Tips for writing reports

This document is also available in PDF[1] format.

1 Motivation

I have been struggling most of the night to get through a stack of task reports. And I have been spending much more time than necessary, simply because many of them ... uhmm[2] ..., well, they invite comment on the subject of writing reports. This is not good - it takes up too much time and wasts too much of your potential credits for the subject. Most of the remarks are directed at this specific course, but the principles also hold much wider. This document is still in development, hopefully the inspiration for further expansion on it will soon die down.

2 Be clear on your objectives and those of your reader

You do not write a report simply for the sake of it. The reasons for not doing so are quite obvious - it takes time and effort to write it, and the same also holds for reading it. Your time is valuable, and so is mine, we want to use it efficiently.
First of all, on a high level, what is *your* reasons for writing a report? Two immediately comes to mind:

- To convince me that you know the work and therefore should get a good mark for it.

- To convince yourself that you know the work. Writing helps you to discover what you know and what you don't.

Secondly, why do *I* want to read it? Once again two reasons:

- I need to award a mark. I'm more interested in the next reason below, but in the workings of a modern university I also need to evaluate and give a mark. And I primarily give marks where I can see learning, understanding and inquisitiveness in your work.

- I want to know how you are progressing in terms of knowledge and insight. I feel happy when I see that you are growing, and if you are battling, I may be able to help.

In your writing, be particularly considerate to the efficient realisation of the objectives of your reader! If you abuse him he just might return the favour!

3 How do we reach those objectives efficiently

- Everything in your report must contribute to the above objectives. Either it does, or it detracts. Because if it does not contribute, it wastes your reader's time.

  Always consider carefully what exactly you are trying to achieve with a certain section or graph. Think of efficient and appropriate ways to show what you have learnt, to reveal your level of understanding. Be inquisitive, when you see something interesting in your results, discuss and try to make sense of it.

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[1] http://www.dsp.sun.ac.za/pr813/reportHowTo/reportHowTo.pdf
[2] http://www.dsp.sun.ac.za/pr813/reportHowTo/CandH.gif

- Make sure that both you and I understand what you want to contribute with each little bit in your report. Your reader (and you) should always be in sync with what you are doing and why you want to do so. State it clearly, even before you do the actual thing. Wading through piles of material wondering where all this is going to, simply wastes time and causes frustration. Especially when it turns out that the writer also does not know what and why he is doing something.

- Interpret your results. Do not just give me a nice picture, but tell me what is interesting about it. A graph with no interpretation is a "so what?". You do the work - if you get the results, but I have to do the interpretation - well then I keep that part of the marks for myself (and that's the larger part). I do not want to guess whether you have seen and understood something.

- Make sure that I can evaluate your contributions easily. I need to see stuff that convinces me that your work is correct and that you understand it. If for instance, you do a PCA task and give me only vague general statements and no eigenvalues or pictures that I can recognise as being correct, I do not know whether your stuff is working. I then use the default assumption that it is not working.

  Some representations work better than others, in some cases graphics are great, at other times tables are better. For classification results a confusion matrix does the trick. Don't just generate hords of stuff, rather first think about what is efficient to communicate a specific concept in a particular situation.

- Then make sure that whatever you have chosen is used properly. For instance, when you include a graph, be clear on what you want to achieve with it. Say it in the caption. Make sure the axes are labeled - it wasts time to infer that from thin air. Make sure that whatever is to be learned from that graph is clearly visible on it. Otherwise it is serving no purpose but chewing up trees and wasting valuable time. I see many plots that do not really have any purpose but filling up space. Instead of it counting for you it is then counting against you. Rethink whether you are communicating your message in an efficient manner. Maybe you should plot something else, or whatever.

- Structure your document decently so that it is clear what is where and what is important. Make it easy to access the important stuff and don't clutter it with useless stuff. Make judicious use of graphs and tables, but always with a very specific purpose in mind. Be clear on what goes into the main body of a report (the material which your reader *must* see) and what goes into the appendix (stuff that is optional/extra i.e. not required for understanding what you are doing).

  A particularly horrible thing to do is to give me your source code expecting me to consider that as the report. Yes, I do want your code, but that goes into the appendix as something that I *may* consult if I do wish to, but definitely not as something I *have* to read to understand what you did. I simply do not have the time to do that.

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