University of Calgary
Dept. of Electrical and Computer Engineering
Software Requirements Engineering – SENG471

Assignment 2
Feasibility Study

Refer to the document "Assignment Schedule and Due Dates" on the Desire2Learn (D2L) site for the due dates and policy of late assignment submission.

This is a team assignment. *Each team submits one report. You should mainly use your designated lab time to get help on the parts of the assignment that you have difficulties to complete.*

*The **objective** of this assignment is to conduct a feasibility study for a software development project that is to be carried out within your "firm". This assignment gives you exposure to applying basic concepts discussed in the course and to the type of work that a software engineer may do.*

Total Marks: 10

How to Submit Your Assignments

Each team shall ***submit your assignments (in PDF files; one submission per team) to the "ASSESSMENTS\Dropbox" of the D2L site***. In your assignments, text font size should be at least 12 points. All margins must not exceed one inch. Your assignments must have **a cover page** with the following information (font size: 14):

Course Title: **Software Requirements Engineering**

Course Code: **SENG471**

Assignment Number:

Report Title:

Team Name:

Student Names[1]:

[1] Use an astral (*) to designate your team leader for the assignment.

I. Doing Assignment:

This assignment has the following steps:

Step 1: *Review the problem description*. The problem that you will be tackling involves the project of deploying a software system. The problem is described in more detail later in the section "III - You project".

Step 2: *Scope the problem*. That is, choose how small or large a problem you will tackle during your feasibility study.

Step 3: *Interview key people* involved in the problem. These may include your customers and others with responsibilities related to ***the feasibility study***.

[NOTE: In this assignment, you need to interview your TAs as the key stakeholders of your feasibility study. Each TA plays a stakeholder with different information relevant to your study. All stakeholders belong to two primary categories of the stakeholders. See the section "III - Your project" for more information.]

Step 4: *Study relevant documents*. This may involve reading relevant information in documents, memos, descriptions, objectives/needs and your interview notes.

Step 5: *Define alternatives* for conducting your project. Define the criteria you will use to evaluate and choose among your alternatives. Your criteria should include cost/benefit, where applicable.

Step 6: *Create models* of the key aspects of the problem and the alternative solutions. These shall include goal models to represent the relationships between goals of the key stakeholders.

Step 7: *Assess unusual circumstances or special attention items*. This may involve special analyses of circumstances/attention items for particular employees or customers of your "firm".

Step 8: *Evaluate the alternatives and choose the one* that is most promising to recommend, according to your analyses.

Step 9: *Write a report* that describes the objectives of your study, the problem you are investigating, the alternatives you explored, as well as your recommendations.

II. Hand-in:

Each team should hand in the following item:

Your team report (a soft copy in PDF format). You report of the feasibility study should not exceed twenty (20) single-spaced pages (not counting references, appendices, figures or tables.) Assume that the report is being prepared for the management of your "firm". This means that you need to be clear and non-technical about your recommendations, and you should present the basic ideas and recommendations simply, without extraneous information. Keep in mind that busy managers do not have the time to read long reports. The write-up should include following information:

1. An introduction that briefly describes the organization/customers that your project will serve, the problem that you investigated, the information sources that you used, and the process that you followed during your feasibility study.
2. The alternatives that you considered and the criteria that you used to evaluate them.
3. The evaluation process and the output of that process (a table, or other format, that presents the results of the evaluation).
4. A recommendation to proceed or not to proceed with the project of a software system development, with supporting arguments and analyses.
5. A conclusion that summarizes the contents of your report and reiterates your recommendation.
6. One or more appendices to describe in more details: (i) The organization/customers for which the feasibility study was conducted; (ii) The process used to gather information (interviews, review of written material, etc.); (iii) The names and roles of people you interviewed; (iv) Details of any analyses you conducted, including all diagrams; and (v) Analyses for each alternative presented.

III. Your Project:

The Problem: Assume that your software consulting company – "firm" – has been contacted by the Canadian Automobile Dealers Association (CADA, https://www.cada.ca/web/cada/), the national association for franchised automobile and truck dealerships that sell new cars and trucks, for a potential project related to a customized software system.

The CADA has 3,200 dealers across the country to represent a key sector of Canada's economy. To serve its members, the CADA has recently pooled funds for launching a project of developing a software system that allows customizing automobiles. The short-term goal of the project is to provide a software system, which facilitates a customer to determine non-functional features of his/her desired automobile, for example, the interior/exterior colors of the automobile. The long-term goal is to bridge customers and manufactures to achieve a customized design of non-functional features of an automobile. For a dealership, both short-term and long-term goals are important to better service quality and, in turn, better profitability.

