# Tim Daiber – 3rd Year Project – Specs

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# Introduction

My Project will an app that will give information / calculate the live expectancy

of a person.

The user will provide information about themselves (e.g. smoker, weight etc.)

This information will be stored on the database and kept.

The information will be calculated by an equation and the user will get an estimated age they will live to.

I wanted to make this app since I have never developed for android before. I am familiar with java but

have never created an android app.

This project has given me the perfect opportunity to learn the development in android studio and to

learn about the technologies that are commonly used in the android development environment.

For example, SQLite.

Datamining has become a very big marked and I wanted to know how apps store data from an app on a

database. The database that I am using is only locally stored and does not send the data to a server but I

find it interesting how the data is stored in the first place. In previous project the only database I have

worked with was MySQL so I want to try out other technologies that can be used to store data.

# Technologies

* Android Studio
* Java
* GitHub
* SQLite
* SQLiteManager (FireFox add on)

# Implementation

## Android Studio

Android Studio is a very good IDE to develop for an Android platform.

Upon Creation of a new Project the main\_activity (Main Page) is the page that will be initially loaded upon start-up of the app.

In this activity I have decided to Place all the main content of the app.

The user enters all the properties via Checkboxes Spinners etc.

Most information is Displayed through Text Fields.

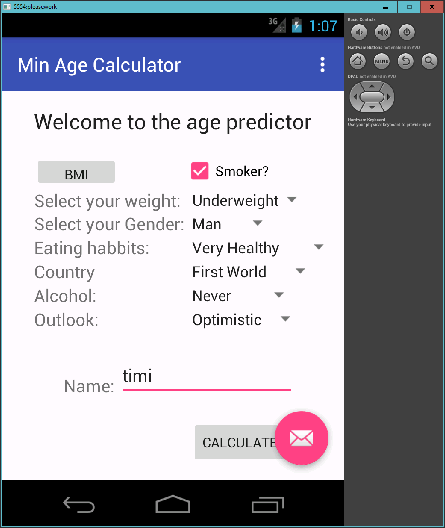
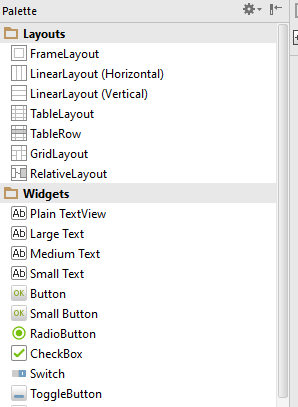


Fig 1 : Shows The main activity running in an emulator.

Activities can be manipulated in 2 ways:

### Palette

The Palette is a good and handy way to add functionality to an Activity.

It is just a drag and drop principle.

Dragging a button onto the activity will automatically create the button in the XML file for the activity.

Fig 2: Shows part of the Android Studio Palette.

### XML

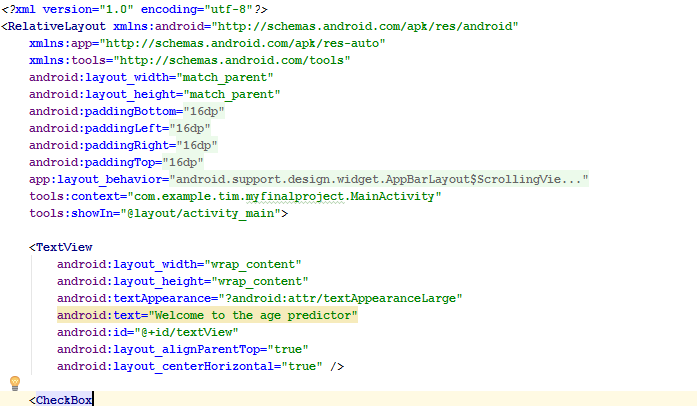
The other way to Design the activity can be done through the XML directly.

Fig 3: Shows Part of the content\_main.xml xml code

Of course both of these option can be used together as well.

### Spinner

A Spinner is basically a dropdown list in Android Studio.

