# Assignment 1 for CPTN278

**Name:** Documenting Data Structure Types

**References:**

* The text book
* In class notes
* Any other resource you can find other than people

### Assignment Description:

You are to create a Microsoft Word 2007 Document describing and comparing the use of the following commonly used programming data structures.

* Stacks
* Queues
* Lists

The descriptions will include

* Types of problems that use them
* Permitted Operations
* Order N efficiency
* Implementation Options

As a software developer, we are often required to choose the correct data structure type and implementation for an application we have never seen before. The information must be formally documented using an organization’s documentation procedures. This assignment will require you to accomplish this type of task using NCC resources and CPTN278 methods. This skill is essential to the timely development and maintenance of software applications. The term “Software Development” equally applies to “Web Development” and “System/Network Administrator.” Only the development language and document contents differ.

The requirements for this assignment are exact and no deviation from the requirements nor substitution of requirements is allowed. They would not be allowed in a software development organization so we will not allow them here.

The open hidden agenda items for this assignment are:

* Demonstrate the ability to use Blackboard
* Demonstrate the ability to use Microsoft Office Word 2007
* Demonstrate the ability to professionally partially document an application
* Demonstrate the ability to manage your time
* Demonstrate the ability to follow an organizations procedures and policies

### Assignment Deliverables:

1. A Microsoft Word 2007 Document containing your design and findings. The name of this file will be **CPTN278\_A1\_*lastname*.docx** where *lastname* is your actual last name. The format of the document is as follows. Do not deviate.

The Word document must contain the following clearly separated sections.

* Title page
  + Document name
  + Author
  + Creation Date
  + Course Number
* Table of Contents
* Introduction
  + Contents. See above.
  + Conclusion
* References documented using APA format

Each of these different sections should have a section or page break as needed. The TOC should be auto generated from the Section Headings. The References page should be auto generated from the in-line citations. This is easy if you are using Microsoft Word 2007, which is now the industry norm. Using other compatible products will only cause you more work.

One of the goals of all my courses is to get folk used to creating professional looking documents even when they are technical in nature. This may seem like a pain now but if you incorporate the practice as you write documentation it becomes easy and second nature.

Note: the file must have the .docx file extension and open by default with Microsoft Word 2007, and now 2010.

### Strenuously Recommended Approach:

Even though the word “recommended” is in this section header, consider it as mandatory. The approach below includes requirements and “how to” suggestions that should be used to complete the assignment. Hopefully by following the steps in order and using the suggestions, completing the assignment won’t be a difficult task.

1. Understand the problem.

Before you begin any software development task you must fully understand what is required to complete the task. How else can you know when you are done? Here are some important things to do to complete this step.

Completely read this document from beginning to end before doing anything else. The various sections of this document interrelate. Questions raised in one section are often answered in another section. This will give you the big picture of what is going on.

Ask me questions for clarity but they should be specific questions as they relate to the assignment requirements or procedures. A question like, “How do I do this?” is not a specific question. Asking questions like “Can I do the assignment another way?”, “Can I use a different documentation application or submission process?”, or “Can I turn it in late?” also won’t work. The answer to these questions will be “No.” Part of this assignment is to follow an organization’s formal procedures and policies, use the required tools and manage your time just as you would have to in industry.

Now to be realistic. I know you and I cannot think of or cover every issue or question that may come up. Please feel free to post questions to the FAQ. I check Blackboard every day. I would even check the FAQ forum first in case your question has already been asked and answered.

1. Identify and gather resources.

Under the “References” section, I listed some of the references you might use for this and future assignments. In reality, you may use any resource or reference you want except other people’s work. I am the person you should come to for help. Our textbook actually contains all the information on everything I am asking you to do but use other technical resources as desired.

You should already know how to use Blackboard, Microsoft Word and a C++ software development environment. If not, learn quick! We are not using any advanced features from any of these tools. You may if you wish, but don’t waste time learning and trying things you don’t need for this course.

1. Start your documentation.

“Is he serious? I haven’t done anything yet to document.” Yes, I am serious about doing this step now.

I suggest you start your Word document with the headings already in place, even thought there is no content yet. So how do I get started? Well here is an idea.

