ICRISAT Nutritional Data System User Guide

ICRISAT **Cambridge University Engineering Department**

Contents

1 Introduction

This User guide was developed to support ICRISAT to transition from the current physical data collection system to the newly developed nutritional data collection application. The app can electronically store the individual's eating data and will also automatically complete the back end calculations used to find an individuals daily nutritional intake, and so should help simplify the workflow of the surveyors. This guide will allow the users to be use the app effectively and will go through the following steps:

- Setting up the
- Converting all the current files used for calculations into a form compatible with the app
- Editing, viewing and deleting data from the new data files
- Using the application to conduct the nutritional survey
- Viewing the output data which can be used to analyse the eating habits of a village

2 Overview of the User manual

To have a system which can collect data, process it and store it on a machine, firstly the app has to be compiled with all the relevant information, and secondly the app must be connected to the server so that the app can transmit information to a central memory storage location. Currently all the data files which store all the nutritional information are stored in csv format, but the app is only compatible with SQL files and therefore the current spreadsheets must be converted to SQL. The app must then be compiled with the changes

2.1 Project Folder

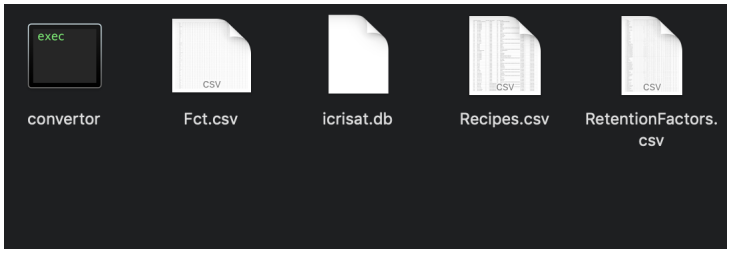
This guide should currently be in a folder containing the following other folder: This app is compatible with all android and ios devices, and the installation of the app and set up of the app will be explained in later sections application interface backend script csv convertor

3 Converting the csv files

3.1 Introduction

Currently all the information used for the nutritional calculations are saved in four different files: Recipes.csv, fct.csv, retentionfactors.csv and conversionfactors.csv. The

prototype files are provided in the directory, however there may be more recent files with ICRISAT which should be used instead for the app. Converting the files is easy to do and requires you to drag and drop the 3 csv files into the 'csv converter' folder however it is essential that the copied files are of the exact same filename and also that all 3 files are present in the folder, even if only one of them are to be updated. Once the csv files are in place, run the "conversion.py" script and a db file with all the updated information should be created.



3.2 conversionfactors

The conversionfactors spreadsheet is a new addition to the backend calculation process and it contains relevant information for converting different measurement units into grams. An example of how the spread sheets are filled is shown in the demo conversionfactors file, and all foods which should be included for the app ought to be filled in accordingly.

3.3 Compiling the app

Once the db file has been converted, they have to be placed on the app so that the phone is set up to know the compatible foods for the calculations. To do so drop the newly created db file into the FILL-LATER directory, and then compile the app which should create an apk file. To upload the apk file onto your android device please consult the following web page:

https://www.lifewire.com/install-apk-on-android-4177185

And once the app has been installed on the device the data collection process can be used.

