**Database Design Document**

In my gardening application, there are two main objects that need to be saved: users, and their gardens. Each user garden is an array of vegetables and fruits that individually have many attributes. Because of this, using a JSON based format and database like MongoDB makes the most sense for my application. Additionally, There is not a reason I would need to query or compare users or gardens to each other, so having the searching functionality of an SQL style database is not necessary. Additionally, each garden is private to each user, and does not share any documents with any other user, there is no document embedded in multiple documents, so I do not need to sync any changes to other users based on the actions of the first. MongoDB works especially well for my purposes because of my use of having a larger User schema, then saving an array of plant objects to the larger schema.

**Data Structures**

The first, main structure, is simply storing user data.

User:

{

id: ObjectID, (key identifier)

name: String,

email: String,

zipcode: int,

salt: String,

hash: String,

garden: Array[

{

id: ObjectID, (key identifier)

plantName: String,

planted: boolean,

plantedDate: Date

}

]

previouslyPlanted: Array[

plantName: String

numTimesPlanted: int

]

}

**Data structures in use**

The user schema will include a username, associated email, and an encrypted password, which uses the salt and hash in order to ensure the user password is not saved in plain text. The user will also include their zipcode which will determine which planting zone they are living in, and if they change that, their suggested gardening dates will update accordingly.

The second, smaller object, is the actual saved plant itself which includes the plant name, if it has been planted, which if planted, will also include the day planted. If it has not been planted yet, “date planted” will be a null value. The rest of the data necessary for the app I plan on saving from a static csv file which includes suggested planting dates for each zones as well as length of time from planting to harvest. If a user wants to delete an item from their garden, each entry will have a delete button I can simply link to their ObjectID at creation of the table.

**Stretch Goal:** One potential feature I could implement over time is the number of times users have planted specific plants. If I keep track of this, I could suggest their most used plants in the future for planting the same kinds again in future years.