3rd Year Group Project – Stage 1 ("The Bid")

This document describes Stage 1 of the 3rd Year Group Project and should be read in conjunction with the Group Project Guide, the Project Specification, and the Group Project information posted on Vision.
Stage 1 will count for 30% of the Group Project mark.

Overview

The group's first task is to simulate making a bid for the project. The group bid consists of the production of the Requirements Specification, Project Decision and Planning, Risk Analysis, and Project Costing. You must also create mock-ups of your user interface and do a short usability evaluation.

The expected content of the documents is given below. There will be Software Engineering lectures on each of the topics where more information is available. Groups should also be guided by the expectations of their Manager and the project requirements. Examples of good documentation from previous years are available on Vision. Feel free to produce draft versions well in advance of the deadline to give to your Manager for review.

Documents

For Stage 1, you should produce a report consisting of a number of documents as described below.

1. Requirements Specification

The requirements specification should provide an introduction to the project, including its purpose and scope, and aims and objectives. A complete, comprehensive, prioritised description of the software requirements, both functional requirements and non-functional constraints, should be produced and organised into logical groups and numbered. Relevant UML diagrams could be included.

2. Risk Analysis

Identify the risks that your group is likely to encounter during the year, and give details of a suitable strategy to manage these risks. Groups should focus on the risks that they as students might realistically encounter, not those that their pretend company might encounter. Risks should be considered in conjunction with project decisions and plan (see below).

3. Project Decisions and Plan

By this stage the group must have decided on key issues such as which software to use; which software process to use; how the complete product will be divided into sub-systems (top level design); how the software will be assessed for usability, technical correctness and customer expectations; what each student expects to contribute to the project; and how the group intends to collaborate. Provide details of these key issues.

Explain when the various tasks will be done, how long they will take, and who will do them. The plan should cover both the development and evaluation of the product and the production of all documents. Don't forget to allow for other coursework, examinations, and holidays!

All groups are asked to plan their product development using iterations, so at this stage you should decide on the software development methodology, number of iterations, their duration, and which top level tasks will be in each iteration. Show dependencies between tasks. For the first iteration, which you will start on immediately after this deadline, break the tasks down into detail. Later iterations do not have to be planned in much detail. The plan should be presented clearly, possibly using tables, lists or graphics such as a Gantt chart.

4. Project Costing

The team should produce an overall budget for the project plus a breakdown of the costs in each section. Consider development and evaluation. Any additional costs to the customer for hardware, proprietary software, etc. should also be specified.

For each section of the budget, explain how the costs were arrived at. For example, for hardware or software hosting, give details of current prices from potential suppliers that you have discovered. For staff, explain how you have divided the group into roles, how much time each person will spend in that role, and what salary and overheads you have taken into account. Include references to where numbers in your costing come from.

Most of the staff costing should be based on the time that you actually have available and the roles that you take, but you can invent a few other future details such as training and maintenance.

5. Usability Evaluation of Mock-ups

Once the requirements are finalised, groups should design a mock-up of the interface for the majority of the system. This can be as simple as hand drawn screens, PowerPoint with links, or using more sophisticated interface design software.

Once you have completed the mock-ups, test how usable the design is. Create an experimental protocol where you show subjects screen shots and ask them what they think certain components are for and get feedback on overall usability. For this stage collect just subjective data.

- **Subjective qualitative data:** ask participants open-ended questions on how they found the experience, what they liked/disliked. If you showed them two different designs, you can ask them which one they liked best. See the iSneeze Testing Protocol on Vision for an example on how to do this. Be careful not to use leading questions (e.g., “I think this is a great feature, what do you think?”).

- **Subjective quantitative:** ask some questions on Likert or Rating scales. Examples are provided on Vision, or you can create your own similar version specifically for your interface.

You are not expected to calculate sophisticated statistics in this study since you may not have enough participants, but any summary statistics you can give will be helpful.

IMPORTANT NOTE: Due to the ongoing COVID-19 restrictions, all usability studies must be performed online and not involve any face-to-face contact. There must be no physical co-location of the team members leading the evaluation and the participants. The team may wish to consider approaches like online questionnaires to gather information about their design. Since the COVID-19 situation may change rapidly, more details on study restrictions will be provided in F29SO lectures.

