CS 499

SNHU

07/27/2024

Journal

**Part One:**

**Have you changed your career plans? If so, what prompted this change? If not, why have you remained with your original plan?**

* Yes, I have slightly shifted my career plans. While I initially focused on a broad IT career with an emphasis on full-stack development, I am now leaning more towards applied data science. This change was prompted by my growing interest in data analytics, machine learning, and the immense potential of data-driven decision-making in various industries. Throughout my coursework, projects, and research, I realized the impact that data science can have on solving real-world problems, which solidified my decision to specialize in this field.

**How has your thinking about your career evolved?**

* My thinking about my career has evolved significantly throughout the program. Initially, I was focused on gaining foundational knowledge and skills in IT. As I progressed, I began to see the broader picture of how various aspects of computer science integrate and the importance of continuous learning and specialization. This has led me to aim for a role in applied data science, where I can leverage my comprehensive skill set to analyze data, develop predictive models, and contribute to data-driven strategies.

**Have you completed any research about your choice of career? How has this impacted your thinking? Have you thought about seeking an advanced degree or certification after earning your undergraduate degree?**

* Yes, I have completed research about my career choice by exploring job market trends, required skills, and industry demands. This research has reinforced my decision to specialize in applied data science. I have also considered pursuing advanced certifications in data science and machine learning to enhance my expertise. Additionally, I am contemplating an advanced degree in data science or a related field to further solidify my knowledge and career prospects.

**Which course outcomes have you achieved so far, and which ones remain?**

* I have achieved several course outcomes, including developing proficiency in software design and engineering, understanding and implementing algorithms and data structures, and working with databases. Additionally, I have gained practical experience in data analysis and machine learning through various projects. However, I still need to complete my final enhancements for the ePortfolio artifacts in each category and finalize my ePortfolio.

**Part Two:**

**Software Design and Engineering:**

I am currently focused on enhancing the error handling and validation mechanisms within the Rescue Animal System. Initially, I completed the design and basic functionality implementation, including the addition of new classes for different animal species and modifications to the Driver class. An important change made during this process was converting the code from Java to Python, which has allowed for more flexibility and ease of implementation. These initial enhancements were successfully submitted and have been uploaded to my ePortfolio. Now, I am nearly finished with the improvements in error handling and validation. The next steps involve tweaking and rigorously testing these updates to ensure they meet the required standards. Although these enhancements are still in progress, I am confident that they will significantly improve the robustness and reliability of the system.

**Algorithms and Data Structures:**

I have implemented efficient search and sorting algorithms, specifically quicksort and binary search, as part of the initial enhancements. Initially, the code was converted from Java to Python, focusing on array-based data structures. Subsequently, I enhanced the implementation by replacing the array with a hashmap/dictionary data structure. This change has optimized the performance of search and insertion operations, providing a more efficient and scalable solution. These improvements have been completed, submitted, and uploaded to my ePortfolio. Currently, I am working on incorporating additional algorithms, such as merge sort and AVL trees, to optimize the system further. These enhancements aim to improve the overall performance and efficiency of the data structures used.

**Databases:**

I have successfully integrated MongoDB with a web-based application, which was the focus of my initial enhancement. This basic integration has been submitted and provides a functional database solution for the application. Now, I am concentrating on more advanced aspects, such as developing complex queries, implementing indexing, and optimizing performance. These enhancements are designed to make the database interactions more efficient and scalable. While these advanced enhancements are still a work in progress, I plan to finalize and upload them to my ePortfolio soon.

### **Status Checkpoints for All Categories**

| **Checkpoint** | **Software Design and Engineering** | **Algorithms and Data Structures** | **Databases** |
| --- | --- | --- | --- |
| **Name of Artifact Used** | **Rescue Animal System** | **Rescue Animal System** | **Rescue Animal System** |
| **Status of Initial Enhancement** | **Completed initial design and functionality** | **Completed quicksort and binary search** | **Integrating MongoDB and developing web-based interface** |
| **Submission Status** | **Initial submission done** | **In progress** | **In progress** |
| **Status of Final Enhancement** | **Improving error handling and validation** | **Enhancing with merge sort** | **Working on advanced queries and optimizations** |
| **Uploaded to ePortfolio** | **Yes** | **Pending** | **Pending** |
| **Status of Finalized ePortfolio** | **In progress** | **Pending** | **Pending** |

### **Optional Artifact Feedback:**

* N/A