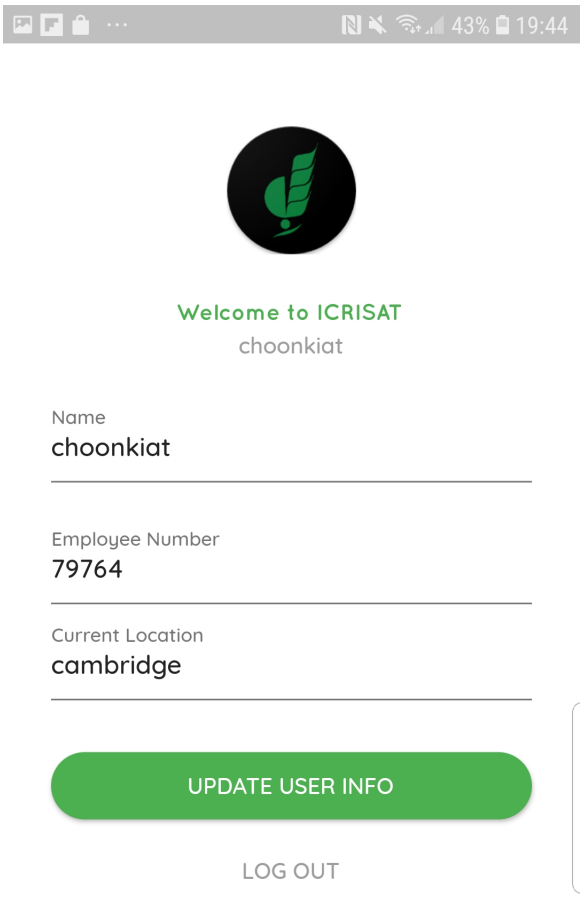
4 Using the Mobile App

4.1 Introduction

The mobile app is the interface which should be used to collect the nutritional information. The data collection process was designed specifically to match the previous D1 collection forms and this part of the guide will explain how to collect the D1 data on the app.

4.2 Logging in

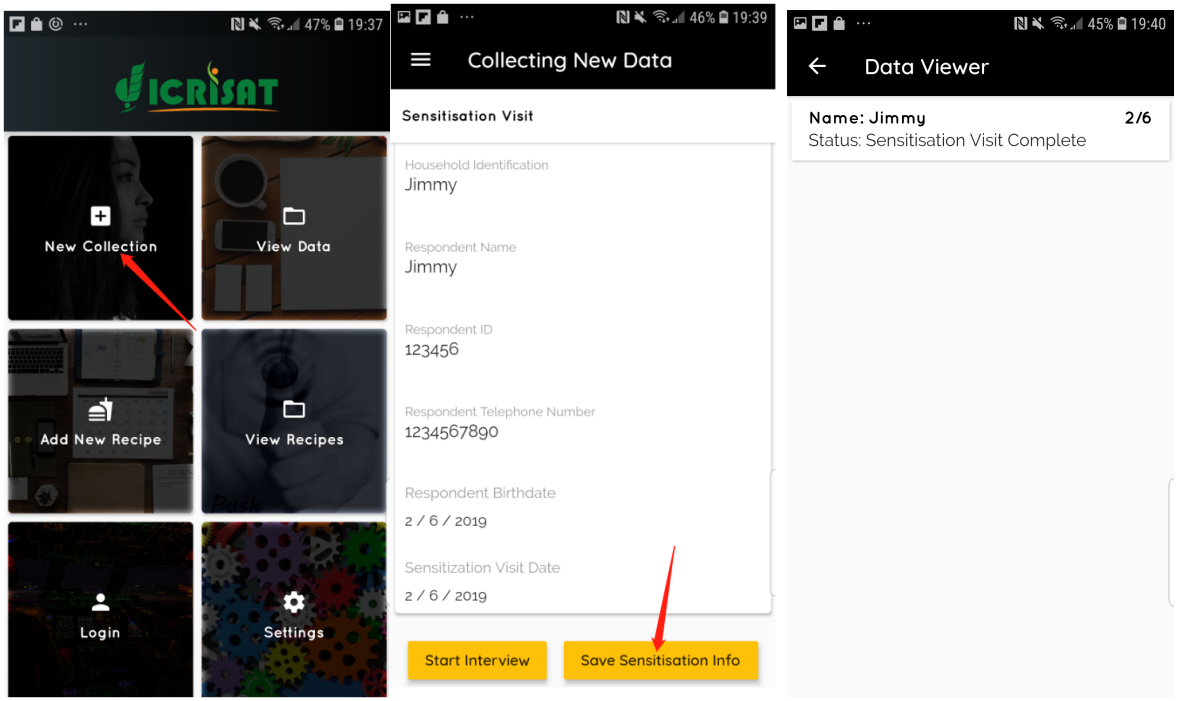
The login page is the first screen seen on the newly installed app and allows the data collectors to specify their identification and location so that the collected data in the future can be easily sorted. The app does not register accounts or require passwords, so the fields can be simply entered. Change the login details is also quite easy and can be access easily by the main app page.



