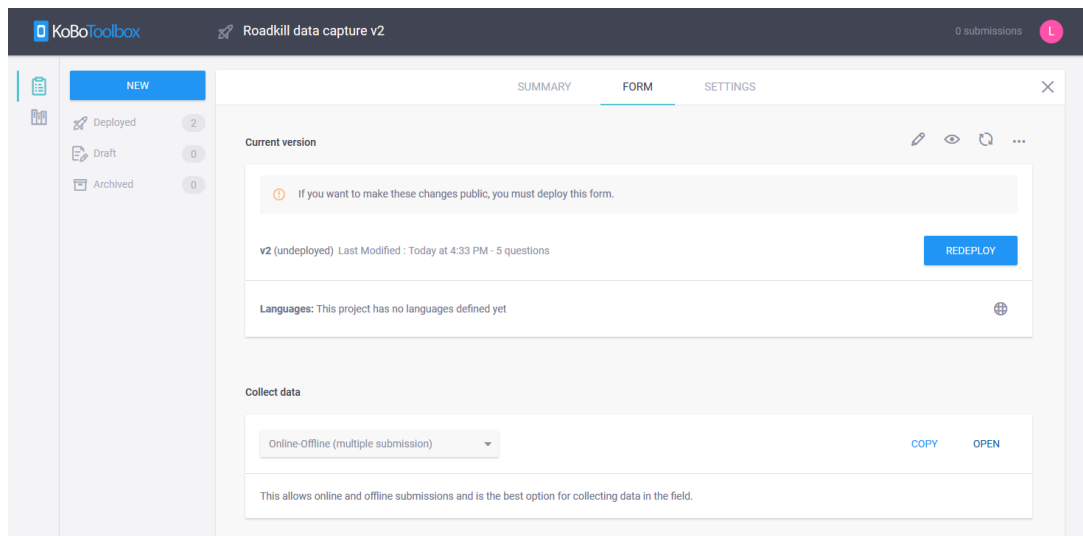


*Note: These instructions miss a few steps – after clicking on the 3 vertical dots, select **General settings** and then click on **Server***

Once you have changed the server name, as instructed above, go back to the start screen and select **Get Blank Form**. Your form should appear and you can then click on **Get Selected** to download the roadkill form onto your phone.

b) Desktop or laptop computer


If you are not using a smartphone, you can use your computer for data collection. Choose the **Online-Offline** (multiple submissions) option, and then click on **Open**. This will open the data collection form in a separate window on your computer.

The screenshot shows the KoBoToolbox web interface for a project named 'Roadkill data capture v2'. The top navigation bar includes the KoBoToolbox logo, the project name, and a '0 submissions' indicator. On the left, a sidebar shows the 'NEW' button and a list of form statuses: 'Deployed' (2), 'Draft' (0), and 'Archived' (0). The main content area has tabs for 'SUMMARY', 'FORM', and 'SETTINGS', with 'FORM' currently selected. Under the 'Current version' section, there is a warning message: 'If you want to make these changes public, you must deploy this form.' Below this, it shows 'v2 (undeployed)' with a 'Last Modified' timestamp of 'Today at 4:33 PM' and '5 questions'. A 'REDEPLOY' button is visible. The 'Languages' section indicates 'This project has no languages defined yet'. In the 'Collect data' section, a dropdown menu is set to 'Online-Offline (multiple submission)', with 'COPY' and 'OPEN' buttons to its right. A descriptive text at the bottom states: 'This allows online and offline submissions and is the best option for collecting data in the field.'

21) The app will look something like the image below. Capture some data in the app and click on **SUBMIT**. Do this a few times, so that you have multiple records to play with.

Roadkill data capture

Enter today's date

yyyy-mm-dd 

What is your name?


Record your current location



latitude (x,y °)

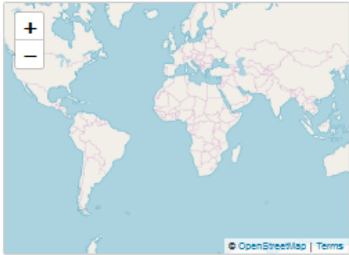
longitude (x,y °)

altitude (m)

accuracy (m)




search for place or address  



OpenStreetMap | Terms

Use the camera to take a photo of your observation

Click here to upload file. (< 10MB) 

Which order does the roadkill belong to?


