* **Project Overview**

Students may choose one of five different programs to create: a statistics program for sports or another domain, an inventory accounting program, a contact manager program, a two player chess or checkers program, or a cash accounting program.

Deliverables will consist of a plain text main .cpp file that controls the program, and if desired a function library consisting of a plain text class .h header file and a plain text class .cpp source file. Deliverables may be zipped into one file.

* **Requirements**

Throughout the course you will complete weekly pseudocode and flowchart assignments to guide the development of your application. In addition, you will be submitting your code in Module Four for feedback from your instructor to make sure you are on the right track (this submission is ungraded).

Your final program will be submitted in Module Six and must use at least one menu at the beginning with multiple options including an option to exit the program. The program will run continuously, in a cyclic manner until the user chooses to exit. Sublevel menus are allowed. The program must use multiple data types, multiple mathematical operators, multiple logic operators, decision structures, iterative structures, and functions.

The full pseudocode, flowchart(s) and C++ program for your Module Six submission must meet the following requirements:

* + The program must accomplish the task you have chosen, either:
  + a statistics program for sports or another domain,
  + an inventory accounting program,
  + a contact manager program,
  + a two player chess or checkers program, or
  + a cash accounting program.
  + The program must use at least one menu at the beginning with multiple options including an option to exit the program.
  + The program must run continuously, in a cyclic manner until the user chooses to exit.
  + Sublevel menus are allowed.
  + The program must use:
  + multiple data types,
  + multiple mathematical operators,
  + decision structures,
  + iterative structures, and
  + functions.
  + The program must run and be free from errors.
  + The program should be thoroughly documented with introductory comments at the top and other comments in areas that could be confusing.
  + The program should be easily readable and use proper indention.
* **Due Date**

**Your final project is due in Module 06.** There will be individual assignments along the way. The module they are due is noted in the time line below.

* **Timeline**

Module Assignments:

* + 01 Project Requirements Document
  + 02 Incorporating Decision Structures
  + 03 Incorporating Loop Structures
  + 04 Incorporating Arrays, Searching, and Sorting
  + 04 Submit Your Application Code for Review (Ungraded)
  + 05 Modularizing Your Project
  + 06 Final Project – Pseudocode, Flowcharts, and Program Code

Module 01 Content Project Requirements Document

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Choose one of the five options for the course project. The requirements document you produce for this assignment should give as much detail as possible regarding what the program will be all about. Imagine if you were hired by a company to write the program. What kind of information would you need to gather ahead of time so that you could make sure that the program satisfies their needs?

Think about what will happen in your program as a user uses the program. Give additional detail about your program. What will it input, what will it output, and what data and types of data will your program use? In addition, summarize how the program will process the data. Remember to describe any input data, how the data is processed, and what the output data will be.

This Project Requirements Document should be between 1 to 2 pages in length and follow standard APA formatting for margins, font size, font type, and line spacing. If you use any material from reference sources make sure you add an APA reference page and proper citations. Plagiarism will not be tolerated.

Submit your completed assignment by following the directions linked below. Please check the **Course Calendar**for specific due dates.

Save your assignment as a Microsoft Word document. (Mac users, please remember to append the ".docx" extension to the filename.) The name of the file should be your first initial and last name, followed by an underscore and the name of the assignment, and an underscore and the date. An example is shown below:

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Module 02 Content Incorporating Decision Structures

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Begin thinking about and make a list of the decisions you will need in your project. For each decision you identify, create pseudocode for the decision and create flow chart representations of the decision structures. By this week, you should begin working on translating your project’s pseudocode into C++ code and testing it.

Submit your completed assignment by following the directions linked below. Please check the **Course Calendar**for specific due dates.