4.3 Data Collection

4.3.1 Sensitisation

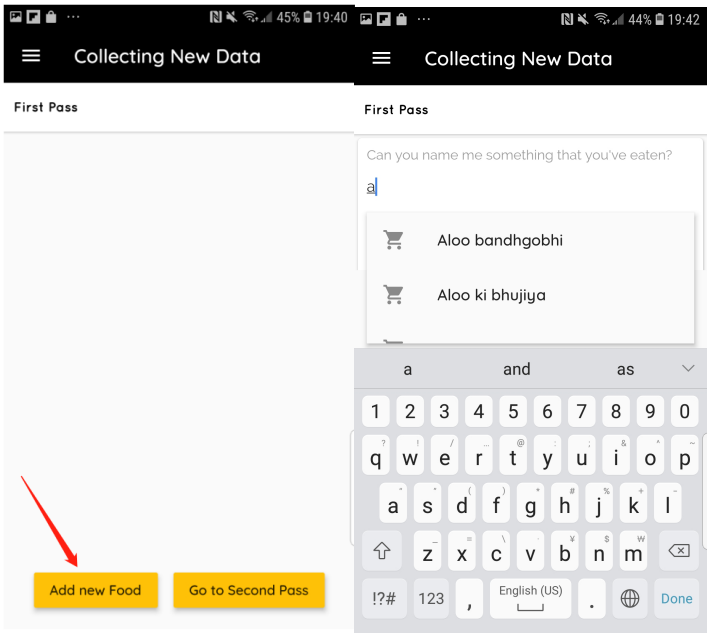
To begin the data collection process, simply click on “New Collection” from the main app screen and this will take the user to the starting sensitisation information. At the start of the data collection process the personal information of the surveyed individual must be collected, and this can be entered in the first “Senditisation Visit” screen. Once the data is entered, the user may save the sensitisation info which will then be saved in the view data folder for the future actual survey.



4.3.2 First Pass Information

HHID |__|__|__|__|__|__|__|__|__|__|							Respondent ID |__|__|__|				
FIRST PASS			SECOND PASS				THIRD PASS				
	A		B	Use Probe List	C		D			E	
Sl. No	Time period	Food item or name of the dish	Source of food	Description of food item or dish	Form when eaten	Recipe#	Measurement method	Measurement	Grams or milliliters	Size	Number

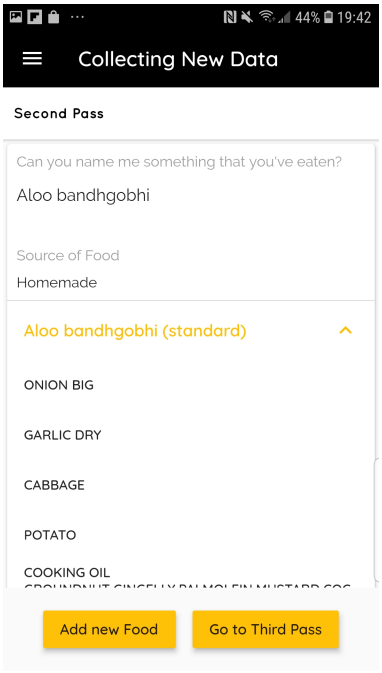
The table above shows the current data collection form, and the red arrows highlight the data which is first collected, the first pass information. In this stage the basic meal information is noted, and this can be done on the app (after sensitisation) by simply typing out the dishes which the individual has eaten selecting the relevant item from the drop down menu which shows the recipes which begin with the same letters. If this is a custom recipe it is also possible to manually writing the name of the new dish, and once the correct dish is selected, the “Add New Food” will add the food to the current first pass list



4.3.3 Second Pass Information

HHID |__|__|__|__|__|__|__|__|__|__|							Respondent ID |__|__|__|				
FIRST PASS			SECOND PASS				THIRD PASS				
	A		B	Use Probe List	C		D			E	
Sl. No	Time period	Food item or name of the dish	Source of food	Description of food item or dish	Form when eaten	Recipe#	Measurement method	Measurement	Grams or milliliters	Size	Number

