

Project Briefing for CST II Students (2011-2012)

Welcome back!

Key points:

- exam is three papers + project dissertation
- dissertation = quarter of total marks!
- two weeks to get project proposal accepted

Goals of the project:

- demonstrate computer science skills
- design, implement, test something substantial
- select suitable methods and tools
- prepare a convincing report

Overseers

- Two per student
- Oversee selection of project and its progress
- Formally approve project and supervisor
- Advise on resources
 - computing equipment
 - languages, libraries and tools
 - any special devices

you must submit a
Project Resources Form

- Overseers are not expected to suggest projects or find project supervisors
 - your **Director of Studies** is responsible for helping you select a project

Proposal Requirements

- A **named project supervisor**
 - his/her signature required on proposal
- Resources
 - complete a ***Project Resources Form***
 - * *handles special resources*
 - submitted with proposal
 - * attach form to proposal
 - submitted by everyone
 - * even if you need no special resources
- Your Director of Studies is happy
 - his/her signature required on proposal
- Both your overseers are happy
 - they will sign to approve after you submit
 - leave a space for their signatures!

The Project Proposal

- About 1000 words and A4
- First page **must** specify:
 - The proposer:**
your name, college and user identifier
in top right corner
 - The project:**
its title and the name of its originator
 - Supervision arrangements:**
project Supervisor and Director of Studies
(and both their signatures)
 - Overseers:**
their names and space for signatures
- **Read the Pink Book thoroughly**

The Proposal Body

1. An introduction and summary of the work to be undertaken.
2. A note of the resources required and confirmation of access.
3. A description of the starting point.
4. Description of the substance and structure of the project: key concepts, major work items, their relations and relative importance, data structures and algorithms.
5. A criterion which can be used to determine whether the project has been a success.
6. Further envisaged evaluation metrics.
7. Plan of work, specifying a timetable and milestones.

Sources of Projects

Main sources:

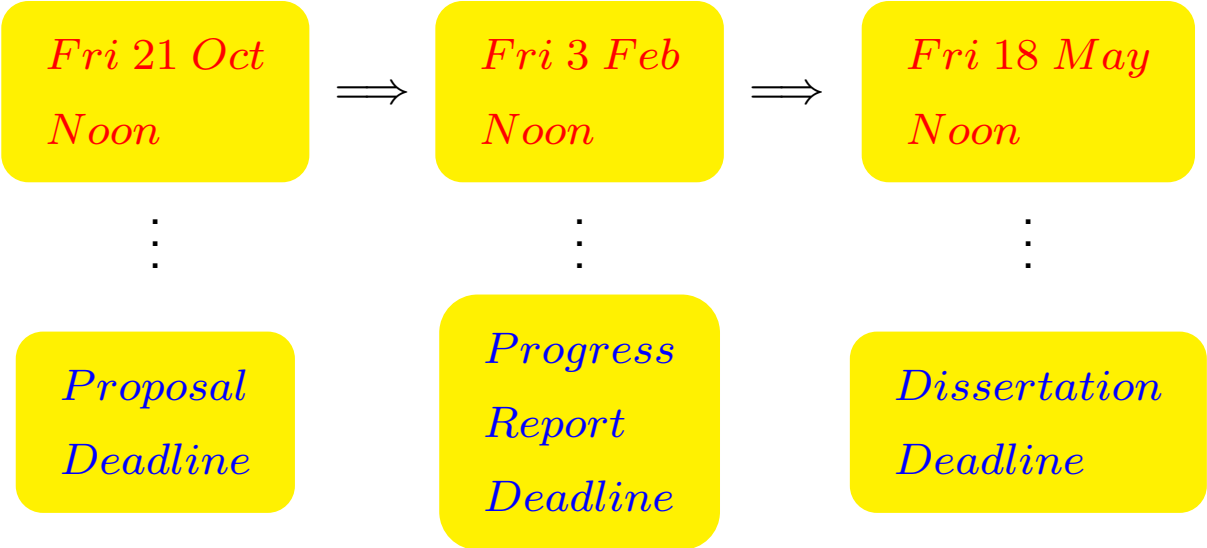
- your own ideas
- supervisors and Directors of Studies
- previous years' projects
- industry
- projects web page
- the best projects typically:
 - require learning/study/research,
 - use a complex central data structure or algorithm,
 - amenable to quantitative evaluation.

Computers

- PWF Facility
 - many PC workstations
 - supported by Computing Service
 - dual boot into Windows or Linux
- Relying only on your own PC can cause problems
 - need PC backup plan (to PWF or otherwise)
 - genuine extract from a past project:

Unfortunately my write up became corrupted on disk towards the completion date. I have had to rewrite the dissertation over the last 36 hours and this has resulted in a much smaller write up than the original (ie 4000 words as opposed to 10000 words).