The following checklist may help you organise your usability study:

1. **Consent form:** use the template provided on Vision, making sure you clearly state what is involved in participating in this study.
2. **Ethics form:** ethics for the evaluation will be obtained by the Project Coordinator. Note: do NOT have vulnerable people as subjects (this includes children under 18) or actively deceive your subjects.
3. **Usability Testing Test Plan:** create a test plan (see an example on Vision).
4. **Testing protocol:** create a detailed testing protocol, including screenshots if you ask them to go to particular screens. Make sure everyone evaluating the interface follows this protocol so that results are consistent.
5. **Questionnaires (initial and exit):** develop an initial questionnaire, querying the participants’ demographics (age, occupation, experience with computers); to gather an overview of the participant’s experience give them an exit questionnaire – base this on a standardized one, such as SUS, that uses Likert or rating scales. Make sure you gather some qualitative feedback.

6. **Pilot:** a couple of the members of the team should run through the evaluation as a subject to discover any obvious problems with it. Correct the protocol if necessary.
7. **Recruiting subjects:** try to get at least 6-8 subjects. Try to get subjects from a variety of backgrounds and ages, but relevant to the project topic.
8. **Perform Experiment:** get each subject to (electronically) sign a consent form. Save these forms. Go through the testing protocol making detailed notes. If you have an exit questionnaire, ask the participant to fill it in.
9. **Anonymising data:** all data must be anonymised, i.e., use subject numbers on any documents such as questionnaire answers. Have a master sheet with names/subject numbers kept safely by one group member. Remember any GDPR requirements with respect to the use of personal/sensitive data.

You will find a number of resources on Vision that may help you with your usability study (e.g., consent form, template for usability test plan, etc.).

Your usability report should contain the following information:

- An introduction including aims and objectives
- Design decisions for your mock-ups/final product. Include some screenshots to illustrate your point, add more in the appendix if necessary.
- Description of your experimental method, referring to your plan and protocol, i.e., what are you testing?
- Details of subjects as well as their responses (e.g., number of subjects), age, amount of computer use). Use descriptive statistics, e.g., percentage of males/females/other.
- Results analysis, which includes summarising qualitative feedback and lots of pretty graphs and descriptive statistics for the Likert/Rating scale questions. If there are particularly low responses for any questions then this will highlight areas of improvement.
- Conclusions including recommended changes
- Appendix (don't dump anything here without referring to it in your text!):
    - Usability Testing Test Plan
    - Mock-up testing protocol
    - Sample blank questionnaire if used
    - Sample blank consent form
    - More screenshots if required. Not needed for every screen, but for every style of screen.

This initial evaluation could be repeated more than once if necessary in the development process for any complex sections. Include any intermediate recommendations in this or the final report.

Additional notes

When writing the report, decide on a suitable style for all the documents that you will submit throughout the project. Always use the same title page to include the document subject, your group name, Manager name, and names of students in the group. Include a table of contents whenever appropriate. Remind yourselves of what you learned in previous courses and make sure you get the terminology right. For the purpose of Stage 1, try to submit a single integrated report rather than a collection of reports on each of the topics. Refer to the F29SO lecture on Reporting for additional suggestions on writing your reports.

Deadlines and submission

Submit your completed Stage 1 report on Vision in the **Group Project** section for F29SO. Check Vision and the Group Project Guide for the deadline for Stage 1, keeping in mind the submission time is campus dependant.

Assessment

Software Engineering (F29SO) and Professional Development (F29PD) are both evaluated by coursework only (i.e., no exam). Your mark in F29SO and F29PD will be calculated as a weighted combination of your F29SO individual coursework (17%), your F29PD coursework in Semester 2 (17%), and your individual Group Project mark (66%). F29SO and F29PD will both receive the same calculated mark.

This coursework contributes to the Group Project mark and will make up 30% of the group's overall mark (before individual adjustments). Stage 1 will be marked by both the Project Coordinator and your Manager. It will be marked out of **70 marks** using the following mark distribution and assessment criteria.