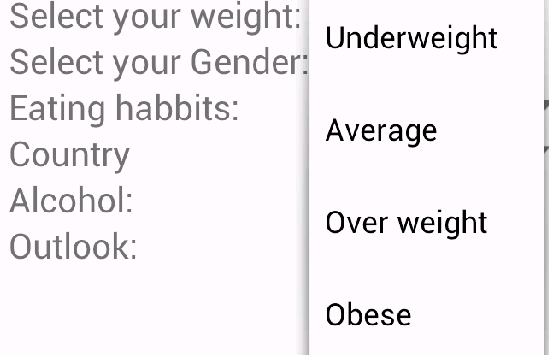
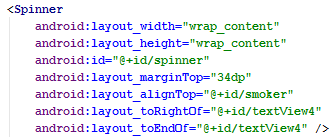
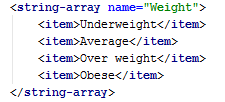
To Create a Spinner you could drag it into the activity or by adding it through the XML directly

Fig 4: Shows the XML code for the weight spinner object. Fig 5: Shows the weight spinner populated in the emulator

To add values to the Spinner the string.xml class has to be edited.

This is achieved by creating an Array of Strings

Where each item in the array represents one value that will be displayed in the dropdown list.

Fig 6: Shows the String array for the weight

spinner in the string.xml file

To display the items in the string array the activity must be edited through some Java code.

The spinner and the array must be linked together on creation of the app for the items to appear in the spinner.

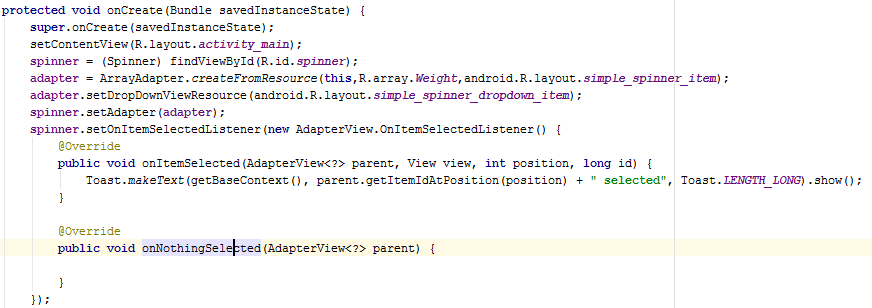


Fig 7: Shows the code for populating the spinner with the string array and adds select functionality

The code snipped above shows the linking of the String array “weight” to the spinner (spinner)

It also gives the functionality of selecting an item.

### Check Boxes

Checkboxes are another easy user friendly way to get information of the user.

Checkboxes can easily be accessed by searching for their assigned id and a simple if statement

Can be used to check if the checkbox is checked or not.

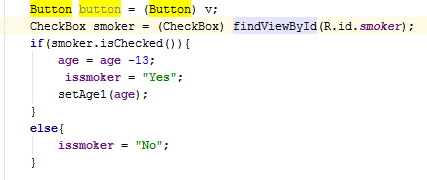


Fig 8: Shows the code code to get a specific checkbox by ID and checking if it is checked.

### TextFields

Textfields are an easy way to display messages to the user.

I have used quiet a few text fields to display text to the user.

Also a textField is used to display the calculated age to the user.

### Toast

Toast is a class that can be used to display popup messages to the user.

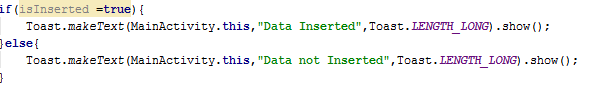


Fig 9: Shows the code for the display Toast message.

In this toast message the user gets a little popup message to determine if the insertion into the SQLite database was successful.

### Intent’s

“An Android **Intent** is an abstract description of an operation to be performed. It can be used with **startActivity** to launch an Activity, **broadcastIntent** to send it to any interested BroadcastReceiver components, and **startService(Intent)**or **bindService(Intent, ServiceConnection, int)**to communicate with a background Service.” See Reference 1.

I have used Intents to change from one activity to another.



Fig 10: Shows the code of creating new intend and passing in a value/variable.

This intend is in a Button on click. When the button is clicked the button listener will recognise that the button is clicked.

A new intent is created loading the Main2Activity class (Main2Activity Page).

A great thing about intents are that you can pass information from on activity to another through the intent. In the code snipped above I am using the intent to pass the variable “newage” into the new activity that is loaded by the intent.