☐ Mammal
☐ Bird
☐ Reptile
☐ Amphibian
☐ Invertebrate
☐ Unknown

☐ Save as Draft

Once you have captured data, you should see the number of submissions in your form change from 0 to however many times you submitted data.


KoBoToolbox
Roadkill data capture v2
2 submissions


NEW

 Deployed 2

Roadkill data capture v2

Plaas evaluating

 Draft 0





 Archived 0

SUMMARY
FORM
DATA
SETTINGS

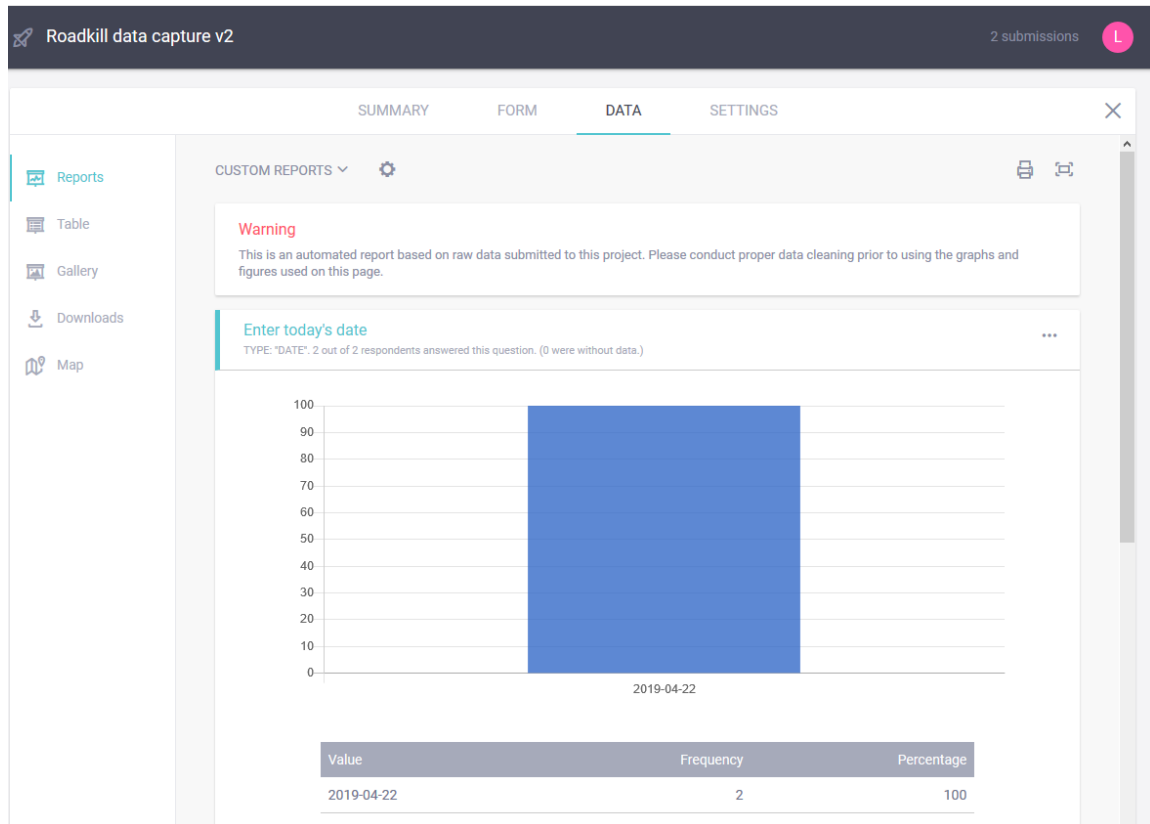
Description

Project country South Africa	Sector Environment
Test app for collecting data on afromontane biodiversity	

