

We would be implementing an 'Incremental Development Model' for our project on 'Online Campus Security Management System IIT Indore'. The gist of this model relies on the fact that we develop the system incrementally and expose it to customers for feedback, without necessarily delivering it and deploying it in the customer's environment. Here, very good planning is needed initially.

General approach to choose process models in detail:

Process selection depends on the capabilities of the software developers in an organization like in which model they are comfortable, experienced or interested and the characteristics of the systems that need to be developed.

It also depends on the requirements of the users, developers and administrators for which it is being developed.

Processes may be plan-driven where all process operations are pre-planned and progress is tracked against that plan, or agile when planning is incremental and we need to adapt the process to meet changing customer needs.

But in practice, most practical processes include elements of both plan-driven and agile approaches.

Examples:

1. For safety-critical systems, a very structured development process is required where detailed records are maintained. For example, the Time-boxing model can be suitable for such scenarios. Here the duration of each stage is approximately the same.
2. For business systems, with rapidly changing requirements, a more flexible, agile process is likely to be better. So, here incremental models will be more suitable. Here, changes can be made while developing the model.
3. For embedded systems, with stable requirements, a well-planned model, the waterfall model will be suitable. This model is useful when the requirements are well-understood and changes will be fairly limited during the design process, such systems have stable requirements.

The model that we are following for our Project:

As our Project includes many different functionalities that need to work accurately and in time, and it is concerned with the entire security department of the campus, thus we

can conclude that it is quite a large enough project. So rather than doing the whole project at once and then testing it would be much better if we do it incrementally or in phases. So, it would be easy for us to find the errors and debug them.

Incremental Development Model is a process of software development where requirements are divided into multiple standalone modules of the software development cycle. In this model, each module goes through the requirements, design, implementation and testing phases. Every subsequent release of the module adds function to the previous release. The process continues until the complete system is achieved. Generally, early increments are the most important or most urgently required functionality. Mostly we are going to follow an agile approach where the early increments are identified, but later increments depend on progress and customer priorities.

Advantages of Incremental Development Model:

1. Errors are easily recognizable.
2. Easier to test and debug
3. More flexible.
4. Simple to manage risk because it is handled during its iteration.
5. The Client gets important functionality early.

Increments/Phases of our Project :

First:

Login/logout system and all accounts(including security persons(on duty + extra) + +security department) made, all place(which are to be monitored) information added.

Second:

Sidebar for the navigation.

For security person: account page along with display of salary and leaves.

Edit button.

For the security manager department: All accounts he/she can access but can't edit other than his/hers.

Third:

Security Managers can make an everyday timetable, which can be viewed by the manager as well as each member.

Implementing Filters for search by name and search by place option.

Fourth:

Leave system and salary calculation system.

Enabling an automatic mail feature for the salary.

Incident reporting page and about page.

Concluding, these are the quality attributes that help us determine which process model to choose in which scenario. There are different models that cater to different needs and requirements. Summarising all points, our project topic is well-served by the Incremental Development Model which gives us scope to develop the project system in stages and get customer comments everytime a stage is finished, before its actual deployment. This helps us make an efficient and robust system for Campus Security Management, which is well-adaptable to the user requirements.