Chapter 5
An Approach With Iterative and Incremental Development (IID) for Mobile Applications

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ABSTRACT

There are several studies on the software development life cycle (SDLC) and various approaches that can be utilized in planning and designing a software project. The contemporary norm for the software development process across industries is to build products using iterative or incremental design. Iterative and incremental development (IID) is useful for different types of software. The authors have provided a literature review of the current definitions of iterative and incremental design, and also discuss the most common pitfalls for each approach. The authors also analysed which approach is better for different stages of the development of mobile applications. At the end of this research, it was concluded that the iterative approach is the best approach for front-end development, while the incremental approach is a better fit for back-end development. Finally, the authors provided an analysis of utilizing IID for applications in the banking sector.

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INTRODUCTION

Every software development has a process or a life cycle that can be broken down in different approaches. These processes define the software development flow and what steps must be followed in every software development phase (Tyagi et al., 2017). These different approaches to the software development process further clarify what must be performed by the development team, what deliverables should be provided, when and how to get user requirements etc. (Flora et al., 2014). The two development processes we are going to further discuss and explore their real-life application is iterative and incremental development (Parmar et al., 2021). By defining what iterative and incremental development are, their mobile application and taking the banking sector as a real-life application, we can understand their impact on software design and progress.

ITERATIVE SOFTWARE DEVELOPMENT

The first software development approach is iterative development. The term iteration describes a repeating process that aims to achieve a certain target or goal. The iterative development takes the large software development process and breaks it down to smaller portions or iterations (Cao et al., 2012). The outcome of one iteration is the start of the next one. Each iteration builds upon each other to create the full software development cycle or process. Different from other development processes, in iterative development each iteration contains the plan, design, development and test. This way when one iteration is completed the team evaluates that particular iteration, suggests any changes that need to be made and then uses those ideas to start the next iteration which also contains the planning, designing, development and testing (Potasso-Justino 2019). The first stage in an iterative development model is the planning phase. In this phase, the development team decides what hardware or software requirements we need so that those requirements are used for the other upcoming phases. The second phase in an iteration is designing where the business logic, database models and any technical requirement is defined. The next phase is development or implementation where the planning and design requirements are implemented, and coding takes place (Carlucho 2017). The last phase is testing, where the development team identifies any possible bugs or issues that show up during the implementation phase. Iterative development is more cyclical rather than the traditional step-by-step process that other models use. Figure 1 visualizes how iterative development works (Kaleel et al., 2013).