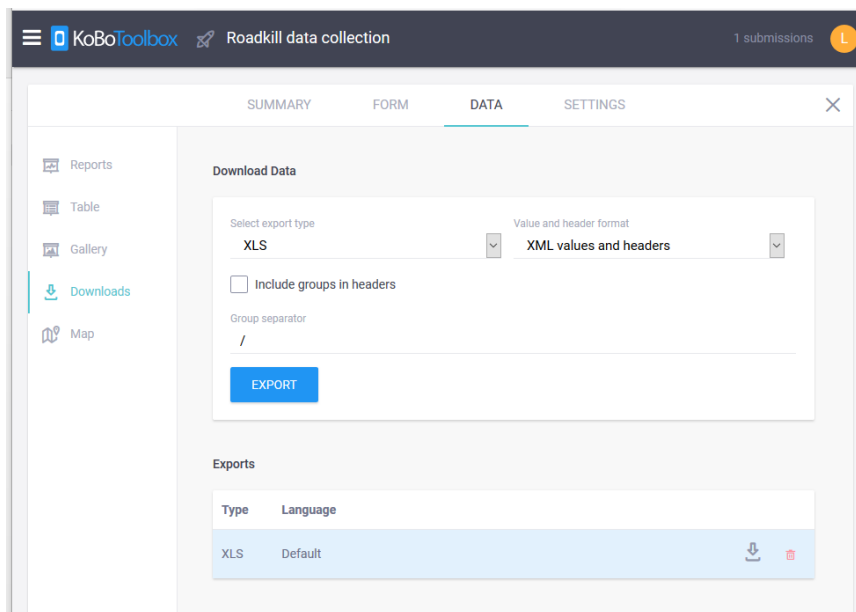
Quick Links

-  Collect data >
-  Share project >
-  Edit form >
-  Preview form >

- 22) You can now click on the **DATA** tab, to be able to view and download the data. Explore the 5 DATA tabs on the left, i.e., **Reports**, **Table**, **Gallery**, **Downloads** and **Map**.



- 23) You can now download the data by clicking on **Downloads**, then change the **Value and header format** to **XML values and headers** (otherwise the data will be downloaded with the full questions as column headings, rather than the Data Column Names you chose). Now click on **EXPORT** and finally on the **download** button next to the file that you want to download.



- 24) Open the file in Excel, and examine the data structure. The column headings should appear as you entered them, but with a number of additional data columns with data that is collected or assigned automatically.

Using xlsforms to build data collection apps

Quite sophisticated forms can be set up in Excel and imported as an XLSform into KoBo Toolbox, as well as many other platforms that develop apps. There is a bit of a learning curve for using XLS forms, but worth it if you will be frequently building and using data collection apps.

<http://xlsform.org/en/>

- a) Open the file ExampleSurvey_FBIP.xlsx in Excel. This file is set up as an xlsform, and can be directly imported into Kobo Toolbox to create an app
- b) The form has 4 spreadsheets – survey (which contains the survey questions and structure), choices (a list of the choices per question), settings (where you enter the survey name, languages, pagination etc) and lastly types, which is an information spreadsheet that provides data on setting up an xlsform – note: the one that you have been provided has some information that is relevant only for using Survey123 (esri/ ArcGIS online software).
- c) Now close the file in Excel and login to your Kobo Toolbox account, if you are not already logged in. Click on NEW and select Upload an XLSForm.

Create project: Choose a source

Choose one of the options below to continue. You will be prompted to enter name and other details in further steps.

Build from scratch

Use a template

Upload an XLSForm

Import an XLSForm via URL

- d) When prompted, click to browse to the file ExampleSurvey_FBIP.xlsx and load it. Click on CREATE PROJECT.

Project Name

ExampleSurvey_FBIP

Description

Enter short description here

Please specify the country and the sector where this project will be deployed.

Sector

Environment



Country

South Africa



Help KoboToolbox improve this product by sharing the sector and country where this project will be deployed. All the information is submitted anonymously, and will not include the project name or description listed above.

CREATE PROJECT

- e) Now preview the app by clicking on the preview icon. Examine all the features of the app. You will also be able to edit, and deploy the app as before.

Note: Another advantage of using an xlsform is that you can switch between different app collection platforms (e.g. Open Data Kit or Survey123). And you can also set up the app offline.