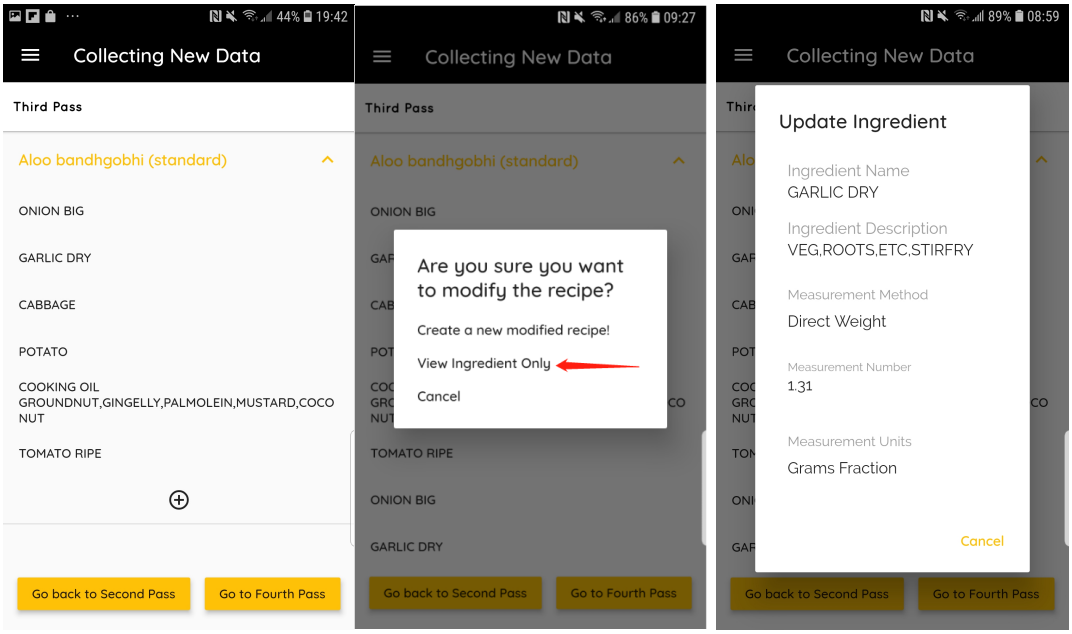
Once the first pass is fully filled one can enter the second pass by pressing the "Go to Second Pass" button. The red arrows in the form above highlight the second pass information, and once the first pass is complete the second pass allows one to specify the form of the dish and where the dish was from (i.e. homemade or restaurant food etc.). The page also display the ingredients used in the dish, and again one can delete or add ingredients as appropriate.



4.3.4 Third Pass

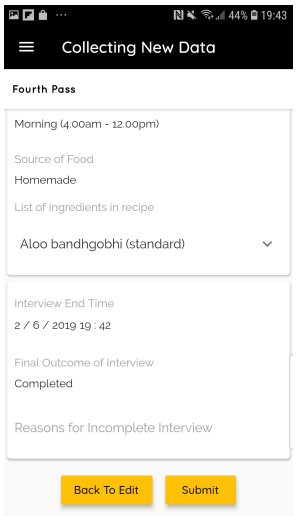
HHID |__|__|__|__|__|__|__|__|__|__|							Respondent ID |__|__|__|				
FIRST PASS			SECOND PASS				THIRD PASS				
	A		B	Use Probe List	C		D			E	
Sl. No	Time period	Food item or name of the dish	Source of food	Description of food item or dish	Form when eaten	Recipe#	Measurement method	Measurement	Grams or milliliters	Size	Number

The third pass is then used to specify quantities of each ingredient used as shown in the Table above. If the respondent uses a default recipe, the standard ingredients will be shown in the app and if any field needs to be altered this can be intuitively and easily done. EachThe third pass page will initially one display the name of each ingredient of each recipe and to either view or modify the ingredient details press the '+' button at the bottom of the recipe. From there any of the values such as weight or measurement unit can be changed, and it is also possible to ammend any previous errors which ay have occurred.



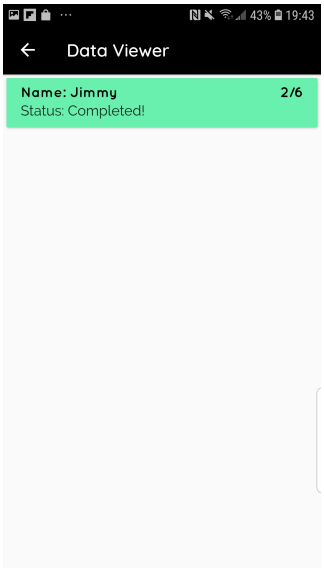
4.3.5 Review

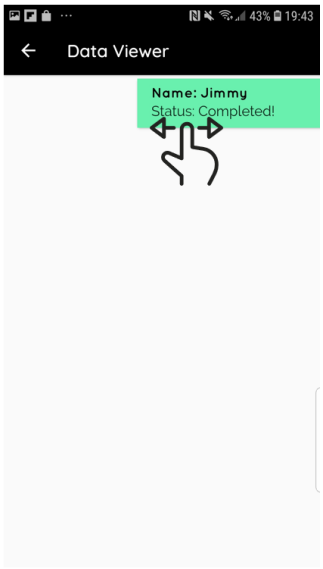
The final fourth pass is used simply to confirm the collected data is accurate and correct, and this page allows you to scroll through all the previously added data and return to previous pages if any errors are detected. Once the sureveyor has reviewed the data and confirmed it is accurate, the surveyor can submit the information which stores the data locally.