### Calculation

The calculation for the age is very simply done by the adding or subtracting from the base age of 85

The user’s choices in the app determine what calculation is appropriate

e.g.: if smoker checkbox is ticked expected age goes down by 13 years.

## SQLite

I am using SQLite to create a locally stored database on the phone.

The DatabaseHelper Class is responsible for:

### Creating the database.

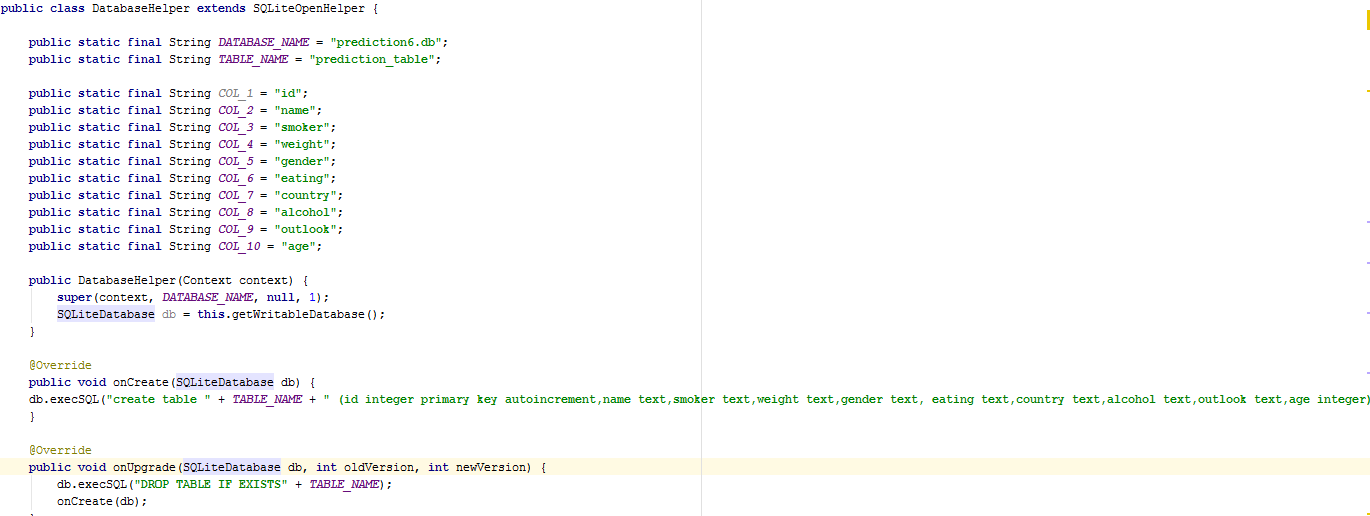


Fig 11: Shows DatabseHelper clas and the create query for the databse and a table.

An instance of the DatabaseHelper class is created upon creation of the main activity with the

Columns as seen above.

### Creating insert statements that will populate the database.

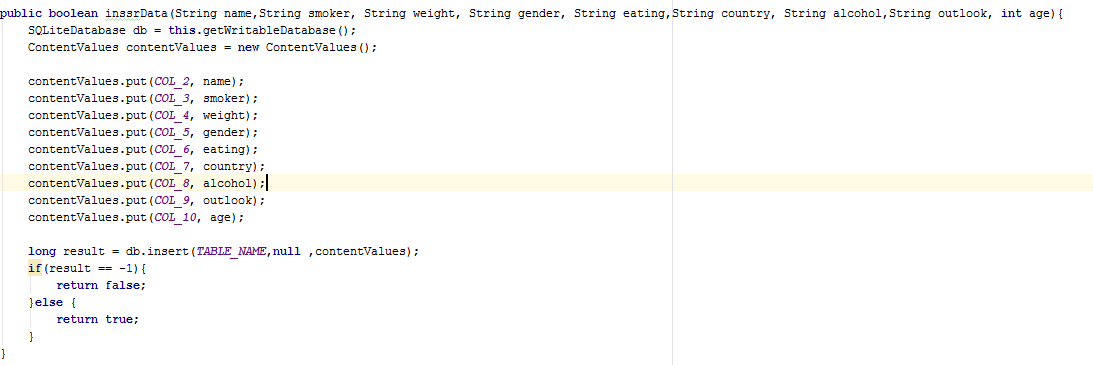


Fig 12 : Shows insert method for inserting data into TABLE\_NAME

The insert query is called when the calculate button is clicked.