The CST Project Timetable



Also: Supervisors' Form: Wed 23rd May (4pm).

Microtimetable for choosing project

- **Phase 1** - Selecting a Topic
 - write 100 word outline of project idea
 - get overseers' approval
- Email *Phase 1 Project Selection Form* to overseers
- **Deadline: Monday after briefing**

Phase 1 Project Selection Form

Please complete this form and email it
to both your overseers
by 3:00~pm on the Monday after the Project Briefing.

Phase 1 Project Selection Status Report

Name:

College:

User Identifier:

Director of Studies:

Please complete 1, 2 and 3 below.

1. Please write 100 words on your current project ideas.
2. Please list names of potential project supervisors.
3. Is there any chance that your project will involve any computing resources other than the Computing Service's PWF and software that is already installed there, for example: your own machine, machines in College, special peripherals, imported software packages, special hardware, network access, substantial extra disc space on the PWF.

If so indicate below what, and what it is needed for.

Phase 2 – Filling in Details

- Write a few hundred words of description
- Devise a timetable, for example:
 - 10 two-week work-packages
 - first two might be preparatory work
 - last three writing your dissertation
 - practical work in the middle
 - progress report a part of fifth
 - identifiable deliverables and deadlines
(Ideally have a primary success criterion due in the Lent Term)
 - leading to submission in middle of May
- Determine special resources, check available
- Secure a suitable project supervisor
- Ask overseers to check details
- **Deadline: Friday, 1 week after briefing**

Proposal Coversheet and Resources Form

Print PDF [Project Resource Form](#)
and [Project Proposal Cover Sheet](#)
from the project web page

Fill out and attach to your proposal.

- describe requests to Computing Service for more resources (made via a web form)
- request access to Centrally managed Computer Laboratory research machines
- justify any experiments on human subjects
- indicate if you are using your own computer
- indicate plans to use specialist hardware or software belonging to industry or a research group
- optional risk assessment sheet: high voltages, knife throwing machines, ...

Human Subjects Approval

- Evaluation or other experiments involving human subjects requires approval by the department's Ethics Committee.
- Getting your friends to test your software is an experiment on humans.
- Be careful with personal data (avoid data protection offences).
- Be careful about misleading your victims (avoid a conviction for fraud).
- Follow best practice in conducting this part of your evaluation (there are established methods for conducting HCI trials).
- **You** must fill in the box in on the cover sheet.
- **Your supervisor** must complete and submit an online form to the Ethics Committee for you.

More on the Project Resources Form

- The form authorises you to have access to resources
- It doesn't actually create access
 - you arrange access yourself
 - after project is approved
- In addition to requests for resources the form requires:
 - Your name, college, UserID
 - Your signature (maybe twice)
 - Signature of special resource owners
- You must sign the form at least once!

Using Your Own Computer

- Tick “I plan to use my own computer” on the Project Resource Form.
- You then fill out A and B, e.g.
 - A** *My computer: 3 GHz CPU, 4 Gb RAM, 300 Gb Disk, Linux OS*
 - B** *My contingency plans against hardware/software failure are that all source code and data will be backed up daily on CD using my CD/RW*
- You sign that you accept full responsibility for any hardware and/or software failure

Phase 3 – Final Proposal

- Produce final copy including:
 - Coversheet and Resource Form as first and last pages,
 - Risk assessment page if necessary,
 - Body of proposal, including milestones and timetable.
- Secure the signatures:
 - project supervisor
 - Director of Studies
 - proprietor of special resources
- **Deadline: Friday, 2 weeks after briefing**
 - hand in by **Noon** on Friday

Starting Work

- Acquire a project log book
 - very useful when writing up
- Try to keep to the timetable
- Continually review progress
- Consider goals & organisation immediately
 - in parallel with learning needed skills
- Think early and often about evaluation
 - comment from examiners on evaluation

My experience from four years of reading dissertations is that there is one failure mode exhibited by roughly a third of dissertations. This failure mode is exhibited as excellent Preparation chapter, adequate Implementation chapter, appalling Evaluation chapter.

I think this failure more often reflects students poor planning rather than poor evaluation skills. It usually comes across as: I spent lots of time thinking about my project, didn't manage to complete the implementation properly and had no time left to do any sort of evaluation.

Lent Progress Report

- 300 to 500 words on A4 paper
 - your name and e-mail address
 - title of your project
 - name of your Project Supervisor
 - name of your Director of Studies
 - **what work has been completed and how this relates to the timetable and work plan in the original proposal**
- Hardcopy handed in to Student Admin.
- You may also request an additional private meeting with Overseers.