4.3.6 Viewing Data

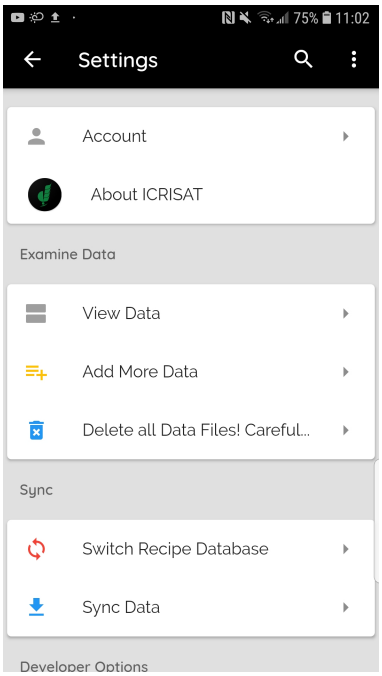
Any data from any sruvey at any stage can be viewed in the "View Data" panel from the app's main screen. Here any completed surveys will be highlighted in green and this page allows the user to view any collected data or modify any previous data if required.





4.3.7 Sending the app data to the server

The Setting panel of the app is used to send data to the server. Under the sync section, clicking the "Sync Data" button will automatically send the data as JSON files to the running server, and the back end calculations can then run to process the information. The output information from the back end calculation are stored in the file "outputdata.db" which can be viewed by following the instructions in the following section.



5 Reading the SQL files

5.1 Introduction

This next section describes some basic functionality of the SQL data viewer we developed using phpmyadmin, and this section will explain how it's possible to create, alter, drop, delete, import and export any MySQL database tables which should be handled.

5.2 Features

The main phpMyAdmin features are:

- Intuitive web interface
- Support for most MySQL features:
  - browse and drop databases, tables, views, fields and indexes
  - create, copy, drop, rename and alter databases, tables, fields and indexes
  - maintenance server, databases and tables, with proposals on server
  - configuration
  - execute, edit and bookmark any SQL-statement, even batch-queries manage stored procedures and triggers
- Import data from CSV and SQL
- Export data to various formats: CSV, SQL, XML, PDF, ISO/IEC 26300 - OpenDocument Text and Spreadsheet, Word, LATEX and others
- Creating complex queries using Query-by-example (QBE)
- Searching globally in a database or a subset of it
- Transforming stored data into any format using a set of predefined functions, like displaying BLOB-data as image or download-link

5.3 Administration

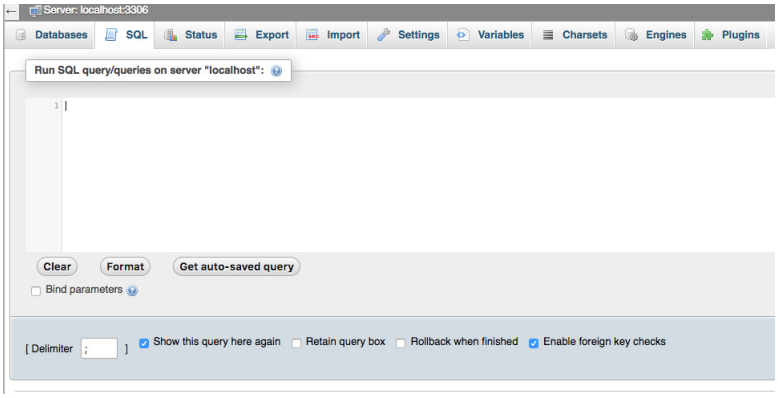
5.3.1 Databases

In the Databases tab you will find a list with all the databases which can be managed through the cPanel user.

Once you click on a chosen database name, you can start managing that database. You will see a table with the used collations, the number of the tables and the rows, the size of the data and the indexes, the total size and the overhead.

