



Iqra National University, Peshawar
Department of Computer Science
Summer Semester 2020
Online Mid – Term Examination

Course Code: 102007052

Course Title: Software Engineering

Instructor: Engr. Ghassan Husnain

Program: BS CS (Software Engineering)

Note: Attempt all Questions

Total Marks: 30 Time Allowed: 4 Hours

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Subject : Software Engineering	BS(SE)
Data : 21/08/2020	Section : A

Q.1: What are the four important attributes that all professional software should have? Suggest four other attributes that may sometimes be significant. (4 marks)

Answer No 1:

Four important attributes of professional software are:

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

These four most important attributes are actually maintainability, dependability, efficiency (performance), and usability. Other features that may seem large can be reused (can be re-used in other applications), distribution (not distributed through the processor network), portability (can work on multiple platforms e.g. laptops and mobile platforms) and collaboration (can work with a wide range of other software programs).

Other attributes that are also significant are:

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

Q.2: Explain why professional software is not just the programs that are developed for a customer. (4 marks)

Answer No 2:

Professional software is not just the programs that are developed for a customer:

Professional software is not just the programs developed for a customer, as it almost always comes with documentation such as requirements, design templates and user manuals. Good or professional software goes beyond software that was developed just for one user. Software systems that are designed for a specific user to meet specific business needs are called enterprise software.

These are not just easy programs. Here are some tips to get you started:

- Professional software has certain industry standards that must be adhered to in order to be used and developed.
- Professional software requires support for design documentation, user platforms, instructors, and user manuals. Therefore, these are not easy programs.
- Software updates and retrieval are also required. These activities require proper documentation and teamwork.

Q.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 No 3:

We give the answer of our point of view based on the type of system being developed, we suggest the better common software process model that might be used as a basis for managing the development of the following systems:

- 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.

The most appropriate generic software process model that might be used as a basis for managing the development of the following systems:

- The anti-lock brake system is an important part of the security system, so many front scans are required before implementation. Of course, it is important to adopt a development plan-based approach with a careful analysis of its needs. So a waterfall pattern is the best way to use it, possibly with formal changes between different stages of development.
- A virtual reality system is a system in which requirements change and the user interface has a large number of components. Perhaps UI prototyping is fast becoming the most suitable model. You can use agile processes.
- A university accounting system is one that identifies needs and is used in an environment similar to a research grant administration system. Therefore, a reuse-based approach may be appropriate.
- An interactive travel planning system is a system with a complex user interface that should be stable and reliable. The growing development approach is best because the needs of the system change as the system provides a real user experience.

Q.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 No 4:

Incremental development is the most effective approach for developing business software systems and this model less appropriate for real-time systems engineering

Business software systems are usually complex, software-based, and often change as business objectives or processes change. Therefore, it is better to increase development. Real-time systems usually have many hardware components that cannot be easily replaced or upgraded. Furthermore, real-time systems are generally extremely critical to security and require a planned process. Incremental development is being made in the development of a central implementation indicator that points to the user / user's proxy and replaces it until a tolerable system is in place. This growing development is an important part of the agile approach and reflects the way we deal with problems with software systems.

Q.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 No 5:

It is important to make a distinction between developing the user requirements and developing system requirements in the requirements engineering process.

There is a fundamental difference between user needs and system needs, which means they need to be considered separately.

- The purpose of the user's needs is to describe the functions and features of the system from the user's point of view and it is important that the user understands these needs. They need to be described in natural language and cannot be described in detail to sweeten the process. People involved in this process should be able to understand the user environment and the domain of application.
 - System requirements are more detailed than user requirements and are intended to provide an accurate description of the system that may be part of the system agreement. They can also be used in situations where development is outsourced and the development team needs full details of the elements to develop. Once the user's needs are determined, the system's needs are developed.
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