# 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 at SNHU for a little over 3 years.**

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

**I have learned a lot while attending SNHU. A major skill I have learned is time management for projects. Throughout the program I have completed multiple large projects. These projects are all self-paced. I learned not to procrastinate and schedule time to work daily. Another thing I have learned is advanced math. I had only taken math classes up to trigonometry prior to starting work on a bachelor’s degree. Thankfully SNHU has a drop in tutoring service. I spent a lot of time with them. The last major thing I learned was how to code. Coding was a totally new experience for me. I had never worked with it before SNHU. I still have a lot more to learn, but I feel like that is something everyone thinks.**

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

**I plan on showing my C++, Python, and Java knowledge by reworking three different projects. I will update the code, while adhering to the best practices learned here at SNHU.**

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

**I would like to move into an MIS role with my current employer. They do a lot of web apps and custom Python programs for data analytics. By showing the skill listed above, I will be in a good place when a position opens.**

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

**These enhancements will show I have diverse skillset. It will also show that I am adaptable to new things.**

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.

**https://summerssnhu.github.io/**

**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.

**Project 2 in CS-210: Programing Languages AirgeadBanking. It is an interest calculation program written in C++. For the enhancement, I will be converting the C++ program into Python.**

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.

To complete this task, I need to make sure my original C++ code works properly. I then need to look over the code to make sure I understand what exactly is happening. Then I need to write the code in Python and make sure it works like the original C++ code.

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AI-generated content may be incorrect.**

For this category of enhancement, consider improving a piece of software, transferring a project into a different language, reverse engineering a piece of software for a different operating system, or expanding a project’s complexity. These are just recommendations. Consider being creative and proposing an alternative enhancement to your instructor.

Think about what additions to include to complete the enhancement criteria in this category. Since one example option is to port to a new language, that is the kind of scale that is expected. This does not mean you need to port to a new language but instead have an equivalent scale of enhancement. Underlying expectations of any enhancement include fixing errors, debugging, and cleaning up comments, but these are not enhancements themselves.

* + 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.

**Preforming this code translation will demonstrate my technical skill with C++ and Python. It also shows I can take older forms of code and translate it to more commonly used types of code.**

* + - 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.**

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

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.

**Module 5 in CS: 250 Software Development Lifecycle was a java slideshow of different vacation locations. It has a next and previous button. I will add a random button that uses a sorting algorithm to display a vacation location and make the program more visually appealing.**

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 complete this task, I will need to set what I want the button to do. In this case it will be a randomization of the different travel locations. I then need to design the button. I need to make it match the aesthetics of the existing buttons. The correct algorithm must be chosen next. I can create a new one or find an existing one in a library to use for this. Once the algorithm is selected, I need to make it function when the button is clicked. Finally it needs to be tested to ensure proper functionality.**

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AI-generated content may be incorrect.**

For this category of enhancement, consider improving the efficiency of a project or expanding the complexity of the use of data structures and algorithms for your artifact. These are just recommendations. Consider being creative and proposing an alternative enhancement to your instructor. Note: You only need to choose one type of enhancement per category.

Think about what additions to include to complete the enhancement criteria in this category. Since one example option is to port to a new language, that is the kind of scale that is expected. Perhaps you might increase the efficiency and time complexity of an algorithm in an application and detail the logic of the increased time complexity. Remember, you do not need to port to a new language but instead have an equivalent scale of enhancement. Underlying expectations of any enhancement include fixing errors, debugging, and cleaning up comments, but these are not enhancements themselves.

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.

**Adding a randomization button to this slide show will show my ability to create and use algorithms properly. It will highlight my ability to refine an existing project that is not visually appealing. I plan to make the text more readable and add some nice colors to make it pop.**

* 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.**

**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.

**Project 2 in CS: 340 Advanced Programming Concepts uses Jupyter Notebook to query MongoDB for animal records. This project only has create, read, update, and delete functionality. I will be adding more functions.**

* + 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 complete this task I will need to make sure I am able to connect to MongoDB with the correct user login. I then need to define the new functions I want to add in addition to the existing CRUD set. I will then create and add the functions and test them for functionality.**

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For this category of enhancement, consider adding more advanced concepts of MySQL, incorporating data mining, creating a MongoDB interface with HTML/JavaScript, or building a full stack with a different programming language for your artifact. These are just recommendations; consider being creative and proposing an alternative enhancement to your instructor. Note: You only need to choose one type of enhancement per category.

Think about what additions to include to complete the enhancement criteria in this category. Since one example option is to port to a new language, that is the kind of scale that is expected. Perhaps you might increase the efficiency and time complexity of an algorithm in an application and detail the logic of the increased time complexity. Remember, you do not need to port to a new language but instead have an equivalent scale of enhancement. Underlying expectations of any enhancement include fixing errors, debugging, and cleaning up comments, but these are not enhancements themselves.

* + 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.

**I will be working in MongoDB for this project. By doing so I will show how using proper login credentials ensures security of the dataset. Adding useful functions other than create, read, update, and delete will show how I can help an organization achieve goals more efficiently.**

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

**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.**

**Employ strategies for building collaborative environments that enable diverse audiences to support organizational decision-making in the field of computer science.**

**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.**

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

**My portfolio will show a diverse skill set. It will show technical ability, design, and have clear, concise language. The portfolio will have three different projects rather than one. This shows that I can be adaptable to different platforms.**

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

**My narratives will be detailed and thorough. I will strive to make them readable by technical and nontechnical people. I want everyone to be able to understand what I am doing.**

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

**My self-assessment will show what I can do. It will also show what I am planning on accomplishing. I feel it is important to include goals in a self-assessment. This way, I can look back later and see what I did to achieve the goals.**