University of Hertfordshire School of Computer Science

Final Year Projects for students on the Computer Science/Information Technology Degree Programme:

6COM0278, 6COM0281, 6COM0282, 6COM0283, 6COM0284, 6COM0285, 6COM0286, 6COM0287

Guidance to Students on the Final Project Submission

1.   Weighting of the final project submission and breakdown of marks

The final project submission is worth 90% of the total marks for the module.

Your work will be marked by two assessors independently; each will award a mark out of 100. The marks given by the two assessors will be averaged, and the result will be scaled to give a mark out of 90, which will be added to the marks you got for your DPP (out of 5) and your Weekly Reports (out of 5).

The quality and quantity of work done (analysis, design, coding, testing, research, evaluation, and so on) is assessed chiefly through what we read in your project report, *supported* by what we see at the presentation and demonstration, and by the material included in the appendices to your report. Your communication skills (grammar, structure, layout, and so on of the written report and the way you explain your work in the presentation and demonstration) will be taken into consideration as part of the assessment exercise.

2.   Important dates and times

A paper copy of the **Final Report (incl. Appendices but not including program code)** should be submitted to CS reception by **15:00 on Friday, 19th April, 2013**.

An identical electronic copy of the **Final Report (incl. Appendices) + electronic support material (code, multimedia artefacts)** should be submitted via the relevant assessment page on https://karl.stca.herts.ac.uk also by **15:00 on Friday, 19th April 2013**.

NOTE: The electronic submission of the Final Report MUST BE in PDF format.

You must also give a presentation and demonstration of your project work to your tutor and second marker and answer questions from them about your work. Rooms and equipment will be allocated for demonstrations by the Project Module team, however, **it is your responsibility to organise your demonstration** at any convenient time between the 24th April, 2013 and 1st May 2013 inclusive. The suggested way of doing this is to start by emailing your tutor and second marker with two or three alternative dates and times, but some markers have a very large number of projects to assess and may therefore prefer to suggest the demonstration dates.

In addition, some students will be selected to have an **Oral Examination** during week beginning Monday 20th May, 2013. The final date will be published as soon as possible. You **MUST** make sure you are available for this. A timetable for the orals will be published by the end of the previous week.

BE WARNED: the Board of Examiners may treat failure to attend an oral examination as if you had failed to submit a project at all.

2.1 Late Submissions

Standard penalties will apply to late submissions: if you submit your report late the maximum mark you can get for your final submission will be capped to a basic pass. If you submit more than a week late you will get **zero** for your final submission.

If you wish to put forward extenuating circumstances in mitigation of late submission, or failure to make a demonstration of your work, or failure to attend an oral examination panel, then you must complete a Serious Adverse Circumstances Form and submit it to the Chair of the Module Board of Examiners (via Computer Science Reception) with documentary evidence of the circumstances. This should be done as soon as possible, and in any case before the meeting of the Board of Examiners who will consider the matter.

Even if your extenuating circumstances are accepted, your project cannot be marked according to the schedule described here unless we receive the report in time; if it is submitted too late, demonstrations and orals will probably be dealt with at the same time as any referred projects.

3 Final Report

Submit **ONE** printed copy of your final project report, including appendices, in a plain card wallet folder. On the outside of the folder should be written:

- your name

- your Student Registration Number

- your email address

- the project title

- the name of your project supervisor and second marker

- code for the module on which you are registered.

Submit ONE identical electronic copy of your final report, including appendices, program source code and executables, and any other appendices (other than any hand-written documents) in electronic form via https://karl.stca.herts.ac.uk using the appropriate assessment page. This must be in PDF format.

3.1 Presentation of the report

There are certain stipulations concerning the format of reports. These are:

- White A4-size paper (at least $80g/m^2$) is to be used.

- The text is to be of consistent size (either 11 or 12 point) in Times or Times New Roman font (except for mathematical formulae, where you may use whichever font is most appropriate and program code, where you should use a non-proportional font such as Courier).

- Diagrams, tables, graphs, and so on, if they are not printed in the report may be of any size, but must be folded in such a way as to fit within the main body of the report and to be easily opened and read.

- Each page must be printed on one side only with a 4cm margin at the left and 2.5cm margins at the right, top and bottom.

- Each page from the contents page onwards, including any appendices, should be numbered in sequence from 1 using Arabic numerals. The only exceptions to this might be any self-contained documents (such as user guide) and program listings: each self-contained document or program listing should form a separate appendix and can have its own numbering.

Do not underestimate the time it takes to produce a report. You have to decide on its structure and contents and should discuss this with your tutor. Once the structure has been decided, you have the opportunity to submit a chapter in draft to your tutor and to receive feedback.

