

Assignment 6

Kakharmanova Aruzhan
21B030839
Software Engineering

Professor: Aldamuratov J.U

Questions to answer

Chapter 13. Exercise 13.1

Describe the security dimensions and security levels that have to be considered in secure systems engineering.

Chapter 14. Exercise 14.6

Explain why process inflexibility can inhibit the ability of a sociotechnical system to resist and recover from adverse events such as cyberattacks and software failure. If you have experience of process inflexibility, illustrate your answer with examples from your experience.

Chapter 15. Exercise 15.7

Why have many large companies chosen ERP systems as the basis for their organizational information system? What problems may arise when deploying a large-scale ERP system in an organization?

Chapter 16. Exercise 16.6

What are the essential differences between CBSE with reuse and software processes for original software development?

Chapter 17. Exercise 17.8

What is the fundamental problem with a two-tier client–server approach? Define how a multi-tier client–server approach overcomes this

Chapter 13.

Exercise 13.1

Describe the security dimensions and security levels that have to be considered in secure systems engineering.

Security Dimensions:

1. Confidentiality: Involves preventing unauthorized access to sensitive information.
2. Integrity: Focuses on maintaining the accuracy and reliability of data.
3. Availability: Ensures that systems and data are accessible when needed.

Security Levels:

1. Infrastructure Security: Concerned with safeguarding the overall systems and networks that provide essential infrastructure and shared services.
2. Application Security: Focuses on securing individual application systems and related groups of systems.
3. Operational Security: Deals with the secure operation and proper use of an organization's systems.

Chapter 14. Exercise 14.6

Explain why process inflexibility can inhibit the ability of a sociotechnical system to resist and recover from adverse events such as cyberattacks and software failure. If you have experience of process inflexibility, illustrate your answer with examples from your experience.

The inherent inflexibility of processes within sociotechnical systems poses a significant challenge in effectively responding to unexpected challenges like cyberattacks and software failures. This lack of adaptability can result in delays, hinder innovation, discourage learning from past incidents, and promote reliance on rigid procedures. For instance, a sluggish change management process may impede quick responses to security vulnerabilities, and resistance to adjusting development practices can contribute to repeated software failures. In summary, inflexibility not only limits adaptability and responsiveness but also undermines the overall resilience of the system.

Chapter 15.

Exercise 15.7

Why have many large companies chosen ERP systems as the basis for their organizational information system? What problems may arise when deploying a large-scale ERP system in an organization?

An ERP system may, on a wider scale, handle all of the production, ordering, and customer relationship management operations of a big business. Almost all major businesses utilize ERP systems to support part or all of their activities. The main features of ERP system is that it modules supporting various business operations. Each module has a specified set of business processes that are related to the activities in that module. Along with that a shared database that contains data on all associated business processes and a set of operational guidelines that are applied to all database data.

A company's processes and operations must be defined in the system configuration language when installing a large-scale ERP system in an organization, and there may be a mismatch between the ideas in the business and the concepts provided in the configuration language. Additionally, configuring ERP systems is quite difficult since hundreds of tables and reports may need to be established.

A form of software known as enterprise resource planning (ERP) is used by enterprises to manage routine business operations including accounting, purchasing, project management, risk management and compliance, and supply chain management. Enterprise performance management software, which aids in planning, budgeting, forecasting, and reporting an organization's financial outcomes, is also a component of a full ERP suite.

Chapter 16. Exercise 16.6

What are the essential differences between CBSE with reuse and software processes for original software development?

TRADITIONAL SOFTWARE PROCESSES

Imagine it as creating something entirely new from raw materials for each project. It follows a step-by-step process, taking a bit more time but allowing more customization to specific needs.

CBSE WITH REUSE

Think of it as constructing with preassembled Lego pieces. We bring together existing components, speeding up development and enhancing adaptability. It's akin to utilizing building blocks with a proven track record of effectiveness.

KEY DIFFERENCES

Traditional processes craft from scratch, while CBSE uses pre-existing components, resulting in faster development, greater flexibility, potential challenges for traditional processes amid changing requirements, and varied documentation styles.

Chapter 17. Exercise 17.8

What is the fundamental problem with a two-tier client–server approach? Define how a multi-tier client–server approach overcomes this

The fundamental problem with a two-tier client-server approach is that it combines the presentation layer and application logic into a single tier, leading to limited scalability, maintainability, and reusability. A multi-tier client-server approach overcomes this by separating these concerns into distinct layers, such as presentation, application, and database, facilitating better organization, scalability, and flexibility in system design and management.

Thank you for attention!
