Software Engineering

IT-314 Lab report – 1

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Choosing Software Process Models

a) **A simple data processing project.**

- Waterfall model

Here, the problem is well understood and simple with minimal or no changes in the requirements. Hence, waterfall model seems to be more suitable.

b) **A data entry system for office staff who have never used computers before. The user interface and user-friendliness are extremely important**.

- Prototyping model.

The prototyping model is suitable for the given system because it is used for systems with novice users and user-interface is very important in this model. It is mentioned here that it is for office staff who have never used computers before. Hence, Prototyping model is best suitable.

c) **A spreadsheet system that has some basic features and many other desirable features that use these basic features.**

- Incremental model

In this model, requirements are divided into modules and every subsequent release of the module adds function to the previous release. So, here also we have to add many other desirable features that use the basic features developed before. Hence, Incremental model is suitable for the system.

d) A web-based system for a new business where requirements are changing fast and where an in-house development team is available for all aspects of the project.

- Agile model

Agile model is suitable since requirements are changing fast and the team seems to have expertise which is the benefit of implementing agile model. Iterative model can also be implemented.

e) A Web-site for an on-line store which has a long list of desired features it wants to add, and it wants a new release with new features to be done very frequently.

- Incremental model

Here, the desired features are already decided and then it wants a new release with new features. This can be done using incremental model where you first build with basic features and then add (increment) the features.

f) A system to control anti-lock braking in a car.

- Spiral model or Waterfall model

Here, the risk is involved and Spiral Model is a risk-driven model, meaning that the focus is on managing and handling risk through multiple iterations so risk can be minimized.

g) A virtual reality system to support software maintenance

- Incremental model or Synchronize-stabilize model

Here, it is the software maintenance system, so we need to check for updates very frequently. So, we can use Incremental model or Synchronize-stabilize model as it releases after every build or phase.

h) A university accounting system that replaces an existing system

- Waterfall Model

Here, since we have to replace the existing system for which the requirements are already specified. So, waterfall model is suitable for given system

i) **An interactive system that allows railway passenger to find train times from terminals installed in stations.**

- Evolutionary prototyping model

Here, the passengers (users) can be novice. Also, the user-interface and user-friendliness is very important. So prototyping model is suitable.

j) **Company has asked you to develop software for missile guidance system that can identify a target accurately.**

- Spiral model

Here, Safety is the concern due to the heavy risk involved. So the spiral model is best suitable for this system because the risk assessment is important here.

k) **When emergency changes have to be made to systems, the system software may have to be modified before changes to the requirements have been approved. Choose a process model for making these modifications that ensures that the requirements documents and the system implementation do not become inconsistent.**

- Agile model

Here, the emergency changes have to be made before the changes in the requirements are approved. This can be implemented using agile model only because anytime changes are acceptable in the model.

l) **Software for ECG machine.**

- Spiral model or Waterfall model

Spiral Model is a risk-driven model, meaning that the focus is on managing and handling risk through multiple iterations. Risk assessment is important for this system so Spiral model is suitable for the system. Waterfall model can also be implemented since there might not be any changes in the requirements.

m) **A small scale well understood project (no changes in requirement will be there once decided).**

- Waterfall model

Since no changes in requirement will be there once decided, so waterfall model is suitable for the system.