Preliminary Project Briefing
for
2017/18 CST IB Students
(2018/19 CST II Students)

CST Part II Project

Next year you submit a dissertation:

- worth one paper
- a quarter of total marks!
Aims of Project

• To display **Computer Science** skills

• To demonstrate ability to **plan** and **execute** a large project
  – usually software; could be hardware, assembly of a knowledge base, or a mechanically-assisted proof

• To demonstrate ability to select appropriate **languages**, **techniques**, **algorithms**, **tools**, **data structures** etc

• Demonstrate **understanding** of the project’s area:
  – **professional** use of appropriate standard algorithms, tools or libraries,
  – relationship to Computer Science,
  – awareness of standard results & literature,
  – avoid inadvertently re-inventing the wheel.
To show ability to prepare a well-structured and readable document
- Demonstrate technical writing skills.
- Prepare a report which convinces its readers that stated objectives are achieved.

You submit your code but only the dissertation is typically looked at.

Your supervisor and/or DoS writes a two or three sentence report.

Some people will be called for viva.
Overseers

- Briefing Officer assigns two per student.
- Oversee selection and approval of a suitable project and its plan,
- Check requirements are satisfiable:
  - Computing equipment to be used,
  - Other special equipment or resources,
  - IPR, human experiments and other legal obligations.
- Monitor progress and liaise with your DoS,
- Briefing Officer will help if you have problems with your overseers
Sources of Projects

Main sources:

- Your own (moderated) ideas,
- Supervisors and Directors of Studies,
- Suggestions on the projects webpage,
- Previous years’ projects,
- Industry.

Requirements:

- You have a named project supervisor,
- Both your overseers are happy,
- Written permission for special resources and experiments.
Choose something with significant technical content.

Ideally implement some complex algorithm.

Do not do something big yet simple.

Choose something interesting.

Phrase a question or two at the outset.

Answer the questions in the conclusion.

Choose a project amenable to structured evaluation.

‘It worked according to plan’ is not sufficient.

Components ideally separately testable.

Composition ideally evaluable using several metrics.
Use Appropriate Tools

- Think about tools carefully:
  - need a parser: use a parser generator
  - need to optimise in multiple dimensions: use a hill-climbing library
  - need to solve NP problem: use a standard SAT solver
  - need to visualize networks: output via dot

- Many projects are done in Java or C++,
  - but consider OCaml/F#, Scala or C#.
  - (or Rust, Swift, Go, ...)

- Use the long vac to explore tools, libraries and languages.
Equipment

- Standard resource is the MCS facility
- Use of other and/or non-standard equipment or libraries
  - needs written permission from resource owner.
- Certainly use git/SVN or other version control system.
- Relying only on your own PC is very risky:
  - have a backup plan identifying a second PC or MCS equipment.
  - Keep backups on MCS filespace or cloud server.
The CST Project Timetable

Start of Mich Term ⇒ Fortnight Later ⇒ Mid May Noon

Formal Briefing ⇒ Proposal Deadline ⇒ Dissertation Deadline

Also:

Early 2018: Written progress report to overseers,
Lent Term: presentation to peers,
And send regular updates to your DoS.
So, after Ib exams this year...

- Look at old projects,
- Read up background material,
- Think about tools:
  - read documentation
  - play with toy examples.
- Start a project log book
  - a hard-back notebook is ideal
- Don’t start implementing your project
  - your overseers might not approve it.
FAQ

• How much time should I spend on my project - one paper’s worth.

• What if I have started my project already? - It might not be approved. Also, you describe your **starting point** in your proposal and your Chapter 1 - it does not matter whether someone else or you yourself did the previous work.
Part II Units

Those of you reading 75% option take two Part II Units of Assessment:

- Take note of the Unit Assessment dates and include them in your project plan.

- Session timetables will have hardly any clashes with other Part II material, so there is a good chance you can attend sessions you are not registered for (but seminar and practical class space may be limited).

- Be careful with your selection of units: focus on things you are good at. Some units use a seminar or ‘Reading Group’ style, some require good essay writing skills, others involve more programming ...

- Your selection has already been registered, but requests for change, via your DoS, will be entertained until mid September. Course head count will be the main consideration.
• Review this talk via the web

• The **URL** for projects is:

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

• That's it .................... see you next year!