Introduction
The Role of the Software Architect
Architecture Definition Isn’t Just Design

• Architecture definition incorporates elements of design and of requirements analysis
Architect and other project’s members

- Architect
- Systems analyst
- Designers
- Project manager
- Domain experts/technology specialists
- Client
- Programmers

The Role of the Software Architect
Architect – Systems analyst

- Architect works with the systems analysts to understand the system’s requirements and their relative importance
  - For each important requirement, architect considers the likely difficulty of implementing it and feeds this back to the systems analysts to help them understand what can and cannot be achieved
A concern, problem, or system element is **architecturally significant** if it has a wide impact on
- the **structure** of the system or
- its important **quality properties** such as performance, scalability, security, reliability, or evolvability.

**Architect** designs architecturally significant areas of the system
- other things are left for designers
Architect – Client

- Client’s company/organization is the source for functional requirements, quality properties, principles, interests, concerns and so on
  - Architect must identify and engage the stakeholders from the client’s organization
- During integration/acceptance phase of the project, architect answers all the technological/infrastructure questions of the client
  - Architect must convince the client that the system actually meets all client’s expectations
    - especially non-functional ones (performance, security, ...)

The Role of the Software Architect
Architect – Project manager

- A project manager is responsible for ensuring delivery of the product or system and meeting commercial priorities for resources, costs, and timescales.
- An architect helps the project manager to develop plans or assess them for reasonableness.
  - In case of a change request, an architect helps to assess costs and timescales.
- An architect also provides the project manager with technical information, feedback, advice, risk assessment, and so on throughout the project lifecycle.
Architect – Technology Specialist

- A technology specialist provides detailed expertise in one specific area.
  - Where the architect provides breadth, the technology specialist provides depth
- It’s not possible to know everything about everything
- The architect provides and oversees the *architectural breadth* and works closely with both business-focused and technology-focused specialists who provide the *specialist depth*. 
Architect – Developers

- An architect will be
  - mentoring staff through the detailed design process,
  - reviewing designs as they are completed to ensure conformance to the system’s architectural principles,
  - arbitrating technology disputes,
  - even developing pieces of the implementation if required
- An architect is likely to get involved in integration and system testing to ensure that the tests exercise an appropriate selection of functional and operational characteristics
- An architect will also need to lead the change process if the AD requires any modifications during development
The Architecture Definition Process

- Architecture definition is a process by which:
  - stakeholder needs and concerns are captured,
  - an architecture to meet these needs is designed, and
  - the architecture is clearly and unambiguously described via an architectural description.

- A good architecture definition process is one that
  - leads to a good architecture,
    - documented by an effective architectural description,
      - which can be realized in a way that is time-efficient and cost-effective for the organization.
The Role of the Architect

The architect is responsible for designing, documenting, and leading the construction of a system that meets the needs of all its stakeholders.

There are four aspects to this role:

1. To identify and engage the stakeholders
2. To understand and capture the stakeholders’ concerns
3. To create and take ownership of the definition of an architecture that addresses these concerns
4. To take a leading role in the realization of the architecture into a physical product or system
Architect Specialization
The Architects Involvement

The Role of the Software Architect
Architectural Leadership

- Architectural leadership means the people-focused activities that help ensure successful implementation of the system.
- This includes the following:
  - *Explaining and promoting* the architecture to the business and technology stakeholders, and *justifying* the principles and decisions that underpin it.
  - Providing input to and support for planning and estimating tasks.
  - Participating in *change control* processes.
  - Taking responsibility for and signing off on the completion of *technical milestones*.
  - Helping to resolve *issues* that arise during development.
  - Taking on more specific development roles such as *design authority*.
  - *Reviewing* documentation and possibly code.
Core concepts
The role of a software architect

Self-study

- Book “Software Systems Architecture”:
  - Chapter 5 “The Role of the Software Architect”