Preliminary Statement of Work

September 8, 2016

System Specification

**Calculator Application**

* Must be simple, easy to use
* Must perform addition, subtraction, multiplication, division, and modulus division
* Application will implement a login authentication feature
* The user is required to use a username and password to login
* Database
  + The system will use a MySQL database
  + For each user the database will store
    - Username
    - Password
    - Email address
* New User Registration
  + If the user does not have a username he/she can create one by providing an email address, username, and password
  + Multiple usernames can be registered with the same email address
* Password Recovery
  + If the user has forgotten his/her password he/she may have a new password sent to their email on record
  + Once successfully logged back in the user can change his/her password

Technologies

* Programming language: Java
  + Prior experience
  + Java MySQL and Java Gmail server APIs
* Development environment: IntelliJ IDEA
  + Prior experience
  + Plug-in friendly
  + GUI development environment
* GUI Library: Java Swing
  + Prior experience

Biology

* Brad Williams
* Programming experience
  + 1-2 years Java development
  + Experience with Object Oriented Programming
  + Largest program written: Wealth Management Application
    - Java GUI app
    - Keeps track of various assets and debts
      * House
      * Property
      * Car payments
      * Bank accounts
      * Stocks
      * Security
    - Visual representation of total debt and/or asset value via colored progress bar

Concerns

* No prior experience with MySQL
* Duplicate emails, with no email verification
  + Potential for user to create endless unique usernames with the same email
  + Database might not be able to handle excess of accounts

Clarifications

* Endless duplicate emails
  + To avoid overloading database it is possible to implement a maximum amount of usernames associated with one email. (e.g. 5, 10, etc)
* Password reset with duplicate emails
  + If multiple usernames can be associated with one email, password recovery will require a username specification as well as the associated email
  + OR multiple usernames per email will not be allowed
* Exponents
  + Will the calculator need to perform exponent operations?