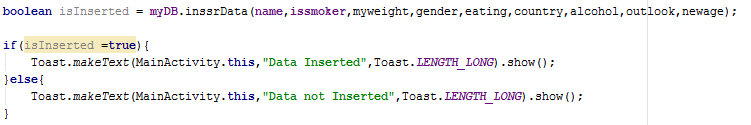


Fig 13: Shows code where inssertData method is called

It is responsible for all other queries :

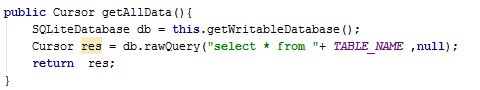
* 1. Get all data: 

Fig14: Shows getAllData method in DatabaseHelper class

Creates a SQL query to show all the data in the TABLE\_NAME table.

This Query is linked with an AlertDialog which is linked to an onClick event of the View Details Button.



Fig 15: Shows ViewData method in DatabseHelper class

Upon clicking the button, a AlertDialog is launched that will display the data gathered by the query.

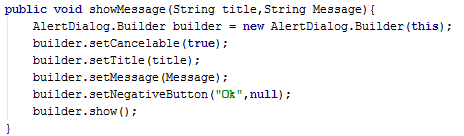


Fig 16: Shows AlertDialog method.

The OK button will allow the closing of the ALertDialog window.

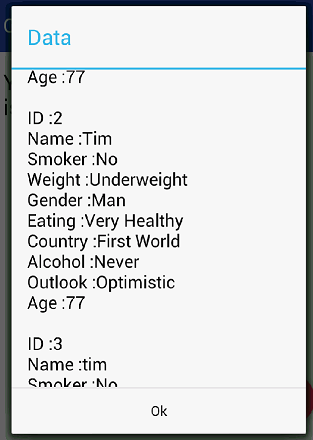


Fig 17: Shows AlertDialog Displaying data in the emulator.

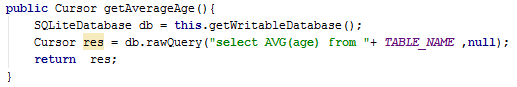
* 1. Get average age query: 

Fig 18: Shows getAverageMethod in the DatabaseHelper Class.

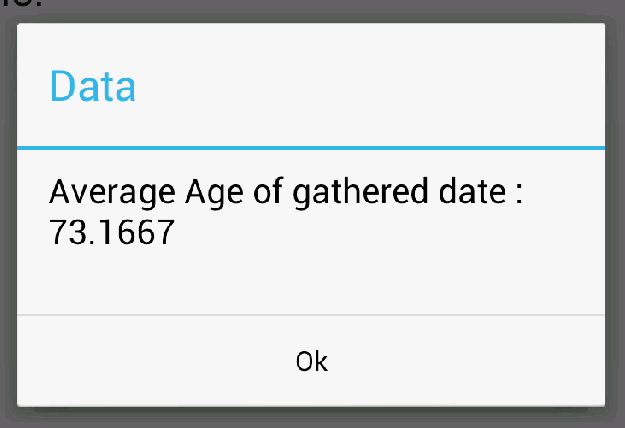
Gets the average age of all the data in the table TABLE\_NAME. 

Fig 19: Shows the AlertDialog message Running in the emulator.

## SQLite Manager

SQLite Manager is a Firefox add-on that lets the user open up a SQLite database and manipulate it.

I have used this Technology to Test if the database has successfully been created, If the data has

successfully been inserted into the database and have used it to test he query’s that I want to use in the

App.

When the App runs the first time the Database is created on start-up and can be extracted out of the emulator by going into the “Android Device Monito” -> Data -> data -> find the app in the list -> databse.

