John Bryson

CS-499 Module One Assignment

n this assignment, I am creating a plan for my final ePortfolio project. This portfolio will show off the skills I've developed in computer science during my time in this program. I will select past work I've done in my classes (called "artifacts") and improve it to meet the course requirements. My goal is to highlight what I know about software design and engineering, algorithms and data structures, and databases. This plan will help me stay organized and get feedback from my instructor as I move forward.

Step 1: Final Project Requirements

I reviewed the Final Project Guidelines and Rubric. To meet all the requirements, my plan includes:

- Choosing 1–3 past projects (artifacts) from my previous courses
- Improving each project to better show my skills
- Making sure my work clearly demonstrates what I've learned in:
    - Software Design and Engineering
    - Algorithms and Data Structures
    - Databases

Step 2: Choosing My Artifacts

For this project, I plan to use the following artifacts:

1. **Android Event Planner App** (from CS360)
    - This app included user registration, event tracking, and SMS notifications.
2. **Treasure Hunt Game with Reinforcement Learning** (from CS370)
    - I built an AI agent (a pirate) that uses deep Q-learning to find treasure.
3. **Full Stack Travel App (Travlr)** (from CS465/CS499)
    - This included a front-end in Angular and a back-end in Express with MongoDB.

These projects each touch on different areas of computer science, so they give me a good chance to demonstrate my range of skills.

Step 3: Enhancement Plan

To improve these artifacts and show my growth, I will make the following updates:

Software Design and Engineering

- Refactor my Angular and Node.js code to follow SOLID principles
- Add in-line comments and documentation for easier understanding
- Improve UI/UX based on responsive design and accessibility guidelines

Algorithms and Data Structures

- Add a sorting or searching algorithm to the Event Planner app to improve how events are displayed
- Improve the pathfinding logic in the treasure hunt game for better efficiency
- Analyze time complexity and explain my choices clearly in the code and documentation

Databases

- Add validation and indexing to MongoDB collections in the Travlr app
- Implement error-handling and backup logic to improve database reliability
- Write better queries and make sure they are efficient and secure

Step 4: Career Specialization Focus

I want to focus on full-stack web development, so my enhancements will reflect that. This includes showing strong frontend and backend skills, creating clean and functional user interfaces, and managing data securely in the database. Though I'm already a professional Software Engineer, it can only help to aid in my abilities throughout my professional career.