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Project Narrative

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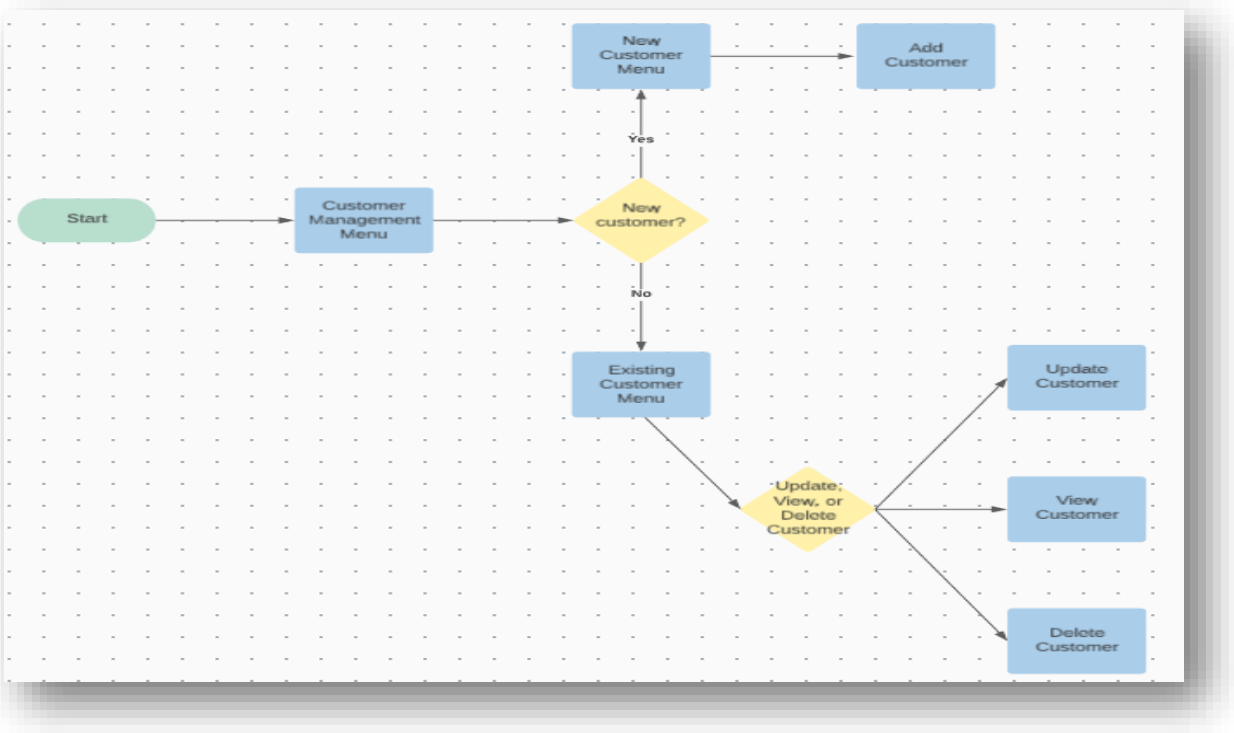
Introduction:

The project presented is a customer management system. The purpose of this system is to be able to help maintain customer information for a business, or organization that needs to use a simple management system to help maintain user information. In this project the general program will be written in Python, with implementations of SQLite and Pandas to manage the database portion of the program. Below you will see a general flow chart of the initial design of the program.

Flowchart:



There will be three categories of development covered within this program, and below you will see a description of each category. The three categories of development implemented in this user management program are software design and engineering, algorithms and data structures, and databases.

Software Design and Engineering:

For my artifact that I decided to build, I decided to design a new project that would cover all three categories of the process. For this project I decided to implement a user management system within Python. This project was an enhancement of some of the projects that we worked on within some previous classes that had to do with user information system.