The database name is prediction8.db

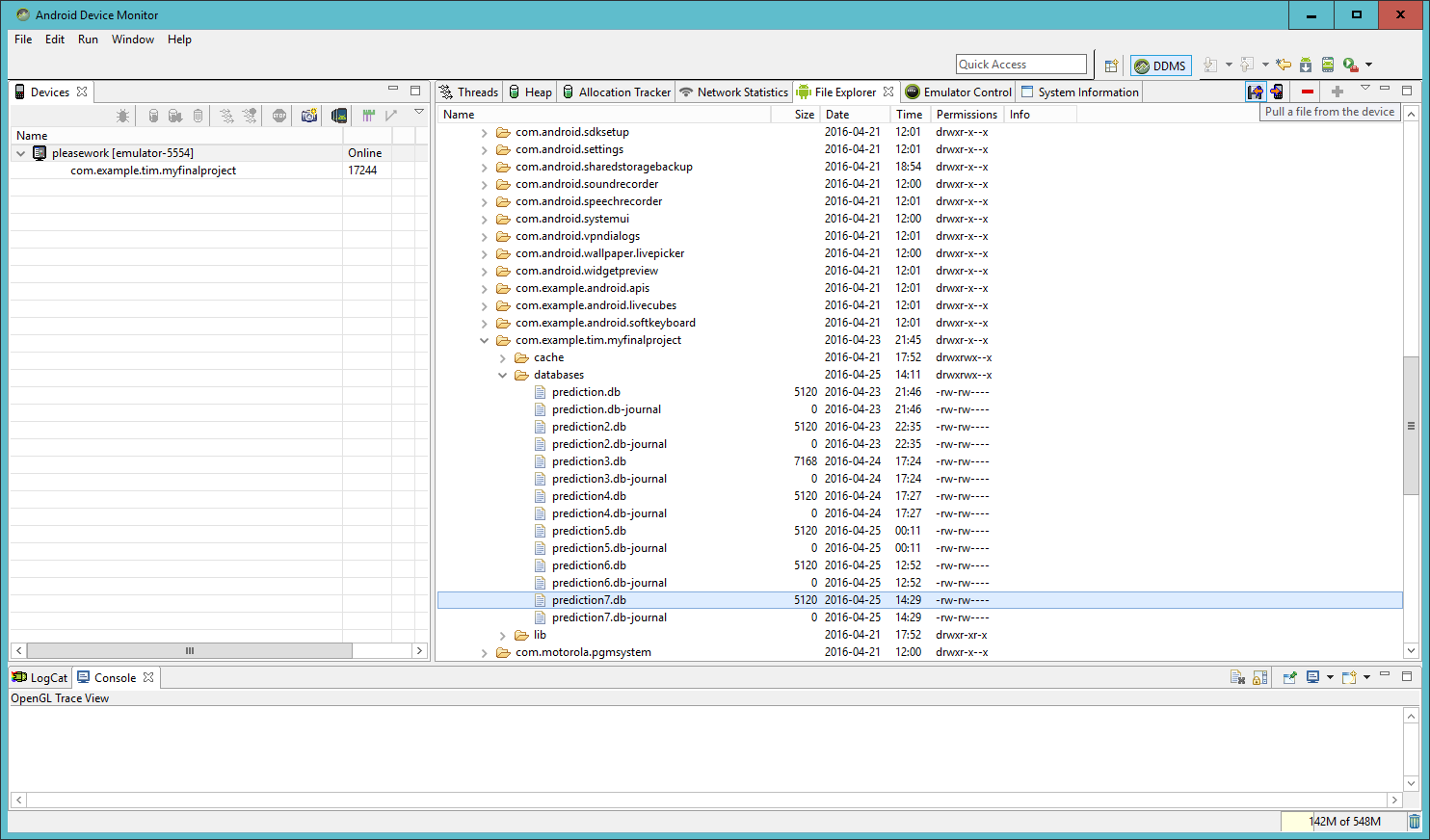


Fig 20: Shows where the database can be found on the emulator.

The database can be extracted from here.

I have saved a copy of the database in the folder.

Using the SQLite Manager add on you can open the database.

