

Department of Computer Science



CM30082 Project Preparation - Literature Survey

Submission Deadline	Midnight, Friday 22 November 2013
Submission Location	Moodle
Estimated Effort	32 hours
Proportion of Unit Assessment	Formative Assessment
Learning Objective(s)	To understand the process of literature reviews To define and conduct a literature search To manage information obtained during a literature search To understand how to conduct critical evaluation and write a literature review To enhance skills in report writing
Feedback provided	Feedback via Moodle or feedback sheet and during discussion during supervisory meeting.

Problem Description

Background

In conducting any computing project, whether for this final year unit or within the development of new software in a commercial environment, it is vital that the development is grounded in a sound understanding of the problem domain and previous work in the project area. It is rightly said that "there is nothing new under the sun" (KJV), and any academic must acknowledge that their work, no matter how novel, is "standing on the shoulders of giants" (Bernard of Chartres, d. 1125) - those who have gone before to provide the foundation of theory and practice we use today. The Literature Survey provides vital direction for the project, prevents unnecessary repetition of previous mistakes and unwanted re-invention of available designs, algorithms, techniques, code libraries and applications.

Within the final-year Computer Science project, background reading is very important. It demonstrates your ability to learn independently, apply research skills, and critically evaluate the work of others. It also ensures that your final-year project produces a product of worth - a product that builds upon current knowledge and techniques. In assessing a project the quality of the investigative work a critical Literature Survey is a key factor in the difference between a first class or second class project.

Guidance

The work of a Literature Survey consists of two parts - a Literature Search and a Literature Review. In the Literature Search phase, you will (with the guidance of your supervisor) identify appropriate previous work, locate the appropriate papers/articles/books, read the literature and make notes on the key ideas, theories, directions, concepts and techniques that are revealed. Part of the problem of conducting the Literature Search is bounding your search - identifying material which is beyond the bounds of the project no matter how interesting the material is. A complementary aspect is the ability to identify when your material is insufficient. It is easy to become frustrated with the difficulty of locating appropriate references, and the temptation is to then become satisfied with a less than adequate coverage of the relevant literature. A key factor in marking the Literature Survey is whether key foundational material has been considered. Therefore, you should not be tempted to cut corners with the Literature Search.

In the Literature Review phase you will have to order and digest the material you have read, and then produce a structured summary and critique of the reading you have done. The aim of the Literature Review is *not* to systematically catalogue the reading you have done. Rather, using the hypothesis you have developed or the project idea you have identified, you should use the reading to identify the major ideas and threads of development, relate work that has (perhaps) not previously been related, and thereby justify and refine your hypothesis / ideas. The Literature Review should "tell a story" that identifies the development and blossoming of your ideas as you conducted your literature search. It is worth repeating that it should *not* be merely a catalogue of the items you have read.

The precise form of literature you will need to examine will vary depending upon the nature of your project. Highly research-related projects will invariably tend to draw upon a range of published papers from academic journals or conference proceedings, perhaps utilising a few key texts. The Literature Survey will start with an identification of the problem area and will use the Literature Review to identify previous work completed in the area and the major results. It will, of necessity, have to pull together a lot of small findings to paint a picture of the recent progress made within the area. It will lead towards an identification of key open questions that relate to your hypotheses and will highlight the evidence that your hypotheses are based upon. The Survey will normally culminate in the presentation of your hypothesis and an identification of the contributions to knowledge that you hope your work will make.

