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Online Mid – Term Examination Summer Semester 2020

SOFTWARE ENGINEERING

Total Marks :30

Submitted to :

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BS (SE) Section B

Question 1:

What are the four important attributes that all professional software should have? Suggest four other attributes that may sometimes be significant.

Answer:

Four (4) important Attributes of Professional Software are:

1. Maintainability
2. Dependability and security
3. Efficiency
4. Acceptability/Usability

The Four (4) Most important attributes are essentially maintainability, dependability, efficiency (performance) and usability. Other attributes that may be significant could be reusability (can it be reused in other applications), distributability (can it be distributed over a network of processors), portability (can it operate on multiple platforms

Other attributes that are also significant are:

1. Response time (non-functional attribute)
2. Interactivity
3. Reliable
4. Evolution

Question .2:

Explain why professional software is not just the programs that are developed for a customer.

Answer:

Professional software is not just the programs developed for a customer because the software is almost always packaged with associated documentation such as requirements, design models, and user manuals.
A good or professional software goes beyond software developed solely for a customer.

A professionally developed software system is often more than a single program.

Quezstion 3:

Giving reasons for your answer 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 systems: (*12 marks)*

- A system to control anti-lock braking in a car
- A virtual reality system to support software maintenance
- A university accounting system that replaces an existing system
- An interactive travel planning system that helps users plan journeys with the lowest environmental impact

Answer:

a) ***Anti-lock braking system*** This is a safety-critical system so requires a lot of up-front analysis before the implementations. It certainly needs a plan-driven approach to development with the requirements carefully Analyses. A waterfall model is therefore the most suitable approach to use, perhaps with transformation between the different development stages.

b) ***Virtual reality system*** This is a system where the requirements will change and there will be an covering user interface of component. Incremental development with, perhaps, some UI Prototyping is to the Most suitable model. An agile process may be for used in this sytem.

c) ***University Accounting System*** This is a system whose requirements are fairly well-known and which will be used in an environment in conjunction with lots of other systems such as a university research grant management system. Therefore, a reuse-based approach is likely to bethat appropriate for this system.

d) ***Interactive Travel Planning System*** *this is a* System with a complex user interface but which must be that stable and reliable. An incremental development approach is the most appropriate as the system requirements will change as real user experience to with the system is gained of planning.

Question .4:

Explain why incremental development is the most effective approach for developing business software systems. Why is this model less appropriate for real-time systems engineering? *(5 marks)*

Answer:

Business software systems usually as complex, software intensive, and frequently being changes when the business goals or processes are the changed. So incremental development is better.Real-time systems usually involve many hardware components which are not easy to change and Can not be incremental model. Also real-time systems usually safety critical which needed to be built based on well planned process system engineering.

Question .5:

Suggest why it is important to make a distinction between developing the user requirements and developing system requirements in the requirements engineering process. *(5 marks)*

Answer:

There is a fundamental difference between the user requirements and the system requirements that mean they should be considered separately.

a) The user requirements are intended to describe the system's functions and features from a user perspective and it is essential that users understand these of requirements of users. They should be expressed in natural language and may not be expressed in great of detail, to allow some implementation flexibility of requirements. The people involved in the process must be able to understand the user's environment and application domain system.

b) The system requirements are much more detailed than the user requirements and are intended to be a precise specification of the system that may be part of a system contracts. They may also be used in situations where development is outsourced and the development team need a complete specification of what should be developed. The system requirements are developed after user requirements have been established.

End of the Paper