Save your assignment as a Microsoft Word document. (Mac users, please remember to append the ".docx" extension to the filename.) Paste the flowchart structures from Visio into the Microsoft Word document after the pseudocode. Make sure to label each decision structure in a meaningful way. The name of the Microsoft Word file should be your first initial and last name, followed by an underscore and the name of the assignment, and an underscore and the date. An example is shown below:

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Module 03 Content Incorporating Loop Structures

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Continue thinking about how you will code your project and make a list of the loops you will need in your project. For each loop you identify, create pseudocode for the loop and create flow chart representations of the loop structures. You should continue working on translating your project’s pseudocode into C++ code and testing it.

Submit your completed assignment by following the directions linked below. Please check the**Course Calendar**for specific due dates.

Save your assignment as a Microsoft Word document. (Mac users, please remember to append the ".docx" extension to the filename.) Paste the flowchart structures from Visio into the Microsoft Word document after the pseudocode. Make sure to label each loop structure in a meaningful way. The name of the Microsoft Word file should be your first initial and last name, followed by an underscore and the name of the assignment, and an underscore and the date. An example is shown below:

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Module 04 Content Incorporating Arrays, Searching, and Sorting

Submit Your Application Code for Review (Ungraded)

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Continue thinking about how you will code your project. Examine the initial data list you created and look for ways to include arrays to improve readability and performance. Also, identify any areas in your project that you will need to include searching and sorting algorithms. For each array you identify, define it fully using pseudocode including the type of data to be held in the array, the length of the array, and is it a two or more dimensional array. For each searching and/or sorting algorithm you identify create pseudocode for the algorithm and create flow chart representations of the algorithm. You should continue working on translating your project’s pseudocode into C++ code and testing it.

Submit your completed assignment by following the directions linked below. Please check the **Course Calendar**for specific due dates.

Module 05 Content Modularizing Your Project

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Consider how you might modularize the code in your project. What kind of data will the functions take as arguments and what kind of data will the functions return? Where will the functions be called? Modify your pseudocode and flowchart(s) from Module 04 by modularizing the program using functions as appropriate. You should continue working on translating your project’s pseudocode into C++ code and testing it.

Submit your completed assignment by following the directions linked below. Please check the **Course Calendar**for specific due dates.

Save your assignment as a Microsoft Word document. (Mac users, please remember to append the ".docx" extension to the filename.) Paste the flowchart structures from Visio into the Microsoft Word document after the pseudocode. Make sure to label each loop structure in a meaningful way. The name of the Microsoft Word file should be your first initial and last name, followed by an underscore and the name of the assignment, and an underscore and the date. An example is shown below

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Module 06 Content Final Project – Pseudocode, Flowcharts, and Program Code

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Finish creating the pseudocode, flowchart(s), and C++ program for your course project.

* + The program must accomplish the task you have chosen, either:
  + a statistics program for sports or another domain,
  + an inventory accounting program,
  + a contact manager program,
  + a two player chess or checkers program, or
  + a cash accounting program.
  + The program must use at least one menu at the beginning with multiple options including an option to exit the program.
  + The program must run continuously, in a cyclic manner until the user chooses to exit.
  + Sublevel menus are allowed.
  + The program must use:
  + multiple data types,
  + multiple mathematical operators,
  + decision structures,
  + iterative structures, and
  + functions.
  + The program must run and be free from errors.
  + The program should be thoroughly documented with introductory comments at the top and other comments in areas that could be confusing.
  + The program should be easily readable and use proper indention.

**Final Project Deliverables**

Deliverables will consist of a plain text main .cpp file that controls the program, and optionally custom function library files and/or optional class files.

Submit your completed assignment by following the directions linked below. Please check the **Course Calendar**for specific due dates.

Place the pseudocode and flowchart in a Microsoft word document (Mac users, please remember to append the ".docx" extension to the filename). Source code files need to be plain text files. Zip the word document and the source code files into one zip file and submit the file.

The name of the zip file should be your first initial and last name, followed by an underscore and the name of the assignment, and an underscore and the date. An example is shown below:

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