**Software Design and Engineering**

**Lab Document**

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| **High Level Purpose Statement:** | I want to design and implement a To Do List desktop app that uses MongoDB, running inside a Docker container. I wanted to get a chance to learn about MongoDB for the assignment, but also wanted to explore Docker because I didn’t use it for the last DB assignment and it seemed efficient for making sure my program would run seamlessly on my classmates machines. |
| **Experimental Design:** | I’ll need to research how MongoDB and Docker works, and how to write code that will manage how these systems work so that all my classmates have to do is open my program and use it.  I’ll use the CRUD concept to design the functionality of the application and so I can test that data will persist across different sessions with MongoDB.  I’ll use Gradle for package and dependency management because it has made running all of my past programs so effortless. |
| **Resources Available:** | MongoDB - <https://www.mongodb.com/docs/>  Docker - <https://docs.docker.com>  Gradle - <https://docs.gradle.org/current/userguide/userguide.html>  Java - <https://dev.java/learn/> |
| **Time Estimate:** | I estimate spending around 6-8 hours for this project.  2-4 hours researching how MongoDB and Docker work as well as installing them and experimenting with them.  2-4 hours writing the java program and creating the GUI and making sure it is fully integrated with MongoDB and Docker. |
| **Experiment Notes:** | I was pleasantly surprised at how easy everything seemed to be. I went a little lower ambition on this project than my last project because I thought MongoDB and Docker would give me more of a headache, but everything worked really well. |
| **Results:** | I was able to create the exact application that I set out to create and using Docker to contain MongoDB made managing the data easy. |
| **Consequences for the Future:** | Learning about another type of Database program and learning about how to use Docker will greatly impact how I view future problems and how to solve them. |