CSCM10 Computer Science Project Research Methods
Writing a Background Research Report

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http://www.cs.swan.ac.uk/∼csetzer/lectures/computerScienceProjectResearchMethods/current/index.html

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Assignment

From Assignment Handout (on Blackboard):

- A report surveying a research area of interest to you.
- Contributes 35% of the mark for the module.
- Approximately 2000 words.
- Due 8 December 2017 (11:00 am).
- You will need to submit an electronic copy via Blackboard/Turnitin and two paper copies.
- This report should consist of
  - a review of the literature for a research area/topic and
  - include an indication of possible avenues for future research/project work.

Submission

- Electronic Copy via blackboard.
- **In addition** 2 paper copies.
  - Print out two cover pages from College Intranet.
    - Print them out early, so that you don't have to do it in a rush.
    - Calculate in the possibility of printer problems when many students are submitting at the same time.
  - Stable them in front of your submission.
  - Hand it into the drop boxes outside Talbot PC Lab 043, Ground floor, Talbot building.
  - If you are submitting late and have a valid documented reason
    - (e.g. medical certificate)
    - you can get a penalty waver form for your coursework from the College intranet,
    - and submit it together with your coursework to the College of Science student information office Faraday-123.

Topics

- A list of topics will be made available on Blackboard.
- You can choose your own topic,
- or a topic from the list.
- You need to discuss your topic with your tutor (usually in the tutorials).

Section 2 based on material by Liam O'Reilly

Story Teller's Rule

- Step 1: Tell them what you will tell them.
- Step 2: Tell them.
- Step 3. Tell them what you told them.

Main parts

A report should have

- A title page or a clearly worked out title,
- an abstract (optional),
- an introduction (Step 1),
- a body (Step 2),
- a summary or conclusion (Step 3),
- a bibliography (also called references).

Title Page or Title

- Should contain
  - the title of your document,
  - coursework reference (probably best: CSCM10 Report),
  - date of submission (for future referencing),
  - student number.
- I recommend to add "CSCM10 report" and your student number on every page.
  - allows to identify its purpose in case pages get loose.

Abstract

- Can be on the title page, or put directly after the title,
- usually indented.
- Summarises in a few sentence what your document is about.
- Is a help for any reader who wants to decide whether to read it or not.

Introduction

- Introduces main concepts in the report.
- Gives a motivation
  - When motivating, don't write why you are motivated, but write what could motivate **the reader** to read your document.
  - Keep a dry style in the motivation.
  - E.g. if motivating an essay on computer security, one could write something like

    Computer crime has been rising sharply in recent years The UK government estimates ([3], p. 50) that the annual cost of computer crime to businesses, has increased from XX billion pounds in 2005 to XX billion pounds in 2016. ...
- Briefly states what will come in each major section of the body.
- After reading this the reader
  - should be motivated to read your report,
  - should have a good idea what the report is about,
  - and what is to come.

Body

- The body is where you present the bulk of the material.
- Should be logically structured (see below)

Summary / Conclusion

- If the report makes recommendations or analyses a topic
  - there should be a **Conclusion Section** which
    - clearly states the conclusion(s) of the report (which should already have been presented in the body).
    - summarises the report
    - reminds the reader what they have read.
- If the report simply reports on a topic
  - a conclusion does not seem appropriate.
  - Instead, the report should have a **Summary Section**, which
    - summarises the report
    - reminds the reader what they have read.
- Summary / conclusion should introduce no new topics.
- It should remind the reader of what they have read,
- and reiterate any conclusions.

Bibliography

Lecture on bibliographies will be given.

General Good Practises

- Write in full sentences.
- Report should be a self contained document.
- As the reader reads it they should understand the content without needing a question, task or other description.
- Write with precision.
- Give evidence, proofs, supporting information for your statements.
- Be self critical. It is positive to write about weaknesses of your approach.

General Good Practises

- Use plenty of citations. Citations are positive since they
  - document proper scientific working.
  - allow the reader to check what you have been written
  - and allows the reader to identify other material which could be of interest to him/her.
- The style should be more dry scientific style, not like a magazine, no jargon, no slang.

Use the Active Voice

- Avoid use of 1st person, i.e., don't do "I did ..."
- Use active voice:

No	**Yes**
I investigated ...	We investigated ...
Hence, I recommend to ...	Hence, we recommend to...
It can be seen that ...	We can see that ...
34 tests were run ...	We ran 34 tests ...
These properties were thought desirable.	We wanted to retain these properties.
It might be thought that this would be a type error.	You might think this would be a type error.

Logical Structure

- Use sections, subsections (and even subsubsections) to structure your report.
- Example:
  1. Propositional Logic
     Propositional logic uses atomic propositions .... Atomic propositions can be 'glued' together using the logical connectives: and, or, implies, and equivalence.
     - 1.1 Disjunction
       ...
     - 1.2 Negation
       ...
     - 1.3 Implication
       Definition of implies
       ...
       Reduction of implication to disjunction and negation.
       ...
  2. Type Theory.

Consistent Formatting

- Aim at uniform formatting.
- In MS Word you use for headings section heads such as "Heading 1", "Heading 2".
  - Allows to generate table of contents (e.g. for your dissertation).
  - Allows cross referencing.

Figures

- Figures should have a a caption, and should be referred to in the text.
- Usually they have numbers (for easier referencing).
- If a figure comes from some other source, you need to state clearly the source ("taken from [3]").

Footnotes

- The purpose of footnotes
  (at least in Computer Science)
  is to provide a place for distracting text
  that is not part of the main story.
  The interested reader can choose to read the distracting part.

Quotes

- When quoting text, you need to make it clear that this is from a different source, e.g.
  John ExampleAuthor states in [3], p. 381:

  > "This is a quoted text which is copied verbally from some other source it is quite long and intended"

- **Just writing [3] without quotation mark doesn't express that you are quoting verbally**
  - It is **Not** enough to prevent you from accusation of **academic misconduct**.
  - Use of [3] means that some of the knowledge you present originates from [3] or that [3] is just some additional source of information.
  - Quotations like this are benedificial and add to your report.

Before Submission

- Make sure all text is justified (straight line at the right side) where appropriate.
- Text has been spell-checked.
- Text is uniformly formatted (same font for text of the same category).
- References, cross references, page numbers are correct.
- Student number and module code is on title page, and is repeated on every page.