Faculty of Science

Course:	CSCI 4100U: Mobile Devices
Assignment:	#2
Topic:	Internet Resources, Database Access

Note: This assignment is meant to be completed individually, but you can work in teams of 2 if you choose. Just be cautious that both group members learn everything they need in order to complete the assignment. Be sure to indicate when submitting the assignment both team member names, if working as a team.

Introduction

In this lab, you will build a price browsing application. The application will use an SQLite database to store the information about a few products. The application will allow the user to scroll through the various products (e.g. with a Next and Prev button). The application will also allow the user to add a new product (via the menu) or delete a product (via a button). The application will use a web-based API to determine the price of the product, by converting its price in CAD to BitCoin.

Instructions

- Create a database helper class, ProductDBHelper
  - This class should take care of the creation of the database table and population of that table with sample product data (the data is your choice)
    - productId (integer, primary key)
    - name (string)
    - description (string)
    - price (decimal)
  - This class will have a function for querying the database, finding all products
  - This class will have a function for deleting a product from the database
  - This class will have a function for inserting a new product into the database
- Create the main user interface, browse_products_activity.xml
  - Menu item for "Add New Product"
  - Button for "Next"
  - Button for "Prev"
  - Button for "Delete"
  - Labels and (uneditable) text fields for name, description, price (dollars), and price (bitcoin)
- Create a class Product, which stores the productId, name, description, and price of a product
- Create the main activity, BrowseProductsActivity
  - Initially, this activity will use the query function in the database helper to find all products
  - Create a function to display a product (showProduct)
    - The function takes a Product as an argument
    - The name, description, and price for the first product found is displayed in their respective text fields
    - The price is submitted to a web service to find the corresponding price in BitCoin
    - The BitCoin price is displayed in the corresponding text field
  - Once the products are loaded, call showProduct() with the first product
  - When "Next" is clicked, call showProduct() with the next product
    - If there are no further products, disable the "Next" button
  - When "Prev" is clicked, call showProduct() with the previous product

- If there are no earlier products, disable the "Previous" button
  - o When "Delete" is clicked, call the database helper function to delete the product
    - For simplicity, query the database again to get all of the products again
  - o When "Add New Product" is selected (from the menu), invoke the AddProductActivity
- Create the helper user interface, add_product_activity.xml
  - o Three label/text field combinations: name, description, price (dollars)
  - o Button for "Save"
  - o Button for "Cancel"
- Create the helper activity, AddProductActivity
  - o When "Save" is clicked, call function on database helper to insert new product using values from the text fields, clear the text fields, then stop the activity (returning to Browse-ProductsActivity)
  - o When "Cancel" is clicked, clear the text fields, then stop the activity (returning to Browse-ProductsActivity)

Instructions

The web service you will be using can be found at the following sample address:

```
https://blockchain.info/tobtc?currency=CAD&value=49.99
```

The *currency* parameter should be CAD (Canadian dollars). This is the currency of the prices in the database. The *value* parameter should be the price of the product (in Canadian dollars). The web service returns a text file containing a single floating point number (see for yourself in a browser using the address above). This is the price in BTC (BitCoin).

It is recommended that you wrap all of this functionality into a function called `convertToBitCoin()`, which will take a single float as argument (the CAD price), and returns a float (the BTC price).

Rubric

Assignments will be marked according to the following rubric:

Element	Value
Database helper class	4
BrowseProductsActivity and its UI	1
AddProductActivity and its UI	1
Downloading data from BitCoin website, Async-Task	4
Total:	**10**

General Guidelines

In our lectures, we have discussed many best practices for developing mobile apps, as well as best practices for the Android platform. Part of your mark will be allocated based on how well you adhere to those best practices. Other best practices you should be following include proper variable/method naming, and reasonably documented code. This means you don't need to document every line of code, but some of the high-level functionality.

How to Submit

Create a ZIP file (e.g. Asmt2_RandyFortier.zip or Asmt2_RandyFortier_and_FredTeammate.zip) containing all of your source code, resources, etc. for the project. Upload this ZIP file to Blackboard using the drop

box for this assignment. Do not use WinRAR or any other archive file format. If you do not have access to a free ZIP-compatible program, check out 7-zip.