IT314 : Software Engineering

Lab 1

Choosing Software Process Model.

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Goal

Giving reasons for your answer by taking examples (features, non-functional aspects, domain) based on the type of system being developed, suggest the most appropriate generic software process model that might be used as a basis for managing the development of the following system.

[Question A] : A simple data processing project.

Waterfall Model is my answer, as it is simple and we can give this task to even less experienced team as given the requirements it would be easy for them to implement the project. Though extending it to **Incremental Waterfall** is never a bad option.

[Question 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 will be best choice here, as we want to make user interface easier. We know that Prototyping model focuses on representing those aspects of the software that will be visible to customer/end-user. We make our first model (prototype) and user can get the feel of what actual system will be. It maybe too slow, too big, two awkward but as Brook recommends to through away, but we redesign and make it better.

[Question C] : A spreadsheet system that has some basic features and many other desirable features that use these basic features.

In my opinion **Incremental Waterfall Model** suits best here as we want some basic features in our first increment, then other features which are mentioned that use these basic features can be made in further increments.

[Question 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.

As the definition of **agility** states - **the ability to appropriately respond to changes**. and the in-house development team given to us must be agile. The methods come under the Agile Software development method is **XP(Extreme Programming)** , **Scrum** etc.

[Question 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.

Since desired features are well defined and long listed we can use Waterfall model but only waterfall is not sufficient as they want a new release with new features to be done very frequently we can select the **Incremental Waterfall Model** to capture the objective.

[Question F] : A system to control anti-lock braking in a car.

Waterfall Model suits best here because there is a **risk** involved as this machine works human in touch. In waterfall model we will follow communication, Planning which will also contain risk analysis followed by modeling, construction, deployment only when the model is well tested before coming to practical world.

[Question G] : A virtual reality system to support software maintenance

Not much critical risk, therefore we can give one after another increment with better features, that is **Incremental Waterfall Model**.

[Question H] : A university accounting system that replaces an existing system

Very straight forward **Waterfall Model** as the requirements are very well defined and not rapidly changing. There is also existing accounting system, which can be considered as a reference to better understand the features.

[Question I] : An interactive system that allows railway passenger to find train times from terminals installed in stations.

Incremental Waterfall Model suits best here because we are sure about what basic requirements are which is user gets the time for the train to arrive at particular station when the train number or name has been entered, for that user login/registration and all other necessary things will be made in first increment and if that works fine we can add more and more features in upcoming increments.

[Question J] : Company has asked you to develop software for missile guidance system that can identify a target accurately.

Waterfall Model suits best here because there is a **risk** involved as this machine works with human life. In Waterfall model we will follow communication, Planning which will also contain risk analysis followed by modeling, construction, deployment only when the model is well tested before coming to practical world.

[Question 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.

When it comes to the emergency changes, I always feel that **Agile Software Development Model** is best. Here we want some modification in existing system, gives the hint of something re usability nature is given and this leads me towards the method proposed in **XP(Extreme Programming)**.

[Question L] : Software for ECG machine.

Waterfall Model suits best here because there is a **risk** involved as this machine works human in touch. In Waterfall model we will follow communication, Planning which will also contain risk analysis followed by modeling, construction, deployment only when the model is well tested before coming to practical world.

[Question M] : A small scale well understood project (no changes in requirement will be there once decided).

Waterfall Model suits best here as it is given that **no change in requirements** will be there once decided. So we can go by classic life cycle which follows : $communication \Rightarrow Planning \Rightarrow Model \Rightarrow Construction \Rightarrow Deployment$