CPSC 3720
Lesson 16

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Professor of Practice
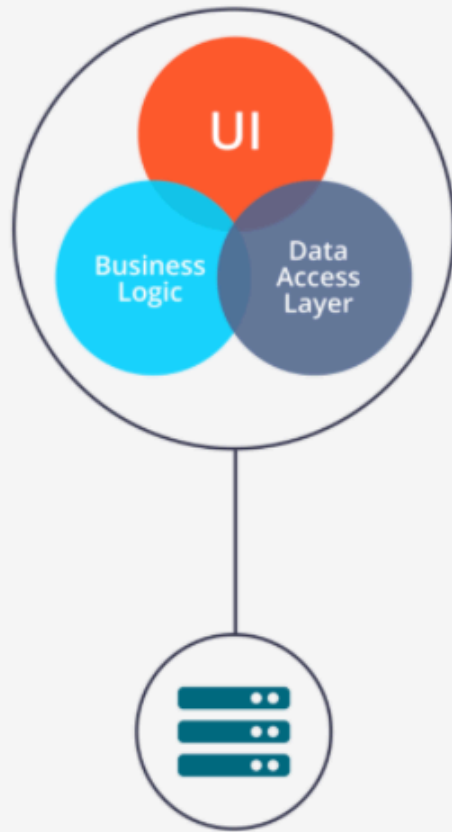
School of
COMPUTING

Why API First?

- As most software moves to the cloud the focus has been on:
  - Microservices architectures
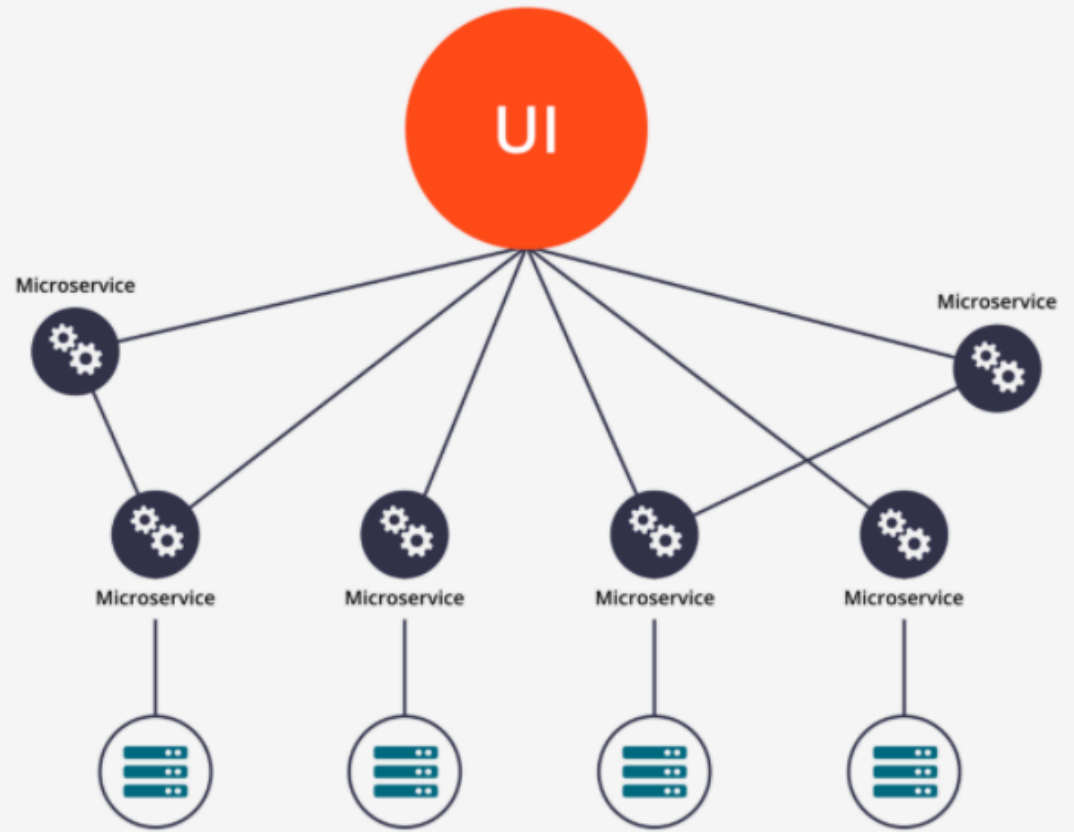 - Containerization
  - Continuