SE 464

Day 1

> What has been your experience with programming in the large? What is Software Architecture?

- Working on a large API system that has many clients and endpoints
- Working on car client features that have many systems to interact with

> What is Software Architecture?

- The conceptual fabric that defines a system
    - All architecture is design but not all design is architecture
- Architecture parts of a system that would be difficult to change once the system is built
- Architectures capture 3 dimenions:
    - Structure
    - Communication
    - Nonfunctional requirements
- Architecture is about:
    - Communication
    - What 'parts' are there?
    - How do the 'parts' fit together?
- Architecture is not about:
    - Development
    - Algorithms
    - Data structures

Summary

- peer reviews are a thing
- architecture is high level and involves people
- software architecture is important

Day 2

Steps of the design process:

1. Ideation
2. Analysis
    - Determine Criteria

    - Apply Criteria
3. Selection
4. Elaboration/Refinement
5. Iteration

What is Software Architecture?

> The conceptual fabric that defines a system
>
> *All architecture is design but not all design is architecture*

Components of Architecture:

- Structure
- Communication
- Interaction
- Nonfunctional requirements

> Architecture is the fundamental organization of a system, embodied in its components, their relationships to each other and the environment, and the principles governing its design and evolution

Pricipal: of imperative importance

Prescriptive Architecture: design decisions prior to system construction

Descriptive Architecture: describes how system has been built

> Ideally, as the system evolves we first think about how we change the prescriptive architecture, this does not always happen which is bad!

Architectural Drift: principle design decisions in the descriptive architecture that do not meet a need of the prescriptive architecture

Architectural Erosion: architectural drift that violates the prescriptive architecture

Architectural Recovery: determining a systems architecture from it's implmentation artifacts

Architecture Elements: components that make up the system, ex. Database

Component: encapusaltes a subset of the system, has an interface and dependcies

Connector: element that effects and regulates the interaction between components ex. procedure call

Configuration: a set of components and connectors that describe the system architecture