**Problem Statement:**

I plan to build a mobile application that allows a user to access their savings and checking accounts and perform basic and typical transactions on said accounts from their mobile smart phone. The application is a mobile banking application designed for android mobile devices with Icecream Sandwich or higher operating systems. This application allows a user to login and access their checking and savings account information. The user is allowed 3 max attempts to login before the app shuts down. The user may access either their checking or savings account and perform typical transactions on them. Users may withdraw, deposit, or transfer requested funds between the accounts if applicable. The user may quit the application from any screen.

The program will benefit the end user by making banking accessible on the go. The programming concepts necessary to build this application are: OOP, conditions, methods, several classes (classes are part of the activities, containing a class and layout pair), built-in objects, intents, sharePreferences, a menu layout, many imported android classes and such, and various public and local variables.

**Algorithm & Activities:**

**Login Screen Activity:**

1. User may login with username and password credentials
2. User may quit the app via the “Quit” button on the menu bar

* Check to see if username or password fields are empty
  + If empty, alert user via toast message to fill them in
  + Else if not empty check if user provided credentials match those on file
    - If they do not match those on files, increase counter for login attempts and alert user.
    - If login attempts exceed max allowed, alert user and shut down application.
  + If login credentials match, bring user to homepage activity

**Home Screen Activity:**

1. User may access checking or savings account from this screen by pressing either button
2. User may quit the app via the “Quit” button on the menu bar
3. If user selects checking button, bring user to checking account activity
4. If user selects savings button, bring user to savings account activity

**Checking Account Activity:**

1. User is show their current account balance  via checkingBalanceTV on top of screen.
   * 1. checkingBalanceTV is updated in onCreate and onPause
2. User is shown three radio buttons

     1) withdraw

      2) deposit

      3) transfer

1. User is shown an edit text field where they can enter the amount of money they wish to process
2. User us shown a submit button to attempt a transaction
3. User may quit the app via the “Quit” button on the menu bar

* The user must select a radio button,
  + A variable is made to store the radio button option they choose.
  + Variable is initialized as 0 for no option selected
  + variable is assigned 1 if they selected withdraw
  + variable is assigned 2 if they select withdraw
  + Variable is assigned 3 if they chose transfer
  + If the user clicks the submit button
  + Check to make sure the input field is not empy
    - If input field is empty, prompt user via toast message to enter a monetary amount and try again
    - Else if input field is  not empty
    - Check to see what radio button is selected via variable made
      * If radiovariable is 0, prompt user to select a radio option and try again
      * Else if radiovariable is 1, pass the current checking balance to the withdraw function and pass return value to a temporary balance variable. Set new checking balance to CHECKING\_KEY in sharedpreferences and Update new checking balance to checkingBalanceTV
      * Else if radiovariable is 2, pass the current checking balance to the deposit function and pass return value to a temporary balance variable. Set new checking balance to CHECKING\_KEY in sharedpreferences and Update new checking balance to checkingBalanceTV
      * Else if radiovariable is 3, pass the current checking balance to the withdraw function and pass return value to a temporary balance variable. Then deposit requested funds to savings account. Set new checking balance and savings balance to CHECKING\_KEY and SAVINGS \_KEY in sharedpreferences and Update new checking balance to checkingBalanceTV

*Withdraw function:*

* + - Accepts current checkingBalance as a parameter and returns temporary balance
      * If checkingBalance is greater than desired withdraw amount
        + Deduct the amount requested from current checking balance and return new value
      * Else if current balance is less than desired withdraw amount
      * Alert user of insufficient funds via toast message

*Deposit function:*

* Accepts current balance as a parameter and returns new balance
* Add desired amount to checking balance and return new  balance

**SavingsAccount Activity:**

1. User is show their current account balance  via savingsBalanceTV on top of screen.
   * 1. savingsBalanceTV is updated in onCreate and onPause
2. User is shown three radio buttons

     1) withdraw

      2) deposit

      3) transfer

1. User is shown an edit text field where they can enter the amount of money they wish to process
2. User us shown a submit button to attempt a transaction
3. User may quit the app via the “Quit” button on the menu bar

* The user must select a radio button,
  + A variable is made to store the radio button option they choose.
  + Variable is initialized as 0 for no option selected
  + variable is assigned 1 if they selected withdraw
  + variable is assigned 2 if they select withdraw
  + Variable is assigned 3 if they chose transfer
  + If the user clicks the submit button
  + Check to make sure the input field is not empty
    - If input field is empty, prompt user via toast message to enter a monetary amount and try again
    - Else if input field is  not empty
    - Check to see what radio button is selected via variable made
      * If radiovariable is 0, prompt user to select a radio option and try again
      * Else if radiovariable is 1, pass the current checking balance to the withdraw function and pass return value to a temporary balance variable. Set new savings balance to SAVINGS\_KEY in sharedpreferences and Update new checking balance to savingsBalanceTV
      * Else if radiovariable is 2, pass the current checking balance to the deposit function and pass return value to a temporary balance variable. Set new savings balance to SAVINGS \_KEY in sharedpreferences and Update new checking balance to savingsBalanceTV
      * Else if radiovariable is 3, pass the current savings balance to the withdraw function and pass return value to a temporary balance variable. Then deposit requested funds to checking account balance. Set new savings and checking balance to SAVINGS \_KEY and CHECKING\_KEY in sharedpreferences and Update new savings balance to savingsBalanceTV

*Withdraw function:*

* + - Accepts current savingsBalance as a parameter and returns temporary balance
      * If savingsBalance is greater than desired withdraw amount
        + Deduct the amount requested from current savings balance and return new value
      * Else if current balance is less than desired withdraw amount
      * Alert user of insufficient funds via toast message

*Deposit function:*

* Accepts current balance as a parameter and returns new balance
* Add desired amount to savings balance and return new  balance