You must complete the report independently of your tutor, check and correct it and then submit it as described. Please remember that any of the University's computer facilities, printers or photocopiers may become unavailable at short notice at critical times and though you can pay to have your report copied at the University's reprographics service, the service will be very busy at that time of year.

3.2 Structure of the report

The final project report should have the following structure:

Title page
Abstract
Acknowledgements (if any)
Contents page
Introduction
Literature Survey and Research (may be included in Main Chapters)
Main chapters
Discussion and evaluation
Bibliography
Appendices

3.3 Length

As guidance, the introduction, main chapters, discussion and evaluation should be about 8,000 – 10,000 words in length.

The bibliography and appendices are not included in the word length.

3.4   Title page and abstract

The title page must be signed, and should be laid out in the style shown in the sample title page [which will be available for download from https://karl.stca.herts.ac.uk.

The abstract should be a statement up to half a page in length describing the subject matter of the project report and the main findings and conclusions presented in the report. It is not just an introduction: a reader should be able to find the main points of the report by reading the abstract alone.

3.5   Contents page

A contents page will look something like:

Contents

The table of contents must show the chapters of the report, with the title of each and the page number on which each chapter begins. If your chapters are organised in sections, with a title for each, show these sections on the contents page as well. Do not go to greater detail than sections, as the table of contents should fit on a single page.

3.6   The introduction

This chapter should introduce *the project*

> Say what it was about, give some brief background information (sufficient to 'set the scene') and list your project objectives. These should be as stated in your DPP; any changes to your objectives should be explained later in the report, probably in the overall evaluation of the work.

This chapter should also introduce *the report*

> Give a very brief statement of how your report is structured, including what is in each chapter (and the most important appendices) just to help the reader gain an idea of how you are going to present your work.

3.7   Literature Review and Research

This chapter should lay out the tasks undertaken in determining the current body of knowledge relevant to undertaking the project. The chapter should be organised to reflect the tasks you have undertaken and should provide the reader with a guide to the subject areas within which your project operates. The literature review must be balanced, including enough information and sources to show that you have researched the subject area adequately, but also selective in its narrative to ensure that the clarity of thought applied to the research is maintained in the report.

This chapter will act as a starting point for many of the main chapters and it is likely that there will be some significant cross-referencing with this chapter from within the main chapters.

3.8   The main chapters

How to present these will depend largely on the subject of the project, but here are a few points of advice:

- You may assume that your readership has the level of knowledge of a good Computer Science student who has taken the same modules as you. Bear this in mind when writing about background technical information and do not present large amounts of information that such a reader would already know or that could be read in a standard textbook. Simply reference the textbook in your bibliography and keep the information you present specific to your own work. Explain how any background material you present has been used in your project.

- The main chapters of your report are where you describe your achievements. Instead of just listing the tasks that you carried out diary-style, in the order you did them, it is better to organize the chapters around topics.

  In these chapters you should tell the reader what you have done, why you did it, what results you obtained, what you think you have achieved (including the problems you have overcome) and how you went about evaluating

your work (criteria applied, tests performed, and so on). Be sure to present the results of your project work properly, especially when the main task of the project was a software development.

- It is important to present information about your development work, not just the finished product. As an example, depending on the nature of your project and the way you approached your work, this might include:

  - Discussion of database analysis and design decisions, system structure or program design issues;

  - Commentary on any uncertainties in the project specification or requirements and how you resolved them;

  - Discussion of design decisions that were considered and the reasons for choosing one method over another;

  - Use of software tools (what inputs you supplied, how you configured them, what outputs were produced);

  - Presentation and discussion of intermediate results, for instance of a program which was progressively refined or extended;

  - Consideration of HCI issues and how they influenced your design;

  - Your strategy for testing your software. This might include some user evaluation of your software and if so, you should report on the outcomes.

3.8   Discussion and evaluation chapter

The extent to which you demonstrate the ability to reflect upon your work is very important. In this chapter you should summarise your main findings/results and evaluate what you have achieved *and* how you went about it. You may find it more convenient to include an evaluation of each aspect of your work in the chapter where it is presented and summarise that evaluation here. What is crucial is to have a critical self-evaluation of the extent to which you have achieved the things you set out to do.

For example, you may find it assists you to evaluate the development approach you pursued and the quality of your development work on each task that you undertook. In an investigative project, with an outcome that is unknown in advance, you may put up an hypothesis that turns out to be wrong, but still get a top mark for a thorough, methodical investigation that is properly evaluated.

Also assess the extent to which you met your objectives. You will not be penalised for acknowledging that you failed to achieve everything you set out to do, and especially not the more advanced things, but you certainly would be criticised if you give the impression of not having noticed that you had failed to meet an objective.

You should have a short section on management of the project (usually half to one page, but possibly longer), including how you planned to allocate time at the start of the year and how it actually worked out in practice.

