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# Coursework report 2012–13

## C03320 Project – Final Project Report

As usual, the standard of the **Final Project Reports** submitted in 2012–13 was mixed, with some weak submissions balanced by some impressively strong ones. The overall pass rate (just under 85 per cent) was very similar to the previous year.

It was good to see some new trends emerging this year. In particular, a number of students decided to produce a short video demonstration of their work, which was a nice touch. This is a good chance to show off your presentation skills. Some videos were screencasts of a piece of software in action (some with audio commentary and others with text annotation), while others were videos of the student him/herself, talking about their work (which adds an extra degree of personal connection). Both approaches were generally effective.

Most videos were submitted on an attached CD-ROM or USB stick, whereas some were produced as Youtube videos with a URL provided in the submitted report. While both methods of delivery were accepted, the former (providing the material on electronic media submitted with the report) is preferred, because the Examiners can only base their opinions on material that is submitted before the deadline. With Youtube videos and other online content, it is not always possible for the Examiners to see when the content was uploaded.

Another feature that is becoming increasingly prevalent in Projects is the use of online survey software (such as Google Forms, surveymonkey.com, Facebook polls and many others). Performing surveys and questionnaires online provides the opportunity to reach many more respondents than might be possible from a paper-based survey. Of course, the survey still has to be carefully designed to collect useful data, and the target audience still needs to be clearly defined. However, in general, students made very effective use of these online tools.

In the academic year 2012–13, all students were required to submit their Preliminary Project Reports online in January. This meant that all students received feedback on their progress from Goldsmiths' staff in early February. When marking the **Final Project Reports**, in many cases it was gratifying to see that students had taken notice of the PPR feedback, and had used it to improve their Final Project Reports. However, in other cases it was disappointing to see that the feedback had apparently been ignored. The feedback is provided to help you to produce a better Project, so do make use of it!

The foundation of any good Project is: **the identification and statement of clear aims and objectives**. The problems faced by authors of many of the weaker Projects were ultimately due to a lack of clarity about exactly what they were trying to achieve and why.

Having a clear timetable for the Project is essential, as is the practice of regularly reviewing progress and revising the timetable as and when appropriate. A number of Project reports started off very well (for example, with a good Literature review and system design sections), but then tailed off towards the end (for example, very short analysis and discussion sections). This suggested that the students had run out of time towards the end of the Project. A continual re-evaluation of progress

is essential; be prepared to cut down on some of the original aims if necessary, and remember that it is better to submit a smaller, complete Project, than a more ambitious – but incomplete – one.

Every Project is expected to have some kind of Literature review, in order to put the work in context of what other work exists in the subject area. By having a good knowledge of what other people have done, you are less likely to ‘reinvent the wheel’; you might avoid approaches that other people have tried and failed to make work; and you might find inspiration for how to do things better. While students are expected to do a substantial amount of Background reading, not all of this reading will turn out to be directly relevant for the Project. A fairly common problem seen in the Project reports is an overly-long Literature review, much of which is irrelevant. The Examiners are looking for evidence that a student knows what is relevant and what is not; the Literature review should only include topics that directly relate to the rest of the Report.

A significant number of students made little or no use of academic literature (peer-reviewed journal papers, conference papers, books, etc.) in their Literature review, instead focusing almost exclusively on information from websites (such as Wikipedia). The problem with websites is that they are not peer-reviewed, and the information they contain is not necessarily reliable. If you are using information obtained from websites, consider how reliable it is, and consider including some discussion about the reliability of your sources. Better still, try to find relevant academic literature from your library or by searching online (for example, by using Google Scholar). A great deal of academic literature is open-access and available for free.

As always, some students had problems with the correct use of citations and referencing. A **citation** is a short marker in the main text; for example, ‘(Taylor, 2012)’, which denotes an item in the Reference list. It is not sufficient just to include a Reference list at the end of the report with no citations in the main text; when you refer to someone else’s work in the main text, you should use a citation to refer the reader to the relevant item in the Reference list. Even more importantly, some students copied sentences from other authors’ work without the proper use of quotation marks. It is perfectly acceptable to copy text from another source (within reason), but only if you clearly indicate, through the use of quotation marks and a citation, where you have obtained the text from. Failure to do this raises the suspicion of plagiarism – trying to present someone else’s work as your own – whether intentional or otherwise. There are severe consequences for plagiarism, so be very sure you know how to use quotations, citations and references appropriately.

One aspect that often distinguishes good Projects from weaker ones is the extent to which the student provides **justification** for what they have done. This applies throughout the Project report. For example, of those students who conducted questionnaires, the best ones provided a justification of each question included, explaining why they included the question and what they hoped to learn from the answers.

