# CS 499 Module One Assignment Template

Complete this template by replacing the bracketed text with the relevant information.

1. **Self-Introduction:** Address all of the following questions to introduce yourself.
   1. How long have you been in the Computer Science program?

**I have been in the computer science program since March of 2021. This is my second bachelor degree. My first degree was in Biochemistry. I am a full time employee working in the biotechnology and pharmaceutical industry. My love of biochemistry and use of data really encouraged me to seek out another degree in computer science to learn how to best use the data we generate and incorporate my two loves of biochemistry and data science. I would love to move into data science in my current industry because there is a lot of potential for data improvements.**

* 1. What have you learned while in the program? List three of the most important concepts or skills you have learned.

**The three most important concepts I have learned throughout this program are programming and software development, data structures and algorithms, and databases and SQL.**

* 1. Discuss the specific skills you aim to demonstrate through your enhancements to reach each of the course outcomes.

**I aim to demonstrate my knowledge and skill in creating data structures and algorithms to solve complex problems, my understanding in building databases and how to interact with them, and my ability to write maintainable, scalable, and efficient code.**

* 1. How do the specific skills you will demonstrate align with your career plans related to your degree?

**I would like to work within the data science field. Showcasing my skills by building this new database for Pet Boarding and Grooming will show how far I’ve come from the beginning of the CS program to now. Another step could include launching an application for the pet grooming business to use with Android App Developer. While this is a stepping stone to working in the data science field, it is important to have the basics down.**

* 1. How does this contribute to the specialization you are targeting for your career?

**My hope is that I can enhance one of my first assignments in the program to build a database for a pet boarding and grooming service to store all information and possibly build the application they can use for their business. This is a great step to better understanding how to build software for a company in my industry.**

1. **ePortfolio Set Up:**
   1. Submit a **screen capture** of your ePortfolio GitHub Pages home page that clearly shows your URL.
      1. You already have a repository in GitHub where you uploaded projects in previous courses. Your ePortfolio will reside in GitHub but can link to work at other sites, such as Bitbucket.
   2. Use the GitHub Pages link in the Resource section for directions on:
      1. How to create your GitHub website and publish code to GitHub Pages
      2. Issues, such as adding links to other sites
   3. Paste a screenshot of your GitHub Pages home page with your URL clearly showing in the space below.

**A screenshot of a computer

AI-generated content may be incorrect.**

1. **Enhancement Plan:** 
   1. **Category One:** Software Engineering and Design
      1. **Select an** **artifact** that is **aligned with** **the** software engineering and design **category** and explain its origin. Submit a file containing the code for the artifact you choose with your enhancement plan.

**IT 145: Project 1 – Pet Boarding and Grooming (Pet BAG). This is one of the first assignments I completed in the CS program. It does not have any code associated with it, which is why I would like to use it. I would like to enhance this by developing the code to store all data that Pet BAG gather from their customers and potentially use it in an application on a mobile device. The goal would be to focus working on this project for the other two categories as well.**

Note: Your artifact may be work from the following courses:

* **IT 145: Foundation in Application Development**
* **CS 250: Software Development Lifecycle**
* CS 260: Data Structures and Algorithms
* IT 315: Object Oriented Analysis and Design
* **CS 320: Software Testing, Automation, and Quality Assurance**
* **CS 330: Computational Graphics and Visualization**
* **CS 340: Advanced Programming Concepts**
* CS 350: Emerging Systems Architectures and Technologies
* **CS 360: Mobile Architecture and Programming**
* IT 365: Operating Environments
* IT 380: Cybersecurity and Information Assurance
* **CS 405: Secure Coding**
* CS 410: Reverse Software engineering
* IT 340: Network and Telecommunication Management
* IT 380: Cybersecurity and Information Assurance
  + 1. **Describe** a practical, well-illustrated **plan** for enhancement in alignment with the category, including a pseudocode or flowchart that illustrates the planned enhancement.

**In this assignment, I created psuedocode for either pet check in or check out. To enhance, I would like to add the pseudocode for the pet check out option. To take it a step further, I would like to create the software for a company to be able to use the product.**

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AI-generated content may be incorrect.

* + 1. Explain how the planned enhancement will **demonstrate** specific **skills** and align with course outcomes.
       1. Identify and describe the specific skills you will demonstrate that align with the course outcome.

**The skills to demonstrate this enhancement will show I am proficient in utilizing MongoDB, can create code from pseudocode, and can follow instructions from the client. This project was completed during the beginning of my CS degree program. Showing my understanding of the project, enhancing it, and still maintaining the customer’s wants and need are key to showing my ability to use well-founded and innovative techniques to deliver value to the customer.**

* + - 1. Select one or more of the course outcomes below that your enhancement will align with.

