Documenting Software Architecture

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• Exam is online.
  • It will be available on 11/19/2020.
  • The submission due date is 11/24
Course outcomes

1. Understand what a software architecture is and explain why it is important
2. Understand the relationship between software quality attributes and software architectures
3. Ability to elicit software architecture drivers
4. Ability to use architecture styles, patterns, and tactics
5. Ability to use the attribute-driven method to design software architecture
6. Ability to document software architecture
7. Ability to evaluate software architecture
Resources

Chapter 6 of the book
Essential Software Architecture by Ian Gorton
Software Architecture

Would such wall diagrams be architecture documentation?
- The documentation of the software is a representation of the software

- There is no universal accepted architecture documentation standard
Why Do You Need to Document Software Architecture?

- Trace of architecture decisions that the team agreed on
- To remind the designer about the architecture of a software
- To develop the software
- To evaluate the design
What to Document?

Factors include
1. Complexity of the software
2. Longevity of the software
3. Stakeholders
4. Time
5. Budget
Architecture Stakeholders

- Developers
- Project manager
- System administrator
- Network administrator
- User/customer
- Investor
- Contractor
Architecture Views

End-users
- Logical view
- Process view
  - Integration, performance, scalability

Developers
- Development view
- Physical view
  - System and environment

Scenarios

System engineers
Information for Developers

- Components
- Interfaces
- Subsystems
- Constraints
- Test
- Scenarios
- Third Party
- Software
- External
- Services
Diagramming

Use modeling language

Block diagram
Diagraming

The reasons for choosing UML diagrams over box-and-arrow diagrams

1. Remove ambiguity
2. Could be used for model-driven development
Commonly Used UML Diagrams

Behavior Diagrams

- Collaboration diagram
- State machine diagram
- Activity diagram
- Sequence diagram

Structure diagrams

- Component diagram
- Deployment diagram
- Class diagram
Architecture Document Template

Project name: catchy name

- Project context
- Architecture requirements
- Solution
- Architecture analysis

Architecture requirements
1. Key objectives
2. Use cases
3. Functional requirements
4. Constraints
5. Non-functional requirements
6. Risks
Architecture Document Template

Solution

1. Relevant architectural patterns
2. Architecture overview
3. Structural views
4. Behavioral views
5. Implementation issues

Project name: catchy name

- Project context
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- Architecture analysis
Project name: catchy name

- Project context
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Architecture analysis

1. Scenarios analysis
2. Risks
Self-check

Why do we need to document software architecture?

What are the main factors that affect the level of details of the documentation?

Is it better to use modeling language or box-and-arrow diagrams to document an architecture?

What are the two categories of UML diagrams?

Do architects use the 4 architecture views categories: logical, development, process, and deployment views?

What should you include in an architecture document?
Thank you

Questions?