

Assignment 3

In order to give you experience dealing with software processes, in this assignment you are asked to reason about a specific procedure for use in software development. Your team will be given a procedure intended to be used for reviewing requirements documents, and must submit a **report** evaluating this procedure. The evaluation should be performed as described below. While evaluating the procedure, you should keep in mind questions such as: How feasible is this procedure? Can it be used for the intended purpose in a practical situation? Would it be worth using in some situations or environments? Which ones? Can it be improved?

The Procedure to be Evaluated

You will be evaluating a Perspective-Based Reading (PBR) procedure. PBR is a set of procedures for detecting defects in requirements documents; your team will be assigned one procedure from the set. The PBR procedures was covered in class on Oct. 27.

You will also be given a specific requirements document (a natural-language description of a particular system's functionality) on which the PBR procedure should be applied. The "Background" and "Purpose" sections of the requirements can be assumed to be correct. Defects may be found in all other portions of the requirements document. These portions contain the detailed requirements from which the system will be designed and implemented.

A defect in a requirements document is an omission, incorrect fact, inconsistency, ambiguity or anything that would lead to an unsatisfactory solution of the problem to be solved. It can fall into any of the following classes (note that the same defect could potentially be described as more than one type):

Omission	Necessary information about the system has been omitted from the software artifact.
Ambiguous Information	Some information in the software artifact contradicts information in the requirements document or the general domain knowledge.
Inconsistency	Information within one part of the software artifact is inconsistent with other information in the software artifact.
Incorrect fact	Information within the software artifact is ambiguous, i.e. any of a number of interpretations may be derived that should not be the prerogative of the developer doing the implementation.
Extraneous	Information is provided that is not needed or used.
Miscellaneous	Other defects; e.g. a requirement may be found in an inappropriate section of the document.

Evaluating the Procedure

In order to evaluate the procedure, you and your teammate will each be assigned distinct roles, and collect a number of different measures. Both teammates should write the report.

One of you will be assigned the role of *Executor*, meaning that you will apply the PBR procedure with the goal of detecting defects in the given requirements document.

The other team member will be the *Observer*. Your role is to: 1) help guide the Executor through the different steps of the PBR procedure; 2) prompt the Executor for specific feedback about the procedure at certain times; and 3) take notes on the Executor's experiences with the procedure in practice.

The notes collected by the Observer will be an important source for your evaluation of the procedure. Other sources may include: the type and quality of defects uncovered by the Executor, the Executor's subjective opinions about the procedure, etc.

How you should perform these roles, and use them to understand the procedure better, was covered in class on Oct. 27. You will have the chance to switch roles with your teammate on an upcoming assignment.

You Should Turn In:

- 1) A final report evaluating the usefulness of PBR for achieving the task of defect detection.
 - a) The report should be 3-5 pages in length, double-spaced.
 - b) Your report **MUST** address the following topics:
 - i) An in-depth explanation of the methods you used to understand the procedure, and your evaluation criteria.
 - ii) Your assessment as to whether or not PBR is useful for the task it claims to address. If your answer is yes, what are the limits of your evaluation, that is, how broadly can you extrapolate your results? If your answer is no, are there any hints in your analysis of situations in which PBR would be more applicable?
 - iii) Does your analysis reveal anything about ways to improve PBR, either to make it *work* or to make it *work better*? Why or why not?
- 2) The list of defects found by the Executor. A form for reporting defects will be placed on the class web page.
- 3) The notes taken by the Observer.

The due date for all items is Nov. 17.

Your grades will be based on: the quality of your final report, as determined by the instructor, and how well you conformed to the procedures that you were asked to apply (PBR and the Observer roles). Your grades will **NOT** depend on your specific answers, e.g. the number of faults that you report, or whether or not you found the techniques valuable.

NOTE: This assignment is part of a study. As always, working with another student will be considered cheating, but for the purposes of the study it is especially crucial that you do not discuss your work with other students in the class. The motivation and design of the study will be discussed in class later this semester.