MintTrack Test Plan

# Introduction

The MintTrack android application is a tool to keep tabs on personal finances. It allows daily financial events to be organized into individual transactions to later be recalled to reference. Transactions are organized into categories to help group like types of transactions in an ordered way. Accounts are also provided to represent different financial entities such as a bank account.

# System Overview

1. **Hardware**: The hardware includes any Android powered mobile device running the Android SDK 1.5 and up. Any mobile device should be considered an embedded device and thus software efficiency must be considered in all tests.
   1. Input Considerations:
      1. Touch Input: Tests will need to involve testing the interaction between the application and the touch input.
      2. Keypad Input: Tests will need to involve testing the interaction between the application and the keyboard input.
   2. Performance consideration:
      1. Due to the devices embedded nature performance testing a different device environment is vital. The Android device requires a 10 second response time thus if an application takes any longer it will be closed by the operating system.
      2. While examining the application it is vital to analyze the application’s memory footprint. Due to the embedded nature of the device, the amount of memory used by an application must be as minimal as possible.
2. **Database**: All financial information will be stored in a SQLite database. Due the SQLite's dynamic typing testing must take into consideration test cases that verify the accuracy of data being stored. The accuracy and stability of the data being stored in the local database must be as accurate as possible thus it is vital to verify the accuracy of all input interactions.
3. **Android Framework**: While the Android framework has matured enough to be trusted in most cases it should not be left out of test cases. Verifying important interactions with the android framework are vital to verifying low level interactions with the mobile device. Test cases must be also created to test that the framework has been properly used through the MintTrack application. Due to the fact the android platform is so young the likelihood of developers using the framework incorrectly is rather likely.
4. **MintTrack Layered Architecture**
   1. Graphical Interface Layer
      1. The MintTrack GUI provides a four tabs interface for interacting with the overall application.
         1. Home Tab - Provides summarized and total information about overall financial status. The most recent transactions are also displayed on the home tab to act as a helpful reminder of recent activity.
         2. Entry Tab - Allows the entry of financial transactions. This includes income, expense, and transfer transactions. The entry tab queries multiple tables to provide drop downs displaying available accounts and categories in the database system.
         3. Audit Tab - Introduces the ability to query transaction history based on a user provided data range. The audit tab also provides buttons for deleting and editing specific transactions. If edit is pressed information is passed to the entry tab to allow it to modify a specific transaction based on row ID.
         4. Tools Tab
            1. Manage Accounts: Used to add, edit, and delete accounts
            2. Manage Categories: Used to add, edit and delete categories
            3. Tip Calculator: Used to calculate the amount of a tip based on a specific dollar amount entered by a user.
   2. Middleware Interface Layer: the middleware interface is a consistent way of accessing the database. The middleware attempts to hide the complexity of the database from those using the interface classes. It also handles the overall management of the database without any visibility to its user.
   3. Database Layer: Low level classes that provide direct interaction with the different tables in the database. These layers should be hidden from the higher level developer to help reduce complexity.

# Features to be Tested

1. **Home Tab Features** - Provides a summary of overall transaction history
   1. Recent Transaction - By default the home tab displays the four more recent transactions to occur in the system
   2. Totals - The totals on the home screen help to summarize all transactions introduced into the application. The totals do not represent the totals located in the actual accounts but is instead an accumulation of transaction amounts.
2. **Entry Tab Features** - Used to enter transactions into the application
   1. Transaction Types - A transaction is any new financial event that is input via the user
      1. Expense - A transaction that reduces the amount of money in a specific account. The account that an expense reduces is considered the "From Account". An expense is any type of financial event that decreases a person’s money on hand, for example, buying something would be an expense.
      2. Income - A transaction that increases the amount of money in a specific account. It is used in the event of any financial event that the user receives income. For example, a user may enter their paycheck as income into the MintTrack application
      3. Transfer - A transaction that is used to take currency from one account and add it to another account. A transfer would occur in the event that a user moves money around within financial accounts. An example of a transfer is moving money from a checking account into a savings account.
   2. Edit Transaction - The entry tab is also used to modify existing transactions. When a user presses edit under the audit tab on a specific transaction its row ID is passed to the entry tab to allow it to be populated into the entry tab. The entry tab then modifies its default display to make it to appear as though the user is using a new feature. The interface provides the ability to modify all data elements, save any modifications, or cancel the modification.
   3. Dynamic Dropdowns: Drop downs are provided for specific data elements required for a transaction. The drop downs include categories and accounts. The drop downs are dynamically populated from the database tables.
3. **Audit Tab Features** - Used to review historical transaction data
   1. Querying: The audit tab provides the ability to query the entire transaction history based on a date range. A user has complete control of the granularity of what will be displayed by searching based on any range of time.
   2. Support Transactions - The audit tab supports the display of all transactions created via the entry tab. All information entered for a specific transaction type is displayed row by row per transaction.
   3. Transaction Interaction- After querying the database, if a transaction is pressed it displays actions that may be performed on that specific transaction.
      1. Edit Action: Pressing the edit action redirects the user to a special version of the entry tab that allows them to make modifications to the selected transaction. From the entry tab they can either save or cancel the interaction.
      2. Delete Action: The delete action will remove the existence of the transaction from the database. It will also update the account and category tables accordingly based on what is being deleted.
   4. Scroll - When too many transactions are to be displayed on the screen the audit tab provides the ability to scroll vertically.
4. **Tool Tab Features** - Used to interact with secondary features of the overall MintTrack application
   1. Account Manager: Provides all the functionality to manage accounts including add, remove, and editing actions.
      1. Activate/Deactivate Actions: A user is able to activate and deactivate accounts once they are added. If a user is no longer using a specific account it must still be included in the database for past transactional referencing. Deactivating an account will hide it from the account drop downs under the entry tab.
      2. Add Action: Allows the creation of a new account. This includes a name, and current balance.
      3. Edit Action: Used to correct the naming or balance of an existing account.
   2. Category Manager: Provides all the functionality to manage categories including add, remove, and editing actions.
      1. Activate/Deactivate Actions: A user is able to activate and deactivate categories once they are added. If a user is no longer using a specific category it must still be included in the database for past transactional referencing. Deactivating a category will hide it from the category drop downs under the entry tab.
      2. Add Action: Allows the creation of a new category. This includes a name, and current balance.
      3. Edit Action: Used to correct the naming or balance of an existing category.
   3. Tip Calculator: Allows the calculation of tips based on a purchase amount and specific percentage provided by the user.