CPSC-406 Report

Your Name
Chapman University

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Abstract

(Delete and Replace:) You can safely delete and replace my explanations in this file as they will remain available on the course website. For example, you should replace this abstract with your own. The abstract should be a short summary of the report. It should be written in a way that makes it possible to understand the purpose of the report without reading it.

Contents

1 Introduction

(Delete and Replace): This report will document your learning throughout the course. It will be a collection of your notes, homework solutions, and critical reflections on the content of the course. Something in between a semester-long take home exam and your own lecture notes.[1]

To modify this template you need to modify the source `report.tex` which is available in my repo. For guidance on how to do this read both the source and the pdf of `latex-example.tex` which is also available in my repo. Also check out the usual resources (Google, Stackoverflow, Chat-GPT, etc). It was never as easy as now to learn a new programming lanugage (which, btw, LaTeX is).

I find that writing LaTeX with VSCode works well. I use the LaTeX Workshop extension.

[1] One purpose of giving the report the form of lecture notes is that self-explanation is a technique proven to help with learning, see Chapter 6 of Craig Barton, How I Wish I'd Taught Maths, and references therein. In fact, the report can lead you from self-explanation (which is what you do for the weekly deadline) to explaining to others (which is what you do for the final submission). Another purpose is to help those of you who want to go on to graduate school to develop some basic writing skills. A report that you could proudly add to your application to graduate school (or a job application in industry) would give you full points.

There will be deadlines during the semester, graded mostly for completeness. That means that you will get the points if you submit in time and are on the right track, independently of whether the solutions are technically correct. You will have the opportunity to revise your work for the final submission of the full report.

The full report is due at the end of the finals week. It will be graded according to the following guidelines.

Grading guidelines (see also below):

- Is typesetting and layout professional?
- Is the technical content, in particular the homework, correct?
- Did the student find interesting references [BLA] and cites them throughout the report?
- Do the notes reflect understanding and critical thinking?
- Does the report contain material related to but going beyond what we do in class?
- Are the questions interesting?

Do not change the template (fontsize, width of margin, spacing of lines, etc) without asking me first.

2 Week by Week

(Delete:) Here is a rough outline how I see learning happening. A typical week will introduce one distinct topic.

- Thursday in the lecture: I give an overview of this week's topic. I will try to link the topics amongst each other and to real-world examples. You will get lecture notes and a homework.
- Thursday to Sunday: You read the lecture notes, attempt the homework, and find a question to ask. Submission of a link to the pdf of this file on Canvas before Sunday midnight. The pdf will contain your draft notes and homework as well as at least one interesting question.
- The Tuesday lecture is open for discussion.

2.1 Week 1

(Delete:) Week 1 aligns with the first week of the semester.

If you think that the writing flows better if you merge the sections "Notes" and "Homework", you can do so. I believe that in this case no subsubsection heading is needed for "Notes" and "Homework" but keep the heading for "Comments and Questions".

Notes

(Delete and Replace): While I provide a variety of materials, you should use this section to write your own notes. You do not have to write down everything I say. Instead, you should showcase your own understanding.[2] Material related to but going beyond what we do in class is welcome.

I recommend to use GPT to help you build a mental landscape of the subject. Think of GPT as an extension of Wikipedia and Google, a tool you should be using as introduction to any subject. If you didnt check with

[2]Here are some hints. First, you should know (or at least have an opinion on) why I included this material in the course. What are the big questions that motivate the study of this subject? How does this material connect to broader themes or issues in the field? What practical or theoretical problems can be addressed through an understanding of these topics? By considering these questions, you can gain a deeper appreciation of the course's relevance and its potential applications in real-world scenarios. Second, you should make sure to also understand some of the technical details of subject. A great way to test this is to make your own exercises and answer them.

Google, Wikipedia and GPT, you are not ready to write your own notes. On the other hand, while using these resources is necessary, it is not sufficient.

I am not interested in content derived from Wikipedia or GPT. I am interested in content that reflects your own understanding.

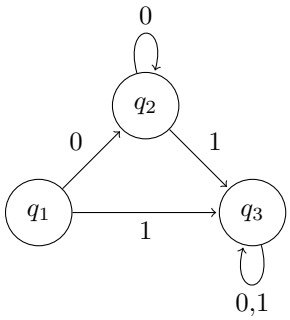
Homework

(Delete and Replace:) This section will typically contain Homework problems. You should write up your solutions in LaTeX. You can use the `lstlisting` environment to include code. You can use Excalidraw for drawings. Pictures from handwritten drawings are acceptable if the drawings are of high quality (pictures from rough notes and quick sketches are likely to loose you points).

Make sure that this section can be read without referring back to the homework question. Introduce the question/problem and repeat it in your own words. Make sure to typset your homework in a way that makes it clear what the question and what the answer is. Present it as a worked example would be presented in a textbook.

Also explain what you learn from the homework. Each homework was carefully drafted to bring home a particular teaching point. Make sure to explain what this point is. Relate it to the big questions mentioned above.

In case you want to draw automata in Latex, you can use the tikz package. Here is an example of a simple automaton:



By the way, GPT-4 is quite good at outputting tikz code.

Comments and Questions

(Delete and Replace:) Here you should write your own critical reflection on the content of the week. If you can surprise me with something I have not seen before, you are on the right track.

I expect you to read the lecture notes. Ask at least one **interesting question**[3] on the lecture notes. Also post the question on the Discord channel so that everybody can see and discuss the questions.

2.2 Week 2

(Delete:) Week 2 (and all the other weeks) should follow the same pattern as Week 1. Even if there is a week without homework, notes and comments (see above) are still expected.

[3]It is important to learn to ask *interesting* questions. There is no precise way of defining what is meant by interesting. You can only learn this by doing. An interesting question comes typically in two parts. Part 1 (one or two sentences) sets the scene. Part 2 (one or two sentences) asks the question. A good question strikes the right balance between being specific and technical on the one hand and open ended on the other hand. A question that can be answered with yes/no is not an interesing question.

2.3 ...

...

3 Lessons from the Project

(Delete and Replace): Write three pages about your individual contributions to the project.

On 3 pages you describe lessons you learned from the project. Be as technical and detailed as possible. I am mainly interested in *interesting* examples where you connect concrete technical details with *interesting* general observations. I am also interested in examples in which the theory discussed in the lectures helped with the design or implementation of the project.

I recommend that you write this section during the semester. This is less than half a page per week and the material should come from the work you do anyway. Just keep your eyes open for interesting lessons.

Make sure that you use LaTeX to structure your writing (eg by using subsections).

4 Participation

There is documented evidence for participation on the following occasions:

1. ...
2. ...
3. ...
4. ...
5. ...

5 Conclusion

(Delete and Replace): (approx 400 words) A critical reflection on the content of the course. Step back from the technical details. How does the course fit into the wider world of software engineering? What did you find most interesting or useful? What improvements would you suggest?

References

[BLA] Author, Title, Publisher, Year.