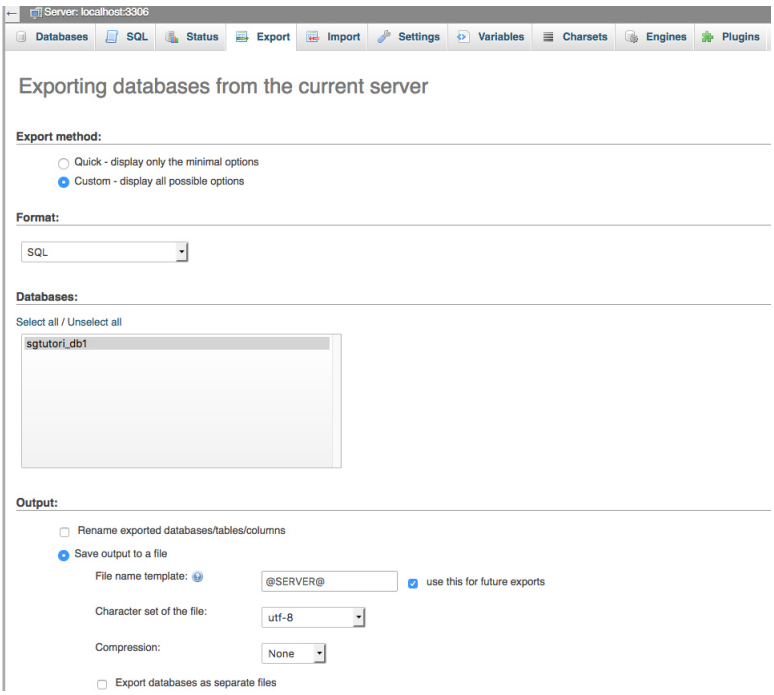
5.3.2 SQL

Using this tab you can perform a MySQL query towards the MySQL server. Just type in the query and click the Go button and the phpMyAdmin tool will execute the query and provide the results from it.



5.3.3 Export

In the Export tab you can export your database tables content in different formats (CSV, SQL, PDF, Microsoft Excel, Microsoft Word, XML, and many more). You can select all the database tables or just pick some of them. You can add custom

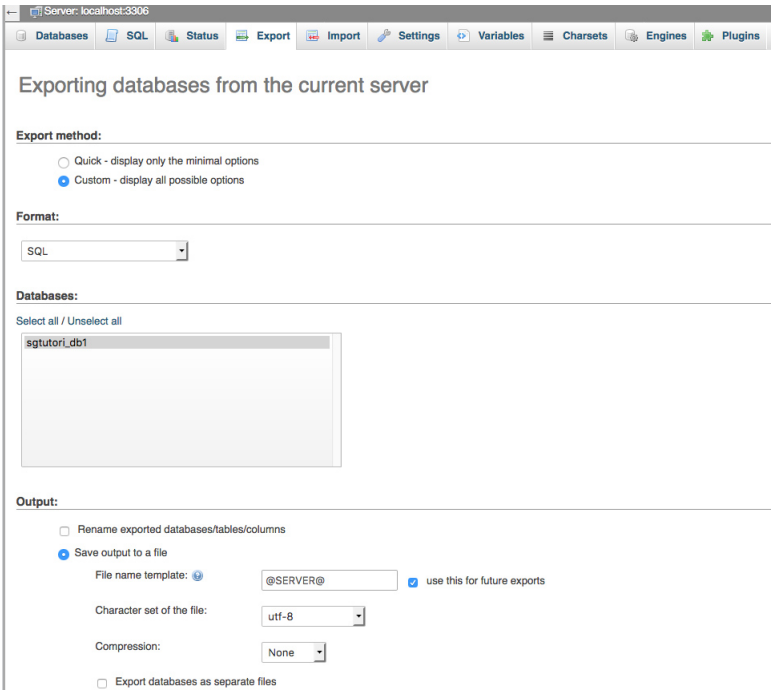


comments in the header of the exported content. You can decide whether to export

just the database structure, the data or both of them. You can export the database tables in a file and compress it or you can visualize the queries directly on the screen.

5.3.4 Import

In the Import tab you can import database tables from a file, saved on your local computer.

