

Alcometer

Code Camp document

Group 4

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1. The Idea

The idea behind Alcometer is simple. The intended user wants to keep track of his/her level of soberness. This is done by actively inserting the drinks into the system while you're drinking them. The user can also insert custom drinks into a database. The drinks are "drunk" by pressing the appropriate button on the main display.

The current blood alcohol concentration (BAC) is calculated based on your weight, gender and the number of grams of pure alcohol in your blood at the moment

2. The Problem

The problem is making the software as easy to use as possible while maintaining the required functionality. Since the software is meant to be used intoxicated, the user interface needs to be extremely clear. Drunken people aren't known for their high level of patience or their ability to think clearly, so the application also needs to be responsive and give instant feedback on the registration of the drink.

People also don't always drink the same drinks time after time. This is why a clear and simple drink management-interface is needed.

3. Non-technical description of the software

The application consists of four interfaces:

Main Interface

Settings Dialog

Manage Drinks Dialog

Drinks Log Dialog

Details of these interfaces are described below.

3.1. Main Interface

This is the starting screen of the application and the place where most of the interaction happens. The screen is divided into two sections. Topmost is the output section and the rest of the screen is filled by the drinks list.

Output Section of the application contains two parts, an image illustrating the current status of BAC and percentage of BAC. BAC percentage is automatically updated on small intervals indicating the remaining effect of the alcohol on the body of the consumer, since with the delay of time, the effect of alcohol on the consumer's body diminishes.

Drink List contains various kinds of drinks. When user presses a drink, its BAC value is calculated based upon the preset weight, gender and alcohol percentage of the particular drink. There is a small delay after each press on the drink button to minimize the unwanted repeated repress.

Menu will be activated on pressing 'Menu' button on the phone. Menu contains four options:

Manage Drinks will load a dialog to manage the current list of drinks. It allows adding a new drink, deleting an existing drink and editing the details of an existing drink (including its name, volume, alcohol percentage and image).

Drink Log represents the list of the drinks you selected on this application session.

Settings shows a dialog to update gender and weight of the user.

Exit closes the application.

3.2. Settings Dialog

Settings dialog manages the user details (weight and gender). These can be setup here.

3.3 Manage Drinks Dialog

This dialog allows the managing of the drinks database. It has three functions.

Add a new custom drink: User can create a new drink to be populated on drink list with the input of drink name, percentage of alcohol percent on the particular drink, volume of the drink and a custom image to be selected from a set of predefined images.

Edit a drink: User can modify existing drink to change any of the attribute associated with the existing drink including its name, image, percentage of alcohol and volume of the drink.

Delete a drink: User can delete a drink from the current drink list.

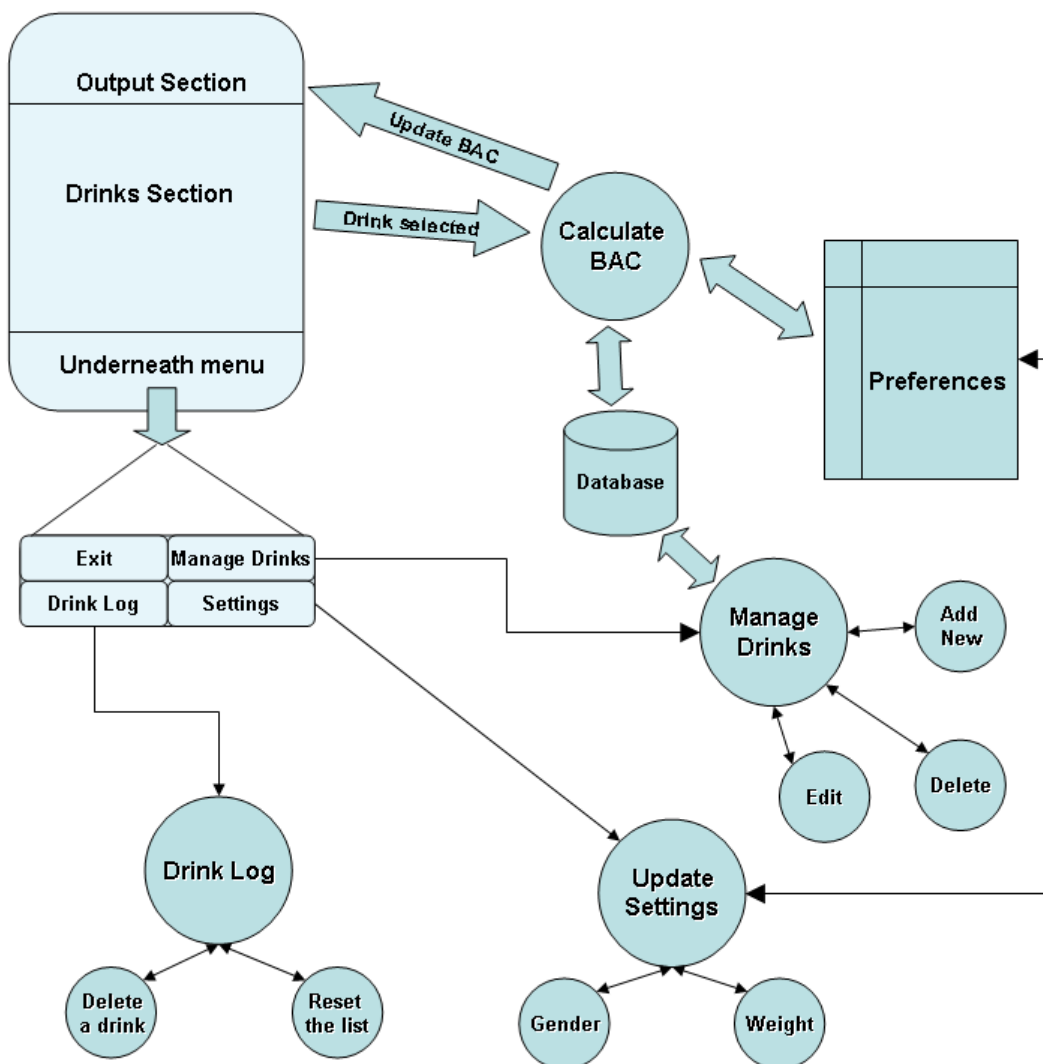
3.4. Drink Log Dialog

The drink log contains the list of drinks drunk this session. It's cleared when your BAC hits zero and you restart the application. It can also manage this log.

Remove a drink from the log: User can remove any drink from the log entry by selecting the particular drink and then pressing Remove button. It will also update the current BAC percentage and countdown of the timer on output window to refresh the modified BAC after removing the previously selected drink.

Reset the Log: It will reset the entire history of the drinks consumed by the user. It will result the BAC to be reset to have a fresh initialization.

4. Technical design



Picture 1 Basic design of the program

The picture represents the basic structure and flow of our application. At the heart of our program is the database containing the drink information.

Each time a user presses a button representing a drink, the application runs the BAC calculations. This calculation is based on the information found in the database matching the drink button id. The calculations are also performed at timed intervals. This calculation takes into note how much alcohol has burned away during the session.

The drink manager uses the same database. Through this the user can enter new information into the database and modify existing data. The user preferences used in the calculations are found in the preferences file associated with the program.

The drink log uses a different database. This database only contains the session drink information. This database is cleared each time the user's alcohol level hits 0%.

5. Misc

We used the following technologies during the Code Camp.

- SQLite
- Java
- Android SDK

One nifty feature about our implementation is the fact that each button representing a drink is actually a small XML-layout, that's dynamically inflated during the runtime. This allowed us to have a lot more control on the placement of the texts around buttons etc.