

27/04/2004

First Hour Exam
Student Name

Student ID:

Question One [50 marks]


A) Compare and contrast how do the waterfall model and the evolutionary models handle a significant change in requirements late in the software development process?

in water fall model, requirements are clear at the beginning of the work any change at the latest stages make us to start the changing to make the ~~new req~~ change in requirements ~~apply~~ applied, its costs money and work.


in evolutionary models, an initial ~~version~~ version is implemented with the most important requirements, and release this version to the customer, then start working on another version of the system having more requirements. which means that the customer will ~~discover~~ discover the requirement side by side with building the system. but at the end the system will be badly structured.

B) Should a development organization ^{use} adopt a single process model for all its software development? Discuss the pros and cons.

No, because for small and ~~medium~~ medium size systems with short lifetime evolutionary models are the best approaches. But for large size systems with long lifetime incremental approaches are suitable, by that we ~~are~~ have a mix of models, ~~we~~ because we divide large systems into subsystems.

 Subsystems with clear requirements use waterfall model and subsystems with unclear requirements use evolutionary or other systems.

C) The software production is inherently difficult because of complexity and conformity, discuss these two difficulties.

 Complexity comes from the product of ~~combining~~ combining simple components to make the ~~whole~~ whole system. So, the complexity of the system increases by increasing of the simple components which are ~~related~~ interfaced with each other to make a system com

D) Explain the situations in which the increment model is an ideal choice? Give an example to support your answer?

~~The~~ Increment model based on releasing a prototype system then make changes on that system to suit the customer needs exactly. it is good in that when the requirements for an increment are very clear, then will use waterfall model if not, then will use evolutionary model.

So, increment model produce a system meets the customer requirements and reduce the cost and risks, also it is good by the ~~the~~ fast deliver of the product.

i.e. Retailing system.

E) What are the non-Functional Requirements? Describe three different types of non-functional requirements which may be placed on a system and give example of each of these types of requirements?

Non-Functional Requirements are the requirement that are not the ~~the~~ system built for, but they are important to exist. if they are not exist, the system became unusable.

- Security: means the the system is protected from hackers, viruses and irresponsible use of the system like Visacard system
- ~~Reliability~~ Reliability: that is the system works for long time with a minimum number of errors. like Ambulance Dispatcher system
- Response time: which make the respond time after actions done by users as ~~more~~ fast as possible. like E-commerce system

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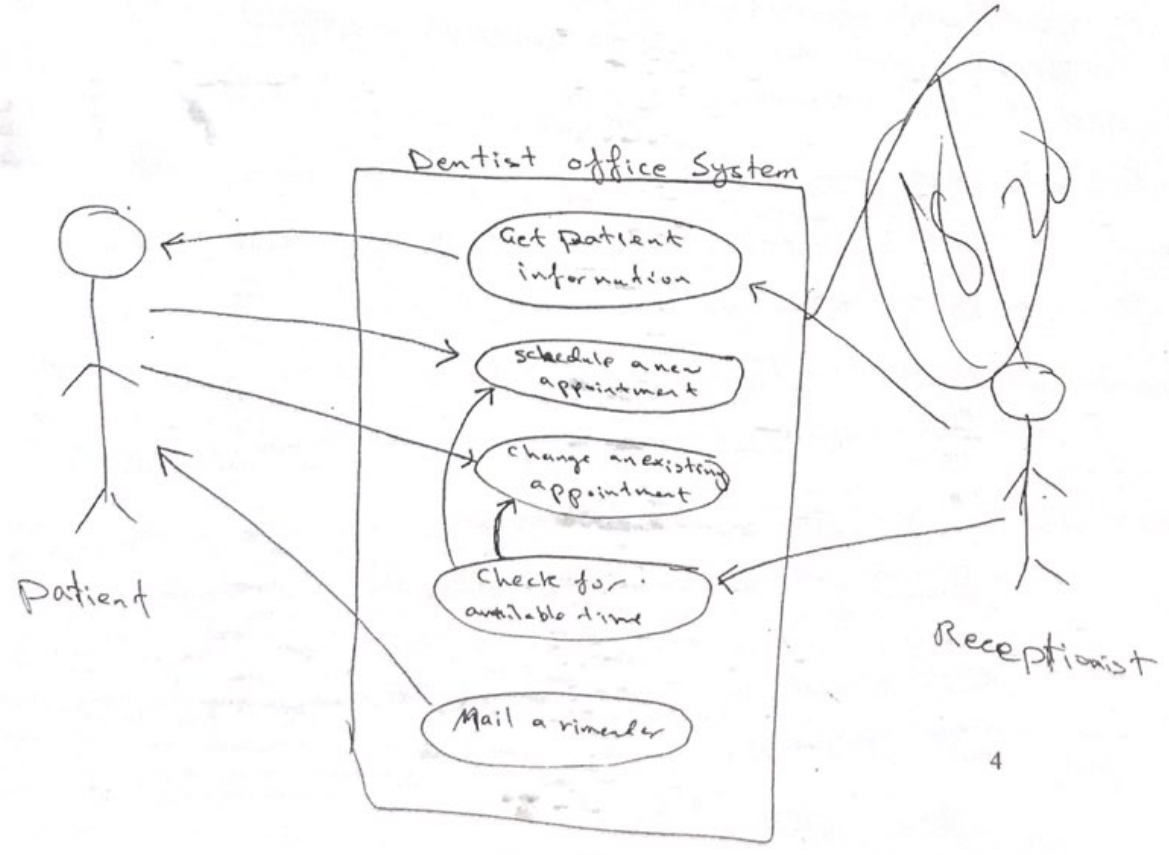
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Question Two [50 marks]

A system is to be developed to support the following dentist office system. Whenever new patients are seen for the first time, they complete a patient information form that asks their name, address, phone number, and brief medical history, which are stored in the patient information file. When a patient calls to schedule a new appointment or change an existing appointment, the receptionist checks the appointment file for an available time. Once a good time is found for the patient, the appointment is scheduled. If the patient is a new patient, an incomplete entry is made in the patient file; the full information will be collected when they arrive for their appointment. Because appointments are often made so far in advance, the receptionist usually mails a reminder postcard to each patient two weeks before their appointment.

- Identify suitable use cases, and draw a use case diagram for this system.
- Provide a narrative description for one of the above use cases.
- Based on the use case described in b; specify and document two requirements one functional and another non-functional.

- get patient information
- schedule a new appointment
- change an existing appointment
- check for ~~an~~ available time
- mail a reminder



B-

use case name: Get patient information

Actors: Patient, Receptionist

Description: To collect information from the patient and storing it in the system

Pre-condition: None.

Main flow:

- 1- the patient asks the receptionist to make a file
- 2- the receptionist opens the new patient form
- 3- the receptionist fills the information form by asking the patient.
- 4- the receptionist saves the information
- 5- the system gives the patient a file No.

Alternative flow: - if any information left empty, the system replies with a warning message to fill the empty field.

Post-condition: the patient is registered and has a file No. and the system DB is updated.

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