**Demonstrate an ability to use well-founded and innovative techniques, skills, and tools in computing practices for the purpose of implementing computer solutions that deliver value and accomplish industry-specific goals.**

Course Outcomes:

1. Employ strategies for building collaborative environments that enable diverse audiences to support organizational decision-making in the field of computer science.
2. Design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts.
3. Design and evaluate computing solutions that solve a given problem using algorithmic principles and computer science practices and standards appropriate to its solution while managing the trade-offs involved in design choices.
4. Demonstrate an ability to use well-founded and innovative techniques, skills, and tools in computing practices for the purpose of implementing computer solutions that deliver value and accomplish industry-specific goals.
5. Develop a security mindset that anticipates adversarial exploits in software architecture and designs to expose potential vulnerabilities, mitigate design flaws, and ensure privacy and enhanced security of data and resources.
   1. **Category Two:** Algorithms and Data Structures
6. **Select an artifact** that is **aligned with the** algorithms and data structures **category** and explain its origin. Submit a file containing the code for the artifact you choose with your enhancement plan. You may choose work from the courses listed under Category One.

**I would like to use the same project, IT145 Pet BAG project for this category. For this project we did not write actual code to develop it. I would like to do that as my enhancement. With the creation of code and use of MongoDB, I would like to show how I can create a datastructure that links multiple lists together.**

1. **Describe** a practical, well-illustrated **plan** for enhancement in alignment with the category, including a pseudocode or flowchart that illustrates the planned enhancement.

**The planned enhancement is to create the datastructure and database for the mobile application. The below flowchart will help me see how many lists I should start out with and how I should link them all when building the datastructure. Depending on time, I may design and launch the mobile application.**

**A diagram of a cat and dog

AI-generated content may be incorrect.**

1. Explain how the planned enhancement will **demonstrate** specific **skills** and align with course outcomes.
   1. Identify and describe the specific skills you will demonstrate to align with the course outcome.

**Similar as above, my skills to create the datastructure will demonstrate my ability to design and evaluate computing solutions that solve a given problem using algorithmic and datastructure principles to produce a datastructure that is easily used and understood. If building the mobile application, finding the right balance between design choices and functionality is key.**

* 1. Select one or more of the course outcomes listed under Category One that your enhancement will align with.

**Design and evaluate computing solutions that solve a given problem using algorithmic principles and computer science practices and standards appropriate to its solution while managing the trade-offs involved in design choices.**

* 1. **Category Three: Databases**
     1. **Select an artifact** that is **aligned with the** databases **category** and explain its origin. Submit a file containing the code for the artifact you choose with your enhancement plan. You may choose work from the courses listed under Category One.

**I would like to use the same project, IT145 Pet BAG project for this category. Creating the database skeleton for the application would enhance the project of just pseudocode. Connecting the database to a mobile application would enhance it further.**

* + 1. **Describe** a practical, well-illustrated **plan** for enhancement in alignment with the category, including a pseudocode or flowchart that illustrates the planned enhancement.

**To build the database, I will use MongoDB Atlas. MongoDB will covert documents into JSON formats for faster access internally and to support more data types. There is not just one flowchart or one potential pseudocode function for this project. To build a database, there are many features that would create an incredibly large flowchart and/or many pages of pseudocode. For that reason, I did not include. I am also still flushing out the idea of creating the database versus the mobile application. I would appreciate any advice.**

* + 1. Explain how the planned enhancement will **demonstrate** specific **skills** and align with course outcomes.
       1. Identify and describe the specific skills you will demonstrate that align with the course outcome.

**The skills I will demonstrate here are creating databases and building the appropriate functions within the database. Understanding how the database works with each list will be key. This will help me in designing and developing software that Pet BAG companies can use (a specific audience).**

* + - 1. Select one or more of the course outcomes listed under Category One that your enhancement will align with.

**Design, develop, and deliver professional-quality oral, written, and visual communications that are coherent, technically sound, and appropriately adapted to specific audiences and contexts.**

1. **ePortfolio Overall Skill Set**
   1. Accurately describe the **skill set** to be illustrated by the **ePortfolio** **overall**.
      1. Skills and outcomes planned to be illustrated in the code review

**The code review will show the existing functionality of the the code, my code analysis of target areas for improvement, and the enhancements will provide a walkthrough of the issues raised in the code analysis.**

* + 1. Skills and outcomes planned to be illustrated in the narratives

**The narratives will help with describing the artifact by giving background information on it, justification on why it is included in my ePortfolio, and my reflection on the process of enhancing the artifact.**

* + 1. Skills and outcomes planned to be illustrated in the professional self-assessment

**The professional self-assessment will showcase the skills I’ve learned in the CS program. It will help show my organizational skills and showcase my strengths in the field of computer science.**

1. **Questions/Advice Please**
   1. Hi Professor, I’m having a hard time with picking picking appropriate assignments and was excited when I finally chose to enhance this one. However, I can see how it may be very difficult to complete In this time frame. Do you have any suggestions on keeping this idea or coming up with something else? I appreciate any support you can give.