Summary of *Spiral Model*

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Description

The spiral model is commonly known as an *evolutionary*[1] development process. Commonly used as a lifecycle model for software development[1], the spiral model is similar to the iterative design process as there are repeated iterations (called cycles) in which successive attempts are made to develop a solution[2].

However, the spiral model differs from the iterative model in a number of key areas. First, while the iterative research design process generally involves iterating on prototype construction[2], the spiral model is more focused on risk reduction[1]

Second, because the spiral model is based upon evolutionary software development, the spiral model expects and plans for a specific number of iterations[1] whereas one of the limitations of the iterative model is that it is impossible to know when you have reached the best solution[2]. With that said, the spiral model is also capable of supporting further iterations after the original planned iterations, similar to the iterative model.

Finally, the key element of the spiral model is that it involves planning and executing different tasks during each iteration, on an as-needed basis as the project evolves[1]. This is in sharp contrast to the use of the iterative model as a research design process, where the process simply involves repeated prototypes until the desired solution is built[2].

As a research design process, the spiral model can be attractive because it makes you think about what steps should be taken first, what criteria needs to be met in order to move to a different phase (cycle) of the research process, what kinds of activities you would undertake if and/or when you meet those criteria, and what the risks are in doing these things.

Background

The spiral model was initially proposed by Barry Boehm as a software development lifecycle model in 1988[3]. It was created primarily to offer an alternative to the document- and code-driven development models, such as the waterfall model, which were being found to be far too prescriptive and unable to handle the inherent risk in software development[3]. It is a popular approach for software development, and has been found to be effective in many projects, such as the SLCSE project[4]. Additionally, it has spawned a number of versions, such as the WinWin model[5], and the New Spiral Model [6].

References

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