3.9   Referencing and the Bibliography

The University provides an online "iSpy" tutorial on citing sources and referencing that you should work through. It is available at http://www.studynet.herts.ac.uk/ptl/common/LIS.nsf/lis/citing_menu

The recommended format for references and bibliography entries is the Harvard system. Information about this system and how to use it are available at http://www.studynet.herts.ac.uk/ptl/common/LIS.nsf/lis/busharvard

3.10   Appendices

The appendices to your report provide supporting evidence of the quality and quantity of the work you have done. Your appendices should contain any requirements documents, specifications, design documents, survey forms and results, screen shots, and other documentation produced as part of your project. Without this supporting evidence it is possible that the markers will take the view that you have not done everything you claim to have done.

However, the appendices are only there to **back up the claims made in your report**. Markers can only be expected to look at those parts of the appendices you draw their attention to in the main body of the report. They are not obliged to read the appendices in detail, though they may do so. If you think it is important to draw the markers' attention to a particular point, tell them where to find it. Don't just say "the code for this is in appendix 3", give a page number, or better include the appropriate fragment in the body of your report.

All program code written by you must be presented in the appendices submitted to the project website (but not with the printed report). **Do not** include code that is machine generated, or that comes from a different author, unless it is necessary in order for the reader to understand the work you have done. If you do include code that you did not write yourself, **it is your responsibility to make clear which parts of the program are your own and which parts are not**. If you present automatically generated code, or the code of another programmer, as if it were your own, you may be accused of plagiarism.

Do not include copies of any web pages that you have referred to, unless it is absolutely necessary for the reader to see them in order to make your point: just put the citation details in your bibliography.

Samples of the work that is presented in the appendices may be included in the body of your report in order to illuminate a particular point or for discussion purposes.

4.   The Presentation and Demonstration

All students are required to give a demonstration or other presentation of the products they have produced for their projects. If you have produced a software system and you claim in your report that it works, then we expect to see it working, and we expect you to be able to explain your system and to answer questions about it. The assessment will be carried out by your supervisor and the second marker for your project, who should both be invited to your demonstration / presentation.

In all instances there is the necessity to demonstrate / present what you have produced:

- If you have produced a software system that works, focus on the key elements of the system in your demonstration

- If you aimed to produce a working system, but your system does not fully work, use the partially working system to explain the challenges you overcame and those that proved insurmountable, and why.

- If the aim of your project was to produce something other than a working software system (for example, you set out to create detailed analysis and design documents for a real-world problem, or you conducted a set of experimental observations), then build a presentation or demonstration around these artefacts.

Whatever your situation, discuss how you will present your work with your supervisor, who should be able to advise you on the best course of action.

Please **DO NOT** attempt to do a Powerpoint presentation telling us *about* what you did, you need to show us the actual work. Suppose, for example, that the main deliverable from your project consists of an extensive set of DFDs documenting the system you have analysed. We would not want to be *told* what you did, we would want you to present the actual DFDs, and talk us through them.

4.1   Why do I need to demonstrate my work?

- Because the dynamic behaviour of a running system cannot be adequately described in words, or in screenshots.

- Because a 'live' demonstration gives you an opportunity to explain and illustrate points that may be hard to describe in a report.

- Because we need to see evidence that supports the claims you made in your report. (If you can't show us supporting evidence then how do we know your claims are accurate?)

4.2   How long is the demonstration?

You will have 10 minutes to show your work, if you go on longer than 10 minutes you may be interrupted. Then there will be 10 minutes for answering questions. Ten minutes is a very short time to show off your work; you need to be selective. Discuss with your tutor what you should demonstrate or present. Plan the points you want to make in those 10 minutes. Consider working from a "script": a written sequence of planned operations.

Remember: Practise your demonstration before you actually do it.

4.3   What facilities are available?

Talk to the Technical Support staff (based in D217) in order to resolve resource issues related to the demonstration.

You may use one of the Faculty's computers or your own machine; it may not be possible to do demonstrations on your own equipment if it needs mains electricity (is this really true?).

If you need network access then you will have to use a Faculty machine, or connect to the wireless networking facilities via your own equipment. In general it is perfectly acceptable to demonstrate a networking, client-server or web-based project using the loopback address 127.0.0.1 (localhost). If one or two features (such as automated email to another machine) cannot be demonstrated for sound technical reasons that is unlikely to be a problem unless they are at the core of your system.

If you need to use specialist software that is not installed in the general laboratory area then you should approach your tutor about getting the software installed on one of the project machines. THIS MUST BE DONE BEFORE EASTER. Please be aware, however, that we cannot permit the installation of software for which neither we, nor you, have a valid license (and if the software is being installed under your license you will be asked to prove that you have one).

Those who have been assigned a specialist project machine should be aware that this equipment will be relocated to LB252 during the easter recess, in preparation for refurbishment work taking place in the summer.