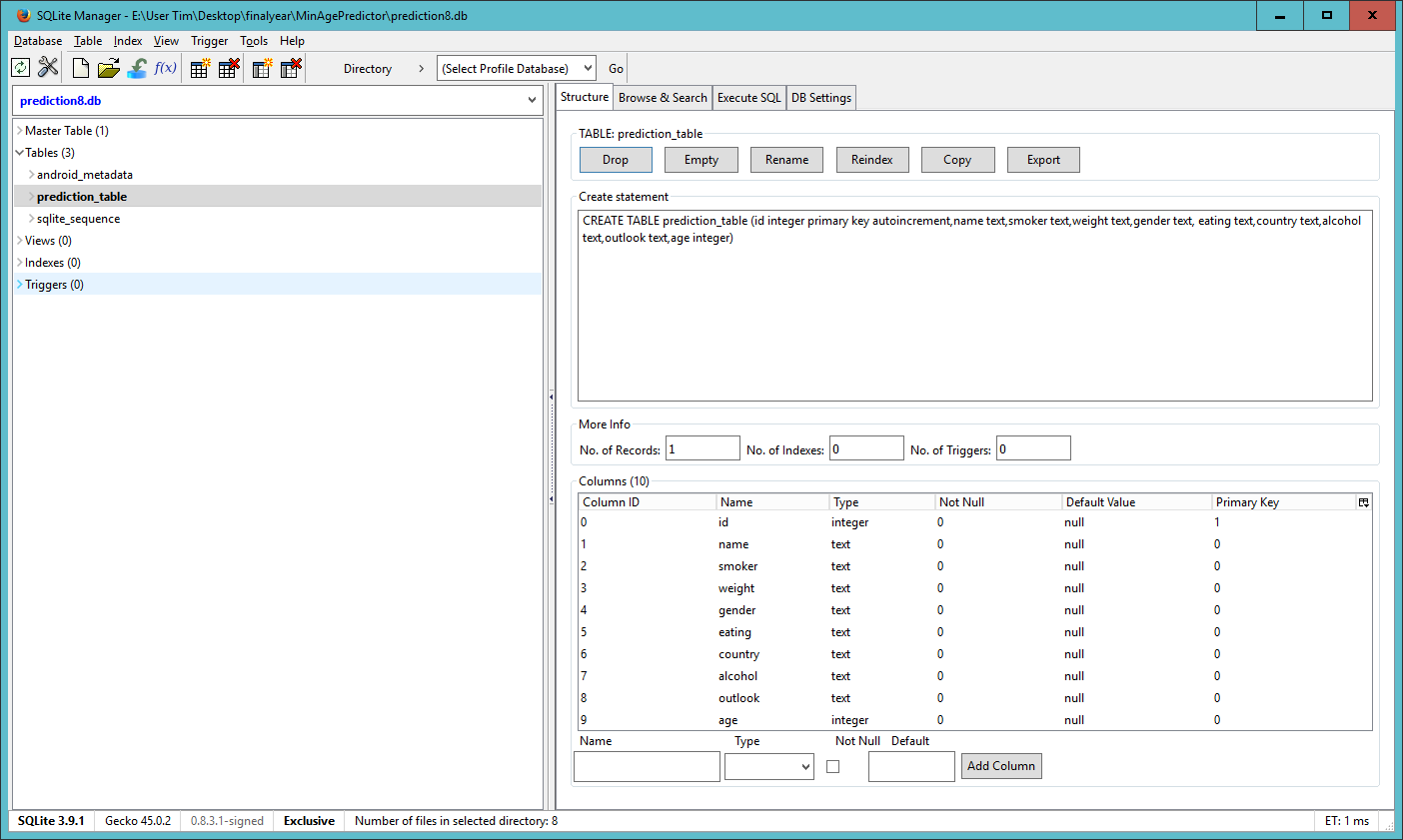


Fig 21: Shows the prediction\_table in SQLiteManager add-on.

In the SQLite manager you can see the details of the Table and the create statement.

In the Brows and Search tab of the add on you can observe what entries have been made to the

database.

