

Assignment 3 Comp 2510

Read the entire assignment carefully, especially the sections about assignment preparation and Plagiarism / Collaboration. The assignment is intended to help you practice programming, not to assess your programming skills.

This is an individual assignment.

Section 1: Projects

Project 1 - Sorting Algorithm

Write a C program that demonstrates the following sorting algorithms:

1. Insertion Sort
2. Selection Sort

Your program should:

1. Ask the user to enter the number of elements and the elements themselves.
2. Display the unsorted array.
3. Allow the user to choose which sorting algorithm to apply.
4. Sort the array in ascending order using the selected algorithm.
5. Display the sorted array along with the algorithm name.

Project 2 - Generics in C (Generic Swap Function)

In this project, you will write a generic swap function that can swap two variables of *any type* using void pointers and memcpy.

Your program should:

1. Ask the user to select a data type (integer, float, or string).
2. Ask for two values of that type.
3. Use your generic swap function to swap the values.
4. Display the results before and after the swap.

Section 2

Comments and documentation Details:

Do not create comments for the sake of creating comments. Focus is on quality not on quantity. Comments should be succinct and to the point. If you can be brief, then do so. Please use English that is grammatically correct.

Tutorial on C docs:

<https://learn.microsoft.com/en-us/cpp/c-language/?view=msvc-170>

Section 3

Assignment Grading

The grade for this assignment will be assigned out of 20 points.

- up to **4 points** for commenting and following the style guide, and
- up to **16 points** for correctness.

How to hand in COMP 2510 Assignments (details)

- 1) Use clear and consistent names: name_assignment1.c
- 2) At the very top of your .c file, include a block comment with:

```
/*  
 * Course: COMP 2510  
 * Assignment: Assignment 3  
 * Name: Your Full Name  
 * Student ID: 12345678  
 * Date: 2025-09-18  
 * Description: (short explanation of what the program does)  
 */
```
- 3) Add screenshots for running each problem.
- 4) Upload your file into the D2L dropbox. This must be before the due date and time.

Section 4

Plagiarism and Collaboration on Programming Projects

The assignment you turn in *must* represent *your own work* and not the work of anyone else (including work obtained through internet searches or AI assistance). On the other hand, it is unreasonable to expect that you will work in a complete vacuum, without ever speaking to a classmate. The purpose of this section is to give you guidance about the areas in which it is appropriate to discuss assignment topics with your classmates. Violating these guidelines may result in a charge of academic dishonesty.

Plagiarism

The term plagiarism describes an attempt to claim work as your own, which you have copied from another person (living, dead, or AI), whether that other person knows about it or not. In a class like this, plagiarism includes copying program code, data, documentation, etc. Plagiarism is simply not allowed. If you submit another student's work as your own, you will be charged with a violation of the BCIT Academic Integrity Code.

Collaboration

Collaboration is defined as two or more students working together on a phase of a project. Working together does not mean that one student does the work and the other student just copies it! Collaboration is allowed under certain conditions, if you are honest about it.

You are taking this class to learn important fundamental things about computing, and we must give you a grade that fairly represents what we think *you've* learned. Therefore, we need to know that your work is your own work, so we need to limit the collaboration somewhat. For purposes of projects in this class, here are some guidelines as to which phases of a project are appropriate for collaboration, and which are inappropriate. This may change from assignment to assignment.

OK	Preliminary analysis of problem
OK	Developing an algorithm
OK	Developing a plan for testing
NO	Coding
NO	Proof-reading the program before compiling
OK	Interpreting errors at compilation time
OK	Interpreting errors at execution time
NO	Testing

Working in pairs

If the assignment explicitly allows or requires people to work in pairs, then both names must appear on the one assignment, which is handed in for the pair. In this case, the rules on collaboration apply to the students in that pair collaborating with anyone else.

Save Your Projects!

You are required to save a copy of all your projects until the end of the semester, after grades have been reported. Be prepared to re-submit these to the instructor if he or she asks you to do so.

Protect Yourself

If you suspect that another student is misusing your work (for example, one of your printouts disappeared), report this immediately to the instructor, to protect yourself against a charge of plagiarism if another student copies your work. If there is ever any confusion as to who copied from who, it is institute policy to charge both with plagiarism and punish both (or all) parties.

Read the BCIT Policy on Conduct carefully.