Currently, an automobile manufacturer provides a dealership two color palettes for a model of new automobiles. One palette gives all internal colors of the model; and another palette indicates the exterior colors of the model. The color palettes are routinely printed on a brochure of the model. When a customer selects the interior/exterior colors of his/her desired automobile, two scenarios are commonly observed at a dealership. The customer takes excessively long time to make up his/her mind or chooses one of manufacturer-offered color combinations, because he/she is unable to picturize his/her own color combinations. Both scenarios cost the dealership time and service quality. In turn, the cost increases its business expenditure and reduces its profitability. A customized software system is needed to facilitate the customer to decide the interior and exterior

colors for his/her desired automobile. Hence, the CADA has approached your "firm" for a pilot project potentially, targeting the short-term goal that described above.

Starting the Project:

Step 1: *Try to collect some background information* on the organization/industry (i.e., your client) and the software system that you need to undertake a feasibility study.

[NOTE: At this stage of the project, the CADA has undecided whether to grant your "firm" the project. In the same token, the management of your "firm" is unsure about potential costs/benefits of the project to your "firm" either. The decisions of both CADA and management will be based upon the recommendations derived from your feasibility study.

For the problem, we have some real and some made-up background information in order to perform the feasibility study. For your assignment, you should get the made-up information as much as possible from your TAs of SENG471 who will play two ***primary*** categories of stakeholders. Each TA has different information relevant to your study.]

- The website of the CADA is located at: https://www.cada.ca/web/cada/
- The owner of a dealership, a sales manager, a sales person and a customer have varying degrees of privilege to access the information of an automobile model. However, they all should have the same privilege of accessing color palettes of the model.

Step 2: *Prepare a list of stakeholders* that you would like to interview for the current stage of the project. For two primary categories of stakeholders (the TAs of SENG471 will play), you should have an interview slot for each TA to play one stakeholders. All interview slots should be at least 30 minutes apart. The 30-minute interval gives you enough time to reflect the outcomes of your last interviews, and then to re-strategize the questions of your next interviews.

[NOTE: Refer to the D2L for the availability of the interview slots. Prior to the interview, each team selects ***two preferred*** timeslots ***per TA*** and informs the Instructor of all preferences for scheduling. During the interviews, the TAs will pretend to know nothing about SENG471. Thus, you should not ask questions about the assignment description. You should approach the interviews and prepare for them as though you were interviewing actual stakeholders (such as customers, managers, skilled experts …). Your TAs will be evaluating your team on how prepared you are for the interview and how well you conduct it.]

Step 3: *Always plan your interviews* as follows:

- Make sure you know what you want to learn and/or to ask. For this stage of the project, you needs to get a good overview of the practice and system to be studied -- purpose, perceived problems, current workflow, existing hardware/software, personnel/time involvement and availability, major perceived benefits/risks, organizational structure and goals, any known cost and hourly rates, and any information related to undertake a good ***feasibility study***.
- Tailor the preparation according to the roles/responsibilities of your perspective interviewees. Not everyone has the answers of all questions. [NOTE: Each TA will plays a stakeholder with ***different*** information relevant to your study.]

- Contact the person with proper roles to be interviewed for scheduling an interview. [NOTE: The scheduling will be conducted as best as possible to follow the preferences of your team for each TA. The caveat of the scheduling is first-come-first-serve.]
- Prepare a list of questions before you go.
- Bring a device to record discussions/information exchanged during the interview. You should always ask permission before using one.
- Prepare the tools/computers for writing down the answers to your questions and any notes/observations as soon as possible after the interview. Human memories are amazingly poor.
- Use your time wisely. Your stakeholders' time is valuable, so does your own.

Step 4: *Conduct your interview* in professional manners.

- Use icebreakers (or small talks) to relax yourselves and your interviewees, in particular if this is the first time you meet the interviewees.
- Confirm the role/responsibility of your interviewees and go over background information, if this is first time you meet the interviewees.
- Follow your interview plan and mark any deviations, but be flexible as well. Your interview scope should be based on the role/responsibility of your interviewees.
- Record or write down the answers to any questions as much as possible during the interview; and write down any notes/observations as soon as possible after the interview.
- Get copies of any forms or reports used (sketches will do).

Step 5: *Analyze information* for assessing feasibilities of undertaking the project and presenting recommendations to your management and client. [NOTE**:** Should you need additional information for ***your feasibility study*** after the stakeholders' interviews (from the TAs), you can make up the needed information with its rationale, assumptions and/or supporting materials. Remember that your management and client need to trust your analyses and recommendations!!]