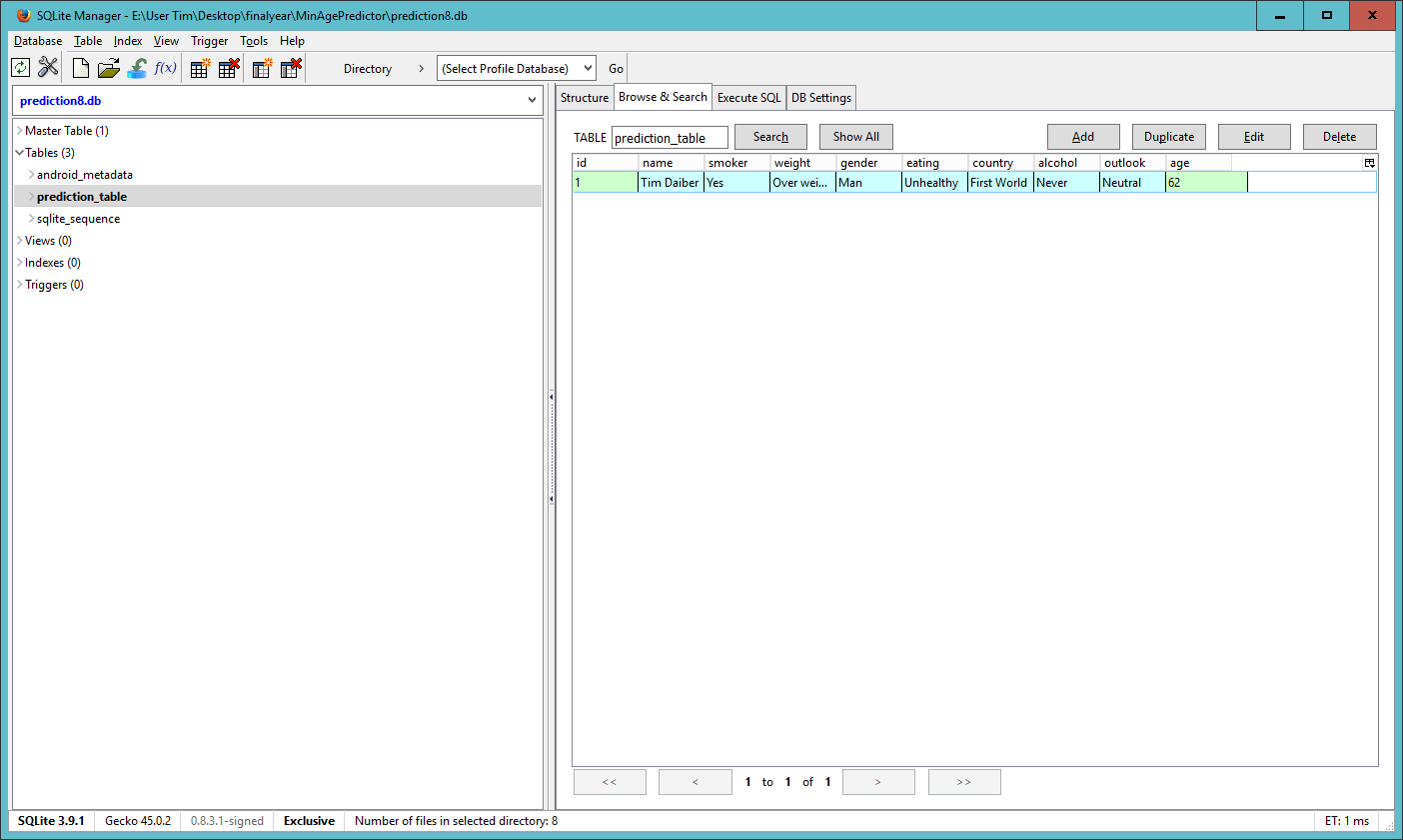


Fig 22: Shows the entries made in the SQLite manager add-on.

In Execute SQL tab queries can be tested before implementation into the app.

