Reuse-oriented software engineering

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Introduction

- Reuse can save a given amount of work, when existing components providing a given funtionality are reused.
- existing components might also have lots of testing received so far so we can possibly build more reliable systems based on them.

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Introduction

- Nowadays more and more software projects apply reuse to some extent, however, some of them relies more on reused components than others.
- Reuse often happens in an informal way when people working on the project know of designs or code that are similar to what is required.

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Introduction

- They look for these, modify them as needed, and incorporate them into their system.
- This is basically the application of patterns in the development process.
- A general process model for reuse-oriented software engineering is shown in the below figure

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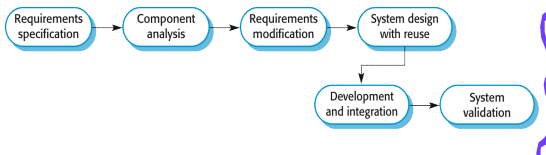
Reuse-oriented software engineering



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Requirement specification

- Requirement specification and system validation stages are general processes used in different software process but other stages used in this model are different

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Component Analysis

- According to given requirements, a component is selected to implement that requirement specification.
- It is not usually possible that the selected component will provide the complete functionalities, but it is possible that the component used may provide some of the functionalities required

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Requirement Modification

- Information about a component that is selected during component analysis is used to analyse the requirement specifications.
- Requirements are then modified according to available components.
- Where modifications are impossible, the component analysis activity may be re-entered to search for alternative solutions

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System design with reuse

- During this stage the framework of the system is designed or an existing framework is reused.
- The architects will perform the design by taking into account the components that are reused and they will organize the framework accordingly.
- New pieces of software may have to be designed if reusable components are not available.

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Development and Integration

- Software that cannot be externally procured is developed, and the components and commercial-off-the-shelf (COTS) systems are integrated to create the new system.
- System integration, in this model, may be part of the development process rather than a separate activity.

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Advantages

It can reduce the overall cost of software development as compared to other model.

- It can reduce the risk.
- It can save the time of software development. b/c testing of component is minimize.
- Faster delivery of software.

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Disadvantages

- Reuse-oriented model is not always practical in its pure form.
- Compromises in Requirement may lead to a system that does not meet the real requirement of the user.
- Organization using the reusable component, are not able to control the new version of component, this may lead to lost control over the system evolution.

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types of software components

- There are three types of software components that can be used in a reuse-oriented process:
- Web services that are developed according to well-known service standards and which will become available for remote invocation.

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types of software components

- Collections of objects that are developed as a package to be integrated with a component framework such like .NET or Java EE.
- Standalone software systems that are configured for use in a particular environment.

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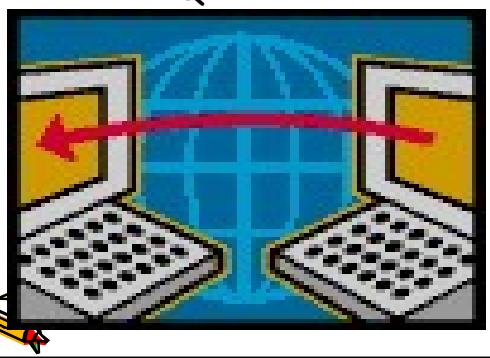
Questions



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