Progress Presentation

- Five minute, **compulsory**, presentation to your overseers and overseeing group
- Not assessed, but overseers send a written report back to supervisors and DoS
- Format:
 - Feb 2011: Thu 9, Fri 10, Mon 13 or Tue 14
 - at 2pm
 - projection from laptop recommended
 - request overhead projector if needed
 - oral report should be carefully rehearsed
 - use at most 4 slides
- **making this presentation to your peers is a necessary part of your accredited course work for the degree**

Finishing Up

- Don't leave things until the last minute
- Start writing the project report early
- Get it printed and bound
several days
before the deadline.
- Missing the submission deadline results in marks being deducted!

$$penalty = \frac{10 + n}{40} \times mark$$

n is the integer part of number of days late

- kicks in immediately after deadline
- minimum of a quarter of marks lost

Copyright & Intellectual Property

- You retain full copyright and ownership rights over your work.
- Everything you submit must be free from IP restrictions (e.g. NDA).
- Your **source code** will not be used for any purpose other than examination and will not be distributed outside the Computer Laboratory.
- You grant the University the right to limited, not-for-profit distribution of **your dissertation**, such as placing a copy in the departmental library.
- More information in Pink Book or from DJ Greaves.

Supervisors' Report Form

- Signed by your supervisor and DoS (if different).
- Explains how much supervision was given and what, if any, demonstrations were shown.
- The form may be used as a basis of whom to call for Viva.
- You must ensure it is given in as soon as possible after submission.
- Certainly before the deadline on the following Wednesday.

Viva Voce Examination

- The examiners will announce the date of Vivas
- If you will be away on that date, you must inform the examiners via your tutor
- You may be asked any question:
 - did your project really work?
 - did you really write this function yourself?
 - etc...
- Few people are actually called for viva

Advice on Backing Up

- You commonly need to review or undo some changes
 - handled by RCS, CVS, Subversion etc.
 - in your file space
 - ensure enough quota for backup and revision control!

Once you start using a revision control system you will never look back.

- Discs crash and data is commonly lost
 - mitigate using regular dumps
 - backup to PWF provided by the Computer Service
 - also use the Cloud (Dropbox etc) or SRCF

Aims of Final Dissertation

- Demonstrate ability to **plan** and **execute** a large project
- Show **understanding** of the project's area of **Computer Science**
- Demonstrate ability to select **appropriate tools** (languages, algorithms, data structures etc.)
- Present evidence that the end result **works** as claimed
- Show ability to prepare a **well-structured** and **readable** document

Compulsory Dissertation Format

- Aim for about 10000 words
 - **Must** be less than 12000 words (excluding any appendices)
- Required form:

Cover Sheet
Proforma
Declaration of Originality
Table of Contents
Chapter 1 Introduction
Chapter 2 Preparation
Chapter 3 Implementation
Chapter 4 Evaluation
Chapter 5 Conclusions
Bibliography
Appendices
Index
Copy of Project Proposal

Declaration of Originality

- Dissertations must include a declaration:
 - immediately after the Proforma
 - on the same page, if room
- Must have exactly the following syntax:

I *[Name]* of *[College]*, being a candidate for Part II of the Computer Science Tripos, hereby declare that this dissertation and the work described in it are my own work, unaided except as may be specified below, and that the dissertation does not contain material that has already been used to any substantial extent for a comparable purpose.

Signed *[signature]*

Date *[date]*
- *Pink Book* has more explanation and details

Assessment

- Each dissertation is read by 3/4 examiners
 - and possibly by an additional expert
- Each dissertation is marked as follows:

	Marks
Presentation	14%
Introduction and Preparation	26%
Implementation	40%
Evaluation and Conclusion	20%

- Presentation: credit for literacy and narrative quality (fonts/layout yield marginal credit)
- Other guidelines at the end of Pink Book

Projects Web Pages

<http://www.cl.cam.ac.uk/teaching/projects/>

Your overseers will soon be announced:

<http://www.cl.cam.ac.uk/teaching/projects/overseers/>

Submit:

1. A bound hardcopy of your **dissertation**,
2. An electronic (PDF) copy of your **dissertation** (it may be electronically scanned for plagiarism),
3. A zip of of all **source files** you created or substantially modified and perhaps **example output files** that substantiate your claims. You do not need to submit supplementary materials required to re-create a working version of your project (these might be under NDA etc.).

See

<http://www.cl.cam.ac.uk/teaching/projects/submission.html>

Good luck !

David Greaves