If you have chosen a project that focuses on the development of a software product, your Literature Survey will also begin with an identification of the problem area. It will then discuss your investigation into currently available software that tackles the same or similar problems, and the lessons that can be learnt from the way in which the problem has previously been tackled. It will also investigate possible technology and implementation alternatives, using books and computer magazines or journal articles (such as Communications of the ACM, IEEE Software) to discuss the trade-offs with each approach. It will contain a clear critique of the approaches and will naturally lead to a set of conclusions on the approaches that should be considered. The temptation with software development projects is to only focus in on one or two textbooks for all the information you require. Whilst it may be the case that a text book provides a lot of the information you require, this is not satisfactory for a Literature Survey. Rather, you should consult a wide variety of related texts to consider the different approaches that are advocated. You should make the effort to find journals that identify the latest developments in the technology areas related to your project. You should scour the Internet for new developments in the area. Even the most simple database-related or web-based project actually presents a host of opportunities for consideration of new approaches.

If you have a project which is part research and part software development, your Literature Survey should reflect this through the sections you create within the Literature survey.

Conditions

This is an *individual* assessment - you **must** work on your own, with the advice of your Project Supervisor, to complete this coursework.

As with all assessment this coursework is subject to the University regulations on plagiarism, a summary of which can be found in the Assessment chapter of the Computer Science Undergraduate Programmes Handbook.

Deliverables

You must hand in a written Literature Survey, which will eventually become a chapter of your Project Dissertation. Although there is no constraint upon size, you should be aware that the Project Dissertation is typically 40-70 pages of 11 point single-spaced text. Thus, around 12-15 pages is normally appropriate. A consistent style should be used throughout. The "Thesis" style in LaTeX, or the equivalent in Microsoft Word represent good starting points.

Marking Approach

This coursework is formative - it does not contribute to the assessment of the unit. However, you must have completed a satisfactory Literature Survey to be allowed to progress onto the unit CM30082. The following is a *guide* to the standards expected to achieve the corresponding classification:

1st Class

The Literature Survey satisfies all the requirements of a 2:1 student, but in addition demonstrates a spirit of critical evaluation throughout. The Survey helpfully gathers together many disparate sources of information into a coherent whole, presenting a well structured argument that makes steady progress towards clear conclusions. The Literature Search is expansive and yet well-focused, with clear effort made to select the level of detail and the reading material that is included. All references, quotations, illustrations and results used are appropriate and selective so as to enhance rather than disrupt the flow of the writing. The writing style is professional, lucid yet compact, consistent and correct throughout.

2:1

The Literature Review starts from the main project ideas, and elaborates upon the ideas using key texts. A firm foundation of historical development is provided, and the review moves rapidly on to recent developments. Key ideas are drawn from many sources and are described in an appropriate level of detail. Comparisons between approaches / results are made and a good attempt is made to identify relevant open questions. The reading is applied to the project ideas and leads to natural and well justified conclusions. References, quotations, illustrations and/or results are carefully selected and applied in context to reinforce key points. All sources are appropriately referenced throughout, and a well constructed and accurate bibliography is supplied. The writing style is professional, consistent, clear and correct throughout.

2:2

The Literature Search considers the key texts, and starts to examine additional related material. The Review has a sense of progression towards key conclusions. The conclusions are fairly well drawn out, but there is a general lack of critique as the discussion progresses. References and carefully selected quotations, illustrations or results are used to illustrate key points, and the bibliography is well constructed, although perhaps containing a few errors of style or content. The writing style shows some lack of care or does not achieve professional standards (shows a lack of care over tense, person or number).

3rd Class

The Literature Search is poorly conducted, consisting mainly of a few readily available or "key" text books. The Literature Review is a poorly organised catalogue of the reading that fails to draw out key themes or directions. The Review is difficult to read and does not "draw" the reader towards a natural conclusion. Poor use is made of references to the text, and the bibliography is poorly constructed or not constructed according to a recognised system. The writing style is weak, with occasional evidence of lack of care over sentence construction, grammar or spelling and an obvious need for additional proof-reading.

Feedback

Feedback will be provided via Moodle, a mark sheets and/or verbal during one of your supervisory meetings. You can discuss the literature survey with your supervisor during one of your regular meetings to obtain further feedback.. Feedback will be available within three working weeks of submission, allowing for the Christmas Vacation.