Criteria	Poor	Adequate	Excellent
Requirements (out of 20 marks)	**0 to 7 marks** No clear aims and objectives. A list of software requirements but not prioritised, some missing and no use of the terminology of functional requirements and non-functional; requirements not numbered.	**8 to 13 marks** A brief introduction to the project. A list of software requirements but perhaps not prioritised or some missing. Use of terms functional requirements and non-functional constraints; requirements numbered.	**14 to 20 marks** A comprehensive introduction to the project, including clear purpose and scope, aims and objectives. A complete comprehensive prioritised description of the software requirements, both functional requirements and non-functional constraints, organised logically grouped and numbered. Relevant UML diagrams included.
Risk Analysis (out of 10 marks)	**0 to 3 marks** A limited list of the risks that the group is likely to encounter during the year. No strategies given to manage these risks. Risks are not mentioned in terms of likelihood and effect.	**4 to 6 marks** A reasonable list of the risks that the group is likely to encounter during the year. Some strategies given to manage these risks. Risks are in terms of likelihood and effect.	**7 to 10 marks** A comprehensive list of the risks that the group is likely to encounter during the year. Sensible strategies given to manage these risks. Risks considered in conjunction with project decisions and plan (see next section). Risks are in terms of likelihood and effect. Other aspects such as risk type given also. Presented in an easy to understand manner (e.g., in a table).
Project Decision and Planning (out of 10 marks)	**0 to 3 marks** Very few included from the following: software to use; which software process to use; how the complete product will be divided into sub-systems (top level design); how the software will be assessed for usability, technical	**4 to 6 marks** Most issues listed but some missing from the following: software to use; which software process to use; how the complete product will be divided into sub-systems (top level design); how the software will be assessed	**7 to 10 marks** Key issues listed such as which software to use; which software process to use; how the complete product will be divided into sub-systems (top level design); how the software will be assessed for usability, technical

	correctness and customer expectations; what each student expects to contribute to the project; and how the group intend to collaborate. A poor project plan given not covering all stages or not allocating appropriate time-spans. No graphical representation of plan.	for usability, technical correctness and customer expectations; what each student expects to contribute to the project; and how the group intend to collaborate. A fair project plan given but perhaps not covering all stages or not allocating appropriate time-spans. A graphical representation (e.g., Gantt/PERT) but perhaps no dependencies or not clearly presented. Perhaps lack of detail for the first iteration.	correctness and customer expectations; what each student expects to contribute to the project; and how the group intend to collaborate. A realistic plan given covering both the development and evaluation of the product and the production of all documents. A graphical representation of the plan (e.g., Gantt/PERT) showing dependencies between the tasks. The first iteration is broken down in detail with later ones described at a top level.
Project Costing (out of 10 marks)	**0 to 3 marks** A budget given but many missing details, e.g. costs not broken down or details on development and evaluation missing. Customer costs not considered and details missing for the explanations on how the costs were arrived at. For staff, little information on the following: how the group have divided into roles, how much time each person will spend in that role, and what salary and overheads.	**4 to 6 marks** An overall budget given for the project but perhaps not a comprehensive breakdown of all of the costs or not both development and evaluation considered in the costing. Not all additional costs to the customer considered for hardware, proprietary software, etc. Some details may be missing for the explanations on how the costs were arrived at. For staff, missing information from some of the following: how the group have divided into roles, how much time each person will spend in that role, and what salary and overheads.	**7 to 10 marks** An overall budget given for the project plus a breakdown of the costs of each section. Both development and evaluation considered in the costing. Any additional costs to the customer for hardware, proprietary software, etc. are also specified. Explanations on how the costs were arrived at are given. For staff, explanation given on how the group have divided into roles, how much time each person will spend in that role, and what salary and overheads will be taken into account.
Usability Evaluation of Mock-ups (out of 20 marks)	**0 to 7 marks** A study evaluating interface mock-ups but with some aspect which is either unethical or the mock-ups have not been given adequate thought. Experimental protocol is flawed in some way or did not include the use of a consent form. Questionnaires may	**8 to 13 marks** A reasonable study evaluating interface mock-ups but perhaps not completely thought-through with respect to design. 6-7 subjects recruited with a good experimental protocol followed including the use of a consent form. Questionnaires may	**14 to 20 marks** A well run, ethical study evaluating well thought-through interface mock-ups. 6-7 participants recruited with a sound experimental protocol followed including the use of a valid consent form. Questionnaires are either a standard (e.g., SUS) or include questions that are

	contain questions that are leading, ambiguous or unethical. Limited discussion of findings and recommendations given. No use of descriptive statistics. Data not anonymised.	include questions that are leading or ambiguous. Some findings and recommendations given. Limited use of descriptive statistics.	well thought-through and without leading or ambiguous questions. A table of findings and is given, along with a discussion on which ones to take forward. Some descriptive statistics used to describe the participants' demographics and subjective data.

Feedback

Written feedback will be provided to the group approximately three working weeks after the submission of Stage 1. Your Manager may also provide additional verbal feedback to the group.

Learning Objectives, Late Submission of Coursework, Mitigating Circumstances, and Plagiarism

Please refer to the **Group Project Guide** for information about the learning objectives for the Group Project and details on the relevant course/university policies. You are responsible for reading and understanding these policies for completing the project.