

## SENG 401 – Software Architecture Midterm Study Review

1. In software architecture, what is the difference between analysis and design?
2. What is the motivation behind software architecture?
3. What is the relation between reference architecture and design decisions?
4. A software team is building a new messaging app. What are examples of principal and temporal decisions in this scenario?
5. Define architectural abstraction.
6. Differentiate decomposition from coupling and cohesion using a practical example.
7. What is agile-driven architecture?
8. Explain layered architecture.
9. Define pipeline architecture using a practical example.
10. Differentiate microkernel from service-based architecture.
11. Discuss the benefits and limitations of event-based architecture.
12. What is the relation between non-functional requirements and software architecture?
13. Comment on the following architecture characteristics:
  - Deployability
  - Elasticity
  - Fault tolerance
  - Modularity
  - Performance
  - Reliability
  - Scalability
  - Simplicity
  - Testability
14. What is the difference between testability and fault tolerance?
15. What is the difference between elasticity and scalability?
16. How can data impact the architecture of a software project?
17. What are the characteristics of a good software design document?
18. Discuss how software architecture fits into the software development life cycle.
19. What is the implementation plan?
20. Why should software engineers rely on design patterns?
21. What is the difference between creational, structural, and behavioral design patterns?
22. Explain the MVC model and its applicability in software architecture.
23. Considering the development of a new D2L version, explain SOLID principles using examples from this context.
24. What is refactoring and why do we need it?
25. What are code smells and why can't they be ignored?
26. What is technical debt and what are the costs associated with it?
27. What methods can be used to assess the quality of software implementation?
28. Why does security matter in software architecture?
29. Why do you need to manage requirements?
30. What is the main difference between functional and non-functional requirements and how do they impact software architecture?
31. Define cloud computing architecture.