I decided to create this one project for all three artifact selections because I wanted to showcase a full stack program minus the UX design. I wanted to be able to work through some of my previous issues that I had with designing a program that was fluid through all the steps of the program. I was able to refine my work on projects that used proper classes, methods, and design. I was able to implement search algorithms and have proper data structure. And I was able to design scripts to run within python to work through Database with MongoDB. But I wanted to work through all these together into one program. This is also allowing me to showcase some of my design abilities from the start with properly crafted flow-charts, to help visualize the program. Currently these are written by hand, but this week I will be creating these in digital form to accompany my project. I felt this was very important, because software development is not just about the coding of the project, but also the planning process that needs to take place before the project is even started.

I feel like so far, I have been able to meet the outcome that I had originally planned for this project. I have been able to craft the basic class structure and implement the start to my program. All these structures were based off my initial flow-chart plans, this has helped me stay on track with the project. The one main portion that I was able to decide to change was the function that I was planning for my search feature of the program. I originally wanted to use a hash map to be able to search user info my id, but I am not implementing the search feature through the database implementation I am adding to the program. I felt that this would be more efficient in the program and allow for cleaner representation of the results for the program.

When I look back so far on the planning process of my artifact, I can say that there have been a lot of things that I have learned. Throughout the terms I have taken, I never fully understood how each of the classes really tied together. I felt that the pieces I was learned were disconnected from each other. While going through this project I have been able to really think about how the different topics really are tied together. From the very start of the project with the planning, to the implementation of the planning, and the research needed to understand how different languages work together and enhance the function of the project.

Algorithms and Data Structures:

For the algorithms, and data structure portion of this artifact there are implementations of a few different data structures. These are mainly arrays or lists, tuples, and dictionaries for the initial implementation of the database. Arrays are being used for our user login system to store the information to successfully log in the user, to store the data to be sent to our database methods for our update method within our Crud class. And also, tuples for the delete method to successfully delete the customers information. For algorithms within the program, we are going through simple if else statements to verify user input, and successfully navigate through the

program to the users desired steps. One of the biggest things that I learned from this process was I had originally planned to use higher level data structures, and search algorithms to process all of the information for the user to be able to search, and recall information, but decided that it would be easier and provide the same information by using search queries with SQL instead of with Python. This has helped me to understand that sometimes it is important to go for a process that would be the first to come to mind, and easiest to implement, instead of attempting to make the program extremely complicated.

Database:

For this portion of the artifact, we will be talking about the database implementations being put into the program. For my program I decided to use SQlite for the database, and Pandas for cleaning up the data presented.

For my artifact, I decided that I wanted to create a new project from the ground up, hopefully to really solidify what I have learned, with the addition to new languages, and processes that I had not yet learned while in school. I felt that this would be a better approach to helping me really showcase my abilities on the backend side, especially when it has to do with database administration. Because this artifact is new, it is a fully improvement on what I had already done. In previous classes we had learned MongoDB and how to create Python scripts for CRUD operations, for this I decided to use a different language to be able to implement these same scripts and include Pandas to help present the information better for the user management system.

This portion of the project has been one of my favorite portions. I struggled with learning MongoDB during my class, but after going through this project and working on my CRUD class

to implement the CRUD operations it helped to understand exactly what I needed to do and how. I know that MongoDB is different as far as the syntax, but I believe that after having done this with SQLite that it will be easier for me to go back and understand MongoDB better.

Reflection:

When I look back at the process of creating this program from nothing, I was a little scared to jump into it. I really did not understand fully how all the parts worked together to help successfully develop a program from the ground up. I got more and more exited though, as the project started to really come together and I was able to learn new skills, with new languages that I had not really mastered yet. I was able to really push my limits on the ability to figure things out, and I was able to work through some difficulties with some peer review, and assistance on Stackoverflow.com. I also have been able to really think through new parts that I want to learn and incorporate into the project after this class is over, which is exciting to figure out more and more that can be done. My next plans are to take the backend program that I developed and use Flask to turn it into a web application. This has all been a fun experience, and a learning experience. I look forward to continuing my growth within software development.