4.4   What will be assessed?

- The extent to which you met your objectives or specified tasks.

- The level of challenge represented by the problem(s) you have tackled.

- The technical quality of your work.

- Whether your system *really* does what your report *says* it does.

- How well you answered questions. Be ready to answer questions on any part of your system and your report.

4.5   Useful hints and tips

The demonstration is important: a good demonstration can raise the mark for your work, but if claims made in the report are undermined by the demonstration, your mark could be reduced.

Think about using your (draft) project report as a tool for planning your demo: what claims have you made that markers will want to see backed up by evidence in your demonstration?

Do a dry run to make sure that your demonstration works on a lab machine (or your lap-top) the week before you have to do the demonstration for real.

Turn up early. Make sure your computer is up and running and that everything is installed and functioning properly; the markers will not be impressed if you make them wait around while you try to set up your system.

5   Oral Examination

Some students will be called to an Oral Examination. At the oral will be a chairperson, your tutor and a second marker. The purpose of the oral is to ensure consistency in the treatment of projects, and to resolve any outstanding issues (such as discrepancy between the two markers). The oral will last for between 10 and 25 minutes, and during it you will be required to answer questions on your project work. If you have failed to give a demonstration of your work, you will be expected to demonstrate it at the oral.

If you miss the oral, it may be that your mark will be lower than it might otherwise have been, because one reason for an oral is that it is unclear from your report what grade is appropriate, and in the absence of the evidence provided by the oral we have to assume that the lower assessment is correct. Alternatively, the Board of Examiners may determine that the assessment of your project is incomplete and you will be called to an oral at a future date. If this happens, it is likely to delay your graduation.

6   Issues for the assessors and characteristics of each grade

The following factors will be taken into account in marking all projects:

- The size and complexity of the task;

- Critical appraisal of your own work: the clarity of your explanation of the work you have actually completed; the evaluation of the extent of your achievement; the evaluation of your management of the project including the use you made of the project plan(s); your assessment of the success of the project overall and your identification of possible remaining or future tasks;

- Communication skills: structure of the report; coherence; quality of writing; quality of presentation.

Other factors will carry different weights depending on the nature of your project. Because of the different focus of work in various projects, markers will decide what weight to attach to the following factors:

- Background research;

- Problem definition and requirements analysis;

- Quality of solution: design and implementation; experimental work; this will usually carry the most significant number of marks.

- Quality of approach: suitability of method, choice of tools and skill in using them;

- Testing; analysis and evaluation of end product(s) and results.

We expect all students to be able to explain their work and show an appropriate level of understanding of any technical material they have used or developed. Such explanations and demonstrations of understanding should be evident in the written report *and* during the presentation and demonstration: a body of practical work that is not backed up by evidence of understanding is likely to achieve a poor grade.

For an **Excellent or Outstanding** project report we expect to see evidence that you understand how the concepts and principles underpinning the subject area of your degree are relevant to your project work, that you have made well-reasoned choices of appropriate tools and techniques and applied them in a thoughtful manner. There should be

evidence of substantial practical achievement of very high quality, and your report should demonstrate that you can explain and critique what you have done, why you have done it, what you achieved by doing it, and how your project might be improved or extended.

We expect all major issues, including the really hard and perhaps un-resolvable ones, to be properly evaluated and commented upon in the project report. We are not looking for an original contribution to knowledge, but we expect you to have unearthed and addressed all the complexities of the problem, and not to have avoided any difficulties. We expect the report to be well-structured, coherent, well-written and free of significant grammatical errors.

For a **Very Good** project report we expect to see evidence of a broad-ranging and thorough investigation of the project topic, with a methodical presentation of all the main issues. There should be evidence of a substantial quantity of practical work of a high standard, in which you have brought to bear relevant principles and practices, and chosen and applied appropriate tools and techniques. We expect to see evidence that you appreciate how your project work is related to your other studies.

We expect you to evaluate properly all the main points arising in the work, although not as well as an A Grade student. We also expect you to show that you are aware of the limitations of the work, and to recognise and comment on aspects of it that would merit further study. We would expect a very good report to be well-structured, coherent, and largely free of grammatical errors.

For a **Good** project report we expect to see evidence that you have taken a methodical approach to the work, and that you have undertaken practical work of reasonable scale and at least to an average standard. We also expect you to demonstrate an understanding of the principal issues in your project work, and to show that you can describe what you have achieved, and that you can explain the things you have done and why you have done them. We expect a good report to be coherent and largely free of grammatical errors.

For a **Satisfactory** project report we expect to see some evidence of relevant learning and that you have a reasonable understanding of the basic issues in your project work. An appropriate quantity of practical work will have met some of the objectives to an adequate standard or better, although there may be flaws. We expect a satisfactory report to be reasonably coherent, and at least to provide an account of work done.