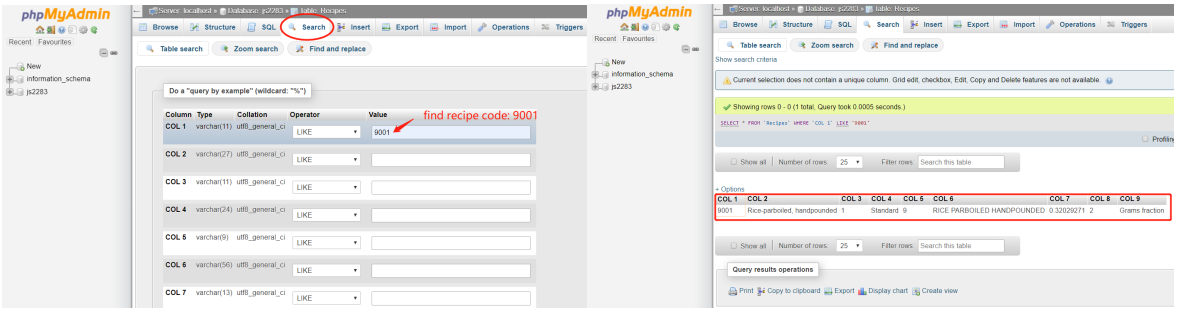


You can browse for the file to import and pick its character set from the drop-down menu. If the file is too big, the MySQL server timeout can be reached. In such a case you can interrupt the import action. Then you can continue with the data import defining the number of the queries to be skipped from the file beginning. In this way you will skip the imported queries and continue from the point of the interruption.
Additionally you can pick the SQL server mode of the imported file. You can find more details in the Server SQL Modes documentation.

5.4 Database Management

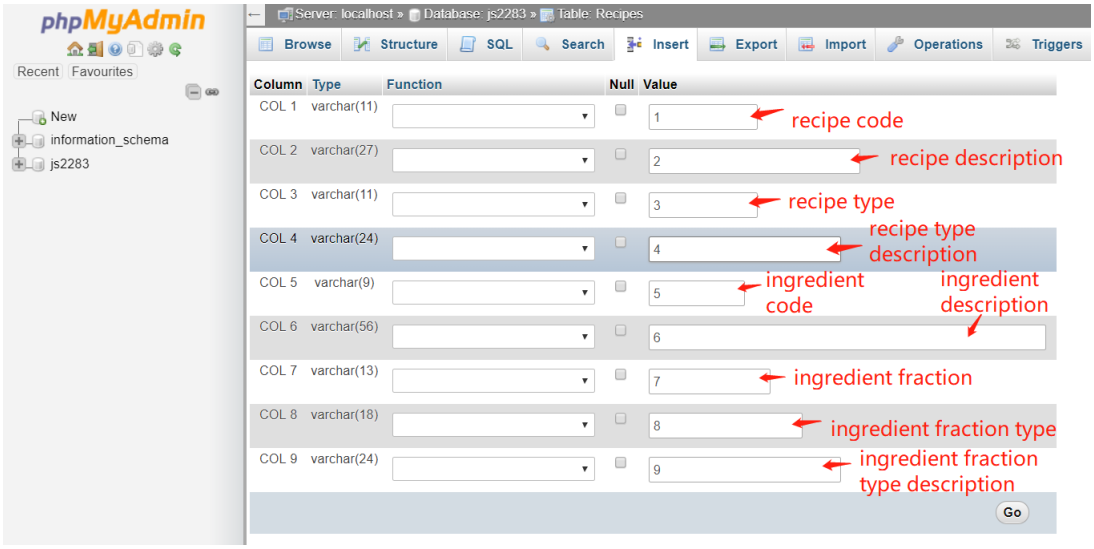
5.4.1 Search

With the Search button you can generate a search query for the chosen table.
You can use the Query by example functionality to perform a search. Just use to different fields to structure your search query and click the Go button to execute it.
For example, if you want to visualize all the records with a field value that starts with "a" you should first select the fields which you want to show. Pick the LIKE operator from the drop-down menu and enter in the corresponding field value "a%" (% stands for a wildcard string). Click on the Go button to see the result.



5.4.2 Insert

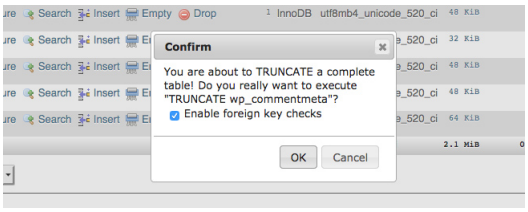
Using the Insert button you can insert records in your database table. Once you fill in



the corresponding values click on the Go button and the new record will be inserted.

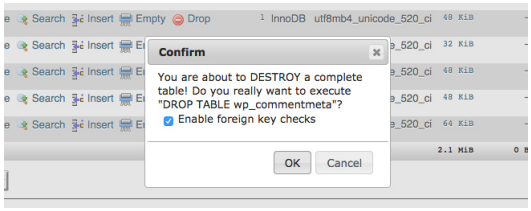
5.5 Empty

The Empty button allows you to empty a database table, removing the data and keeping the empty table.



