



CS5030 - Software Engineering Principles

Assignment: Group Research and Report

Deadline: 14 October 2020

Credits: 40% of coursework mark

(MMS is the definitive source for deadlines)

Aims

The aims of this assignment are to

- research in depth a specific topic in software engineering that is not fully addressed in the recordings or the reading material provided for the module;
- critically engage with the literature, extracting key points, summarising and drawing conclusions from them;
- work in a group, managing a division of labour and coordinating contributions; and
- document the outcome of your research in a precise and logical manner as a technical report.

Requirements

This assignment involves

- working in a group to research a topic chosen from the list in the next section, and
- writing a technical report to present your findings.

The exact structure of the report will depend on the topic you choose to research. As a general guideline, the report should contain:

- An introduction outlining the objectives of the research and summarising the structure of the report;
- Context for the research, describing the general background of the topic and its characteristics;
- State of the art, outlining the latest trends, practices and relevance to software engineering;
- Challenges and open issues related to the topic;
- Possible solutions to challenges and future trends;
- Conclusions; and
- References

You can customise this structure to suit your topic and perspective.

The group report should be no more than 4000 words. This is a compulsory limit. Any violations will be penalised according to scheme B (under-length not penalised) of the



University Policy on Coursework Penalties. You should clearly state the word count at the end of the report. References are not included in the word count.

You must also submit a short individual report of *at most* 500 words outlining your experience of and contribution to the group effort.

Topics

The topic for research and report must be *one* of:

- Using artificial intelligence techniques in software engineering
- Cybersecurity as a key concern in software development
- The impact of mobile devices on software engineering practices
- Implications of cloud and edge computing for software engineering
- Facilitating end-user software development (including Low-code / No-code)
- Engineering software applications incorporating mixed reality
- Pros and cons of outsourcing software development
- Software engineering for social good

Sources

The reading list provided for the module will not be sufficient for this research. You must find appropriate sources of additional information of good academic standing. A better report would contain students' own observations and reflection of the material from these sources.

You should draw on formally published material, i.e. either peer-reviewed academic papers or reports from well-known sources. Informal publications (such as web pages and blog posts) may be acceptable if they are well written and comply with the standards for academic writing.

As a starting point for the literature search, you may wish to look at the [ACM Digital Library](#) and [IEEEExplore](#). You can access their content through institutional login with your University credentials. Both provide access to a large number of academic papers as well as an index of the wider computer science literature. In addition, the [University library](#) provides extensive search functions through the SEEKER and SAULCAT services.

Group work

You are required to work as a group to complete this assignment. Details of group allocation will be available on studres at

<https://studres.cs.st-andrews.ac.uk/CS5030/Assessment/A2/>

from Monday 28 September.



The work can be divided up among members according to their preferences and strengths as long as the group agrees on a fair division. The default arrangement is that everyone in the same group will receive the same mark. However, if there are problems with group work and some members do not contribute a fair share of work, evidence in the form of individual reports, and interviews with group members if required, will be used to determine different marks for individual members.

Submission

A single archive containing the shared group report and the individual report must be submitted electronically via MMS by the deadline. Both reports must be in pdf format. Report submissions in any other format will be rejected.

Assessment

Marking will follow the guidelines given in the school student handbook (see link in next section).

Some specific descriptors for this assignment are given below:

Mark range	Descriptor
1 - 6	Minimal attempt at research and a poor report showing lack of understanding and not reflecting requirements.
7 - 10	Reasonable attempt at a structured report with some evidence of research, a report covering some required information and some understanding of software engineering concerns but with substantial problems relating to scope, relevance or correctness in identifying and analysing information.
11 - 13	Competent attempt at the report with clear structure and writing covering most required aspects including own research and analysis and relevance to software engineering.
14 - 16	Good attempt at the report addressing all required aspects in good writing style without major problems, including own research, good understanding of software engineering concerns and showing critical thinking.
17 - 20	Well-written report outlining excellent work addressing all required aspects without any defects, possibly including additional elements beyond the requirements given in the specification.



Policies and Guidelines

Marking

See the standard mark descriptors in the School Student Handbook:

http://info.cs.st-andrews.ac.uk/student-handbook/learning-teaching/feedback.html#Mark_Descriptors

Lateness penalty

The standard penalty for late submission applies (Scheme B: 1 mark per 8 hour period, or part thereof):

<http://info.cs.st-andrews.ac.uk/student-handbook/learning-teaching/assessment.html#lateness-penalties>

Penalty for exceeding word limits

Scheme B (under-length not penalised) of standard University policy applies:

<https://info.cs.st-andrews.ac.uk/student-handbook/learning-teaching/assessment.html#word-count-penalties>

Good academic practice

The University policy on Good Academic Practice applies:

<https://www.st-andrews.ac.uk/students/rules/academicpractice/>