# 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’ve been in the Computer Science program for over two years, with some additional experience in related topics.

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

The most important skills that I’ve learned in the program consist of critical problem solving, creativity, and system security.

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

Two specific skills that I would like to demonstrate with this course are my time management that allows room for revision and perfection, and the ability for critical thinking, considering user wants and needs.

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

These skills are essential for any career path and essential for a good workplace. Considering my career plans relate to teamwork and creation, these skills benefit any team, or solo, project that present itself in the future.

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

My targeted specialization relates to software development, data management, network technician, or system administrator. Enhancing and prioritizing these skills on any of these career paths may be essential for success by bringing focus and motivation to oneself. Sometimes these skills are the essential differences between a successful and unsuccessful project.

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

Description automatically generated

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.

The artifact worth revisiting, and enhancing, is a basic program that makes appointments and saves its contacts, properly named “Contact Service”. It would be beneficial to bring more ideas that eases the usage of the app and update it to a more complex digital structure composed of multiple functions and features.



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.

**A diagram of a flowchart

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This flowchart represents the example enhancement of the basic program into a more complex and updated environment. Since this is a sample model, some aspects of the

final program are subject to change.

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.

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

With this artifact I aim to demonstrate my creativity skills by implementing useful functions and features, inspired by real-life problems that need to be solved, which can bring a diverse audience. The goal of this artifact is to “employ strategies for building collaborative environments that enable diverse audiences to support organizational decision-making in the field of the computer science”.

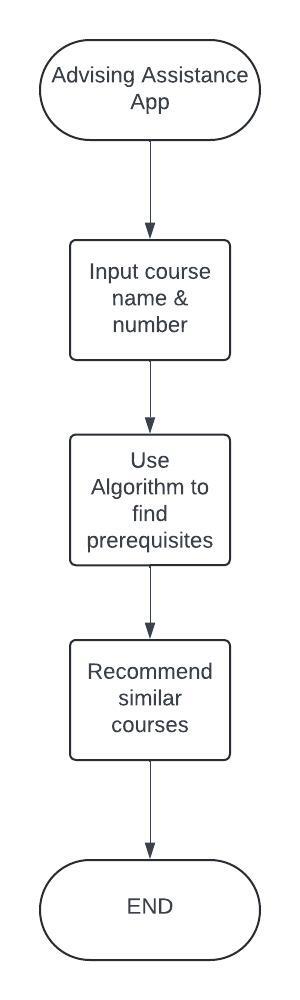
Course Outcomes:

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.

For an enhancement plan focused on algorithms and data structures, it may be best to enhance a program that falls directly into this category. This is a simple software that recommends prerequisites based on the courses the users choose. An algorithm restructuring could transform this simple program into better usable software.



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

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This is a sample flowchart showcasing the enhancement plans for this simple software. Bringing an algorithm-based structure helps the user with choosing accurate prerequisites for their concentration courses, as well as recommending other electives that are related to it. This model was summarized for the benefit of the crucial changes it may have.

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.

In this category, it would be smart to showcase my critical problem-solving skills. A program with such caliber, comes with many problems that need to be solved and customer needs that must be met. Problem-solving skills not only ease the enhancement process, but also opens roads to program perfection.

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

The specific outcome to be proven in this category is “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”. This is due to the fact that most of problem-solving skills that I possess encompass computing practices and innovative techniques.

* 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.

The same artifact used for an algorithm-based enhancement, could be useful for a database enhancement. Implementing a database model could be beneficial for information storing and user security.



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

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This model is overly similar to the previous model, because it can benefit from more than one enhancement plan. Implementing a database model provides organization and security to both users and developers. Although this seems like a simple flowchart, many changes would need to be conducted to fully enhance the program, mainly coding language switch for better database communication. This can be beneficial for integrating data mining from MySQL databases.

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.

Although this category can showcase all of the previously mentioned skills, my main skill to demonstrate would be system security. Most of the databases contain sensitive information that needs to be protected, and its still good practice to implement security for non-sensitive data. My aim is to put this theory into practice and highlight my skills in data security.

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

The course outcome that fits best into this category is “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”. The challenge to overcome is to provide suitable security, to satisfy data protection, considering most outcomes imaginable.

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 ePortfolio aims to illustrate my skills in different coding environments, languages, and critical thinking. With the variety of projects that serve different purposes. Furthermore, my ePortfolio will contain many enhanced projects that further sustain my skills demonstration hypothesis.

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

The narrative aims to illustrate my ability of clear communication, organization, and comprehension skills. To articulate these skills, my plans are to provide a detailed description of my projects, conduct detailed analysis of the problems to be solved, and provide recommendations based on researched conclusions.

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

The professional self-assessment can set an overview of my extensive knowledge and personal achievements. My plan is to professionally highlight these skills to influence other professionals, which benefits my plans of starting my career. The most important skills to highlight in this category are leadership, teamwork, and ability to adapt to any particular situation. These skills are highly considered in most professional environments.