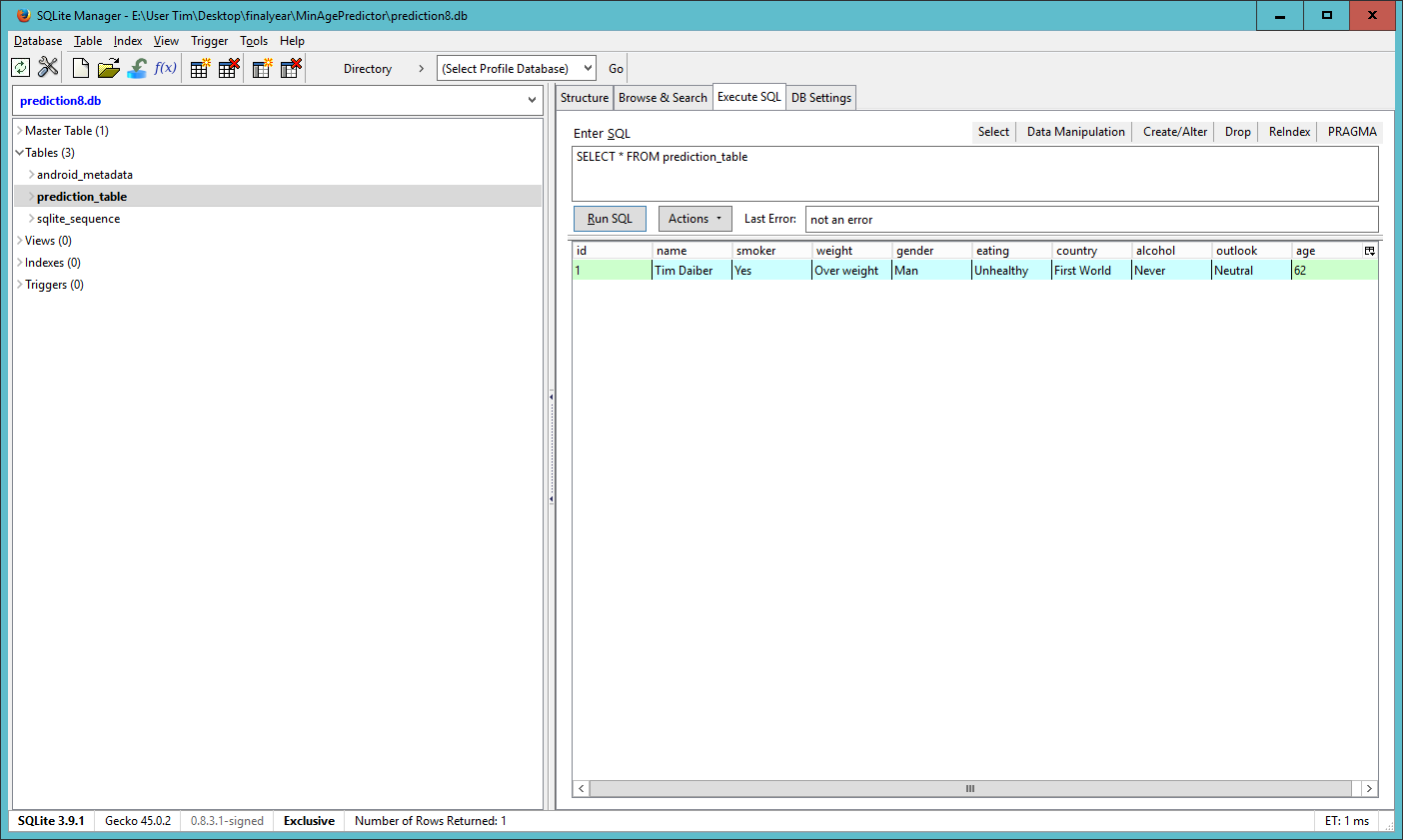


Fig 23: Shows the execute query tab in the SQLite manager add-on executing a test query.

I have included a screen cast of the extraction of the database and the use of SQLite Manager add-on in the Project folder.

# Development Ideas

The Development of the app will be done on Android Studio (Java).

Android Studio will be linked with my GitHub account to store my project and make it easily accessible from anywhere.

The Database will be designed in SQLite and will hold data that the user will input / receive.

## Why?

I have chosen Android Studio to be my IDE since it is an ideal platform to develop android apps.

Java is the language I have chosen since it is native to the android environment.

# Expected Learning outcomes

Android app expertise

Database creation and management

Creation and maintenance of a server

Designing and Developing an app

# Conclusion

# Reference

1: http://www.tutorialspoint.com/android/android\_intents\_filters.htm

<https://www.youtube.com/watch?v=GIu0EeMTVHY>

<https://www.youtube.com/watch?v=KhSM_CRCLRo>

<https://www.youtube.com/watch?v=PA4A9IesyCg>

<https://www.youtube.com/watch?v=pzf-XGqVcjM>

<http://www.death-clock.org/>

<https://en.wikipedia.org/wiki/Life_expectancy>

<http://never-ending-of-art.blogspot.ie/2011/05/how-to-calculate-your-bmi.html>

# Summary

# Appendix