More generally, the design of a piece of software, or of a set of experiments, needs to be justified rather than just presented ‘out of thin air’. Justification for software design usually comes in the form of requirements gathering from the identified stakeholders, and/or a discussion of the suitability of the chosen design for implementing the desired functionality. Justification for experimental design will usually involve linking what you are doing to what has been done before (as

discovered in the Literature review); and a discussion of how the data collected from the experiments will enable you to answer the questions identified in the Project's aims and objectives. Similarly, conclusions drawn at the end of the Project report need to be properly justified by reference to the analysis of data collected.

For a Project involving any kind of experimentation (whether with software, hardware, user interaction, or otherwise), it is important to provide full details of exactly what was done. The general rule for reporting academic experiments is that enough information should be provided to enable a reader to repeat the experiments themselves. A few Projects suffered from lack of details about exactly what was done, what parameter values were used, how many trials were conducted, etc.

A significant number of Projects used 'off-the-shelf' software packages for part, or all, of the system development. This was particularly common for Projects using neural networks, machine learning and related topics. While it is perfectly acceptable to use third-party software, students are expected to demonstrate that they understand the techniques they are using (for example, through discussion in the literature review, experimental design, and results analysis sections of the Report). In some Projects, third party software was used with no evidence that the student really understood the techniques being used, and such Projects usually attracted a low mark.

An additional problem seen in some machine learning Projects was a poor experimental design; in particular, relating to the division of data into training, validation and test sets. Students doing such Projects are advised to be clear on these issues in order to avoid problems of over-fitting, etc.

Another fairly common problem, especially for software development Projects, is an insufficient or complete lack of evaluation of the developed system. Any Project requires some kind of evaluation at the end in order to determine whether the work has been successful in meeting the Project's aims. For a software development Project, evaluation might include unit testing, stakeholder evaluation, etc.

The majority of Projects involve some kind of software development, some more so than others. In a small number of cases, a student showed screen-shots of their software in the report, but did not provide any source code, either in the report, the appendices, or on the attached electronic media. It is essential that source code is provided, so that the Examiners can properly evaluate what has been done. If the source code is very long, it can be included on the attached electronic media. But a print-out of (at least) the main sections of code should also be included in the Appendix of the Report, in order to direct the Examiners' attention to it.

Any code presented in the Report should be neat and well commented, as the Examiners are looking at the quality of your code. The standard of code present in this year's Projects was of very mixed quality, ranging from professional-level to barely intelligible. This has been an issue in previous years too; students are strongly encouraged to pay sufficient attention to this, especially if coding forms a significant part of their Project work.

In terms of presentation of the Report, a number of issues were seen in some of the submissions:

- Some students did not include a PDF version of their report on an attached CD-ROM (or other electronic media). Note that this is now a requirement, as specified in the **Project** subject guide.
- Most students chose to submit a CD-ROM, DVD or USB stick along with the Project Report. These are all perfectly acceptable. However,

a handful of students submitted an external hard drive (some even containing an image of a disk partition). Students are strongly advised to avoid submitting disk images, bootable media, etc., as these present additional challenges (and security issues) for Examiners to be able to access them, and it may not always be possible to properly assess material presented in such a manner.

- Some students developed a website as all or part of the Project, and supplied a link to a live website so that the Examiners could inspect their work. This is a useful additional tool for the Examiners; however, take care not to rely too heavily on this. The Examiners can only base their assessment on work submitted before the deadline, so any functionality on a live website should be fully explained and documented in the submitted Project Report as well.
- Although most students had a good idea of what material should be presented in the main report and what should be put in an Appendix, some did not. Detailed technical material, source code, etc., that might otherwise break the flow of the main report, should be placed in Appendices. However, information that is central to your Project should be put in the main text.
- Finally, this year a number of Projects were submitted as loose pages with no binding whatsoever. Although expensive binding is not required, **some kind of binding must be used** to hold the pages together. If no binding is used, there is a danger that pages may fall out and get lost, and hence not be marked.

In general, the 2012–13 **Final Project Reports** spanned a wide range of standards, from the very weak to the truly outstanding. The preceding comments have highlighted some of the common problems. Further advice on how to produce a good **Final Project Report** can be obtained in the following ways:

- Read the **CO3320 Project** subject guide.
- Look at examples of good Projects from previous years in the Project Library section of the Goldsmiths Computing VLE: <https://computing.elearning.london.ac.uk/mod/page/view.php?id=1846>
- Discuss problems and questions with fellow students on the Discussion forum of the VLE: <https://computing.elearning.london.ac.uk/mod/forum/view.php?id=879>