5.5.1 Drop

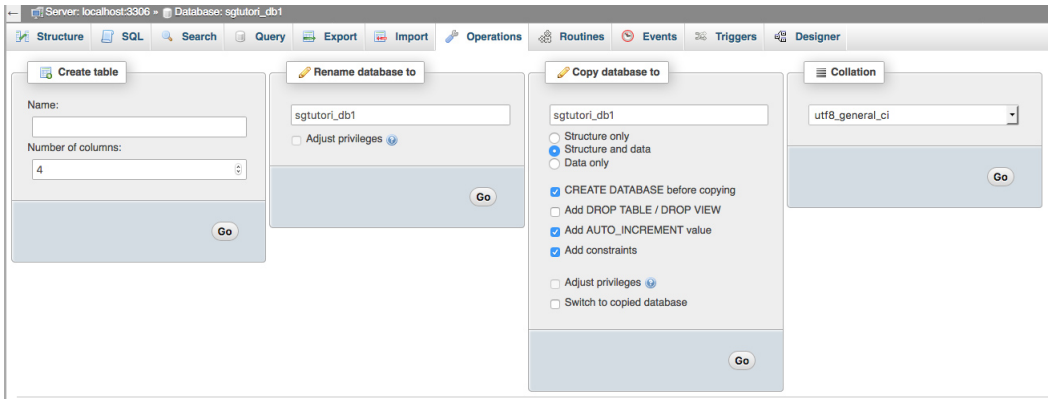
With the Drop button you can delete the whole table and all the records stored in it.



5.6 Operations

5.6.1 Database Operations

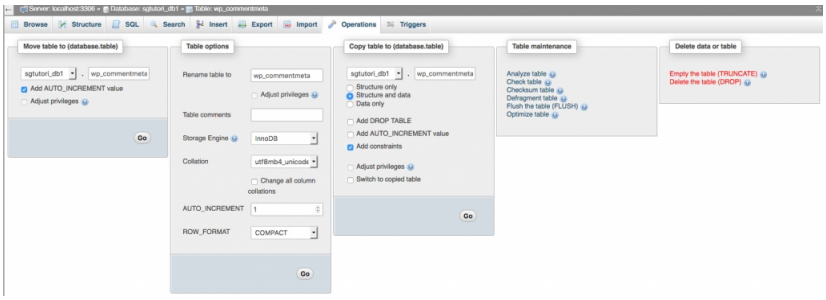
First you need to open the phpMyAdmin tool from your cPanel, then go to the Databases tab. Select a database and navigate to the Operations tab. A new page opens on which you can find all the possible operations which you can use on a database. The first section is named Create table. It allows you to create a new table under the



current database. Enter the table name and the number of the fields. Then click on the Go button to start the creation of the new table. After that, the process is the same as the one described in our tutorial.
The second section is named Rename database to. Renaming a database can not be performed directly through the phpMyAdmin area due to lack of privileges for the user. If you want to rename the database, you should create a new MySQL database, export the database tables and import them in the new one. Then you should delete the old database through cPanel -¿ MySQL Databases.
The same is the case with the Copy database to section. The difference with the above one is that you should not delete the source database.
The last section allows you to change the database Collation. Pick the preferred one from the drop-down menu and confirm the modification by clicking on the Go button.

5.6.2 Database Table Operations

To perform the corresponding operations on a database table, you should select the desired table in phpMyAdmin and click on the Operations tab. The Move table to section allows you to move the table with a new name under the current database or to move it under a different database.
In the Table options section you can rename the table, insert comments, change the storage engine and the collation.



Using the Copy table to section you can copy the table with a new name under the current database or it can be duplicated in another database.
Under the Table Maintenance section you will find different options which will help you to maintain your database table:

- Analyze table - analyses and stores the key distribution for the table. Then the MySQL server uses the stored key distribution for JOIN operations and for decisions which index to be used in a table query
- Check table - checks the table and the views associated with it for errors and problems
- Repair table - repairs a possibly corrupted table
- Optimize table - the action should be performed when you delete or modify many records from the table. It will reclaim the used space, defragment the data file removing the overhead and sort the indexes
- Flush the table - clears and reloads the internal cache related to the table