

# Software Design And Architecture

## BS-SE (13)

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### **Question 1 (a):**

**Answer:** Software architecture is the description of elements from which a system is built and interactions among those elements and patterns that guide their composition and constraints on the patterns.

The fundamental organization of a system embodied in its components, their relationships to each other and to the environment and the principles guiding its design and evolution.

**Importance:** A poor design may result in a deficient product that

- does not meet the system requirements.
  - Is not adaptive to future requirement changes.
  - Is not reusable
  - Exhibits unpredictable behavior or performs badly
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### **Question 1 (b):**

**Answer:**

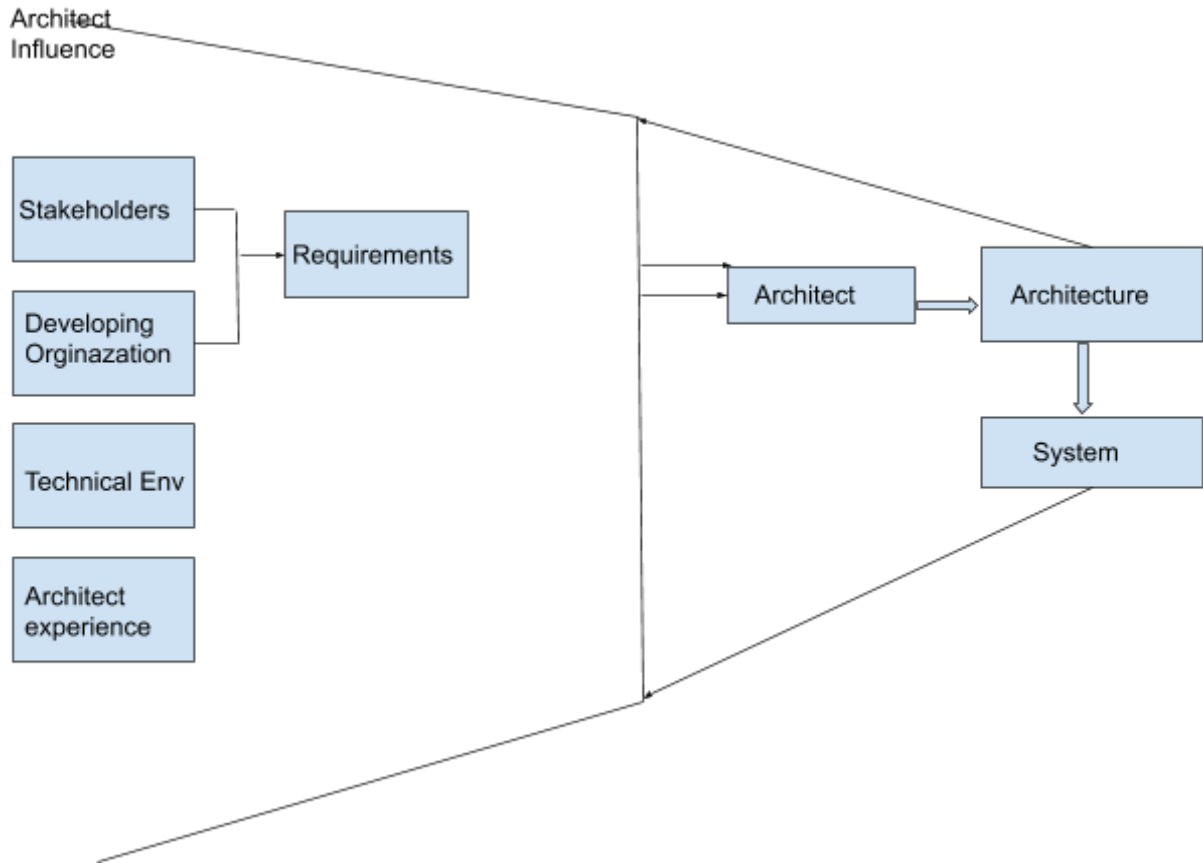
- Perform static partition and decomposition of a system into subsystem and communications among subsystems.
  - Establish dynamic control relationships among different subsystems in terms of data flow control flow or message dispatching
  - Consider and evaluate alternative architecture styles that suit that problem domain at hand.
  - Perform takeoff analysis on quality attributes and other non functional requirements during the selection of architecture styles.
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### **Question 2:**

**Answer:**

Software architecture is a result of technical, business, and social influences. These in turn are affected by technical, and social environments that subsequently influence future architectures.

Architectures are influenced by the system stakeholders, the developing organization, the experience of architects and by the technical environment.




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### Question 3:

#### Answer:

Creating the business case for the system

- Why do we need a new system, what will be its cost? Time to market and integration with existing systems.

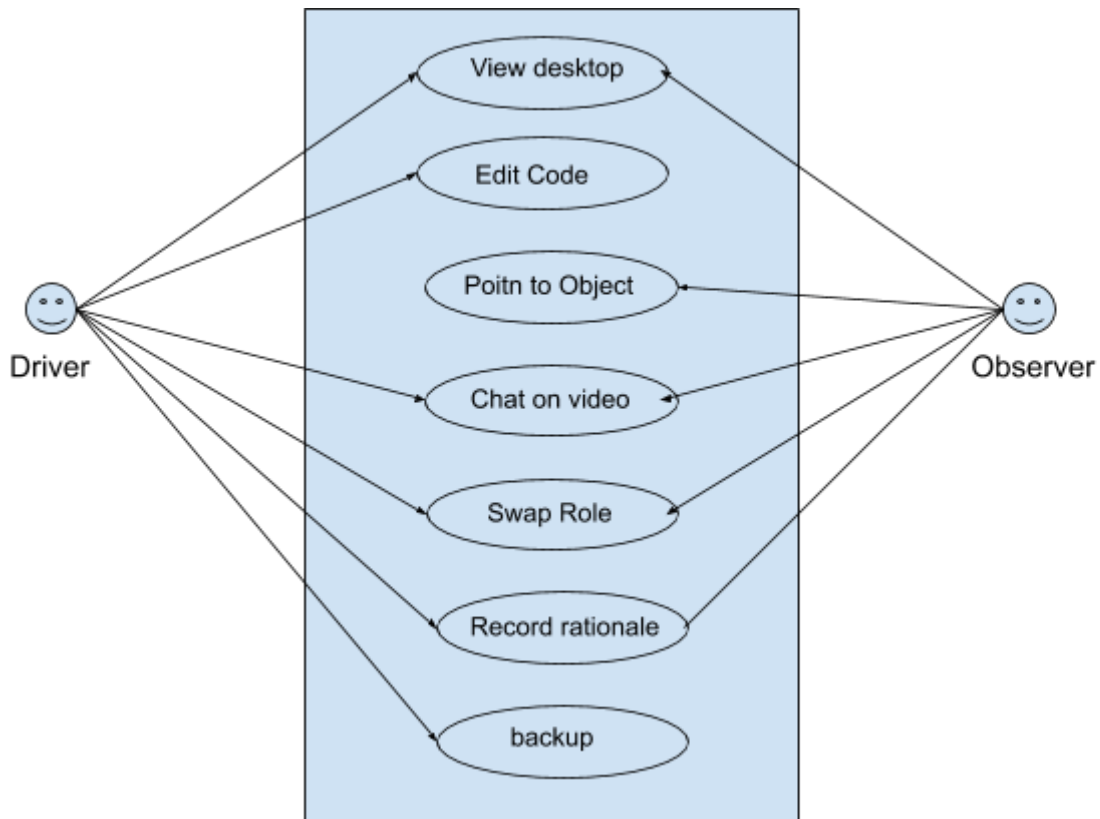
Understanding the Requirements:

- Various approaches for the requirements elicitation, i.e Object Oriented approach
  - The desired qualities of a system shape the architectural decisions
  - Architecture defines the tradeoffs among requirements
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### Question 4:

#### Answer:

(a)



b)

- **Ease of use:** The interface must be simple and easy to use
- **Real-time performance:** the observer must be able to see the changes made by the driver. And the video also must be smooth.
- **Availability:** The system should be available for both at the time.
- **Portability:** Both should be able to know what kind of operating system will be used.
- **Security:** The backup should be kept securely and must be protected from unauthorized people.

c)

So above we mentioned that they could follow the simple interface which could be easy to use, The frontend design should not be complex for both of them. Both should be able to use the system without complicity. the system should be portable, both should be able to understand the code and both should follow up in which language they write their code.

The system should be highly secure from attackers or unauthorized persons to access their system.

d)