Since you should already have this document down loaded to your system from the previous step, why not make a copy of it with the correct file name. Then remove all content except the section headings and rename the headings to match the required outline. When you have the new headings only file, make a second copy under a generic name for future use. A quick, easy approach to get you started and have something you will be able to use over again for future assignments.

It should have the Title page, Section Headings, Auto TOC and a References page. Save it away (remember where you saved it) because you will need it for all of our assignments.

1. Add the document introduction.

One paragraph should be enough. You can use this document as a source for this purpose. But just don’t copy and paste.

1. From your list of resources create the content.

This is not a programming assignment so no programming is involved. It is just a research assignment.

The majority of this document will come from in class notes and discussions. Further information can be found in the textbook but class information is the best source. Don’t forget about the Internet as a source of information.

There will be at least three subsections here, one for each type of structure described. Each of these should have sub sub headings for each aspect of each structure you are to describe.

1. Add the document conclusion.

The main idea here is to summarize (maybe a simple table) the main points of the sections covered.

1. Build the references page from the in-line citations.

I can think of at least three references you will be using. There may be more…

* The text book
* Blackboard
* Possibly Internet FAQ sites

1. Proof read your document.

I am not kidding. This document represents you, your skills and your professionalism in communications. In industry, people (especially the non-technical) notice the smallest details. Here are things to check.

* Information presented must be accurate and as complete as possible
* Spelling – I better not see any red squiggles when I turn on the spell checker other than for technical terminology
* Grammar – I should see a minimum of green and blue squiggles when I turn on the grammar checker
* Document formatting
  + Bulleted list items normally don’t end with periods
  + Numbered list items do end with periods
  + Consistent use of heading types
  + Consistent use of fonts, font sizes and styles for text
  + Consistent use of indenting of all text and lists

Yes, I will be checking and points deducted if there are too many issues.

And yes, we are not perfect. Things do slip by. You might even find some of these issues in this document, but hopefully not too many. If you do please feel free to let me know. I like my documents to be accurate and professional as well.

1. Rebuild the TOC.

This is essential as things may have moved around in the document or you may have added or deleted section headings.

1. Post the Word document to Blackboard via the “View/Complete Assignment” link.

Use the above link for assignment submissions. For those not familiar with this Blackboard method of assignment submission, it will be demonstrated in class. Do not submit assignments via the Blackboard Digital Drop Box or forums. Do not use e-mail attachments. Do not hand in hard copies of documents. This is the only acceptable submission method.

Remember time management is also an assignment requirement. Even if you have not completed the assignment you must submit what you have on the day the assignment is due. The due date will be announced in class. Partial credit is given for partially completed assignments as long as the completed parts are correct. No late submissions will be accepted. In industry when your manager assigns a task and wants something to be done, they expect it on time. It is part of the “salary continuation plan.”

1. Down load and test the deliverable.

It is your responsibility to make sure the file was uploaded and can be read. The only way I know to test this is to down load a temporary copy and make sure you can read it. Submission of unreadable files is not a valid reason for missing an assignment.

### A few Last Thoughts:

I know this assignment write up has been rather lengthy. Future assignments won’t be quite as verbose as this one. With this write up I tried to accomplish several goals. These include but are not limited to:

* Provide explicit, detailed and clear directions and requirements for the assignment
* Provide useful hints and techniques that you can use and reuse in future assignments
* Provide a rational for why we are doing things the way we are
* Share some of my observations about why and how I do things when it comes to software development
* Address issues and answer questions before they cause work blockage
* Set the expectations for future software development assignments and projects with methods that can save you development time

I also want to remind you that the primary purpose of this course is Data Structures and Algorithms. All the other stuff will take care of itself after you get used to doing it as part of completing the assignments.

The requirements for this assignment may seem heavy handed and totally inflexible. If you think this then you are correct. But…

These requirements are still less rigid than those you are likely to encounter in industry. One of the goals of this course and the entire NCC program is to get you ready to work professionally in a professional environment. Remember your work represents you to your managers, fellow workers and eventual employees. Professionalism gets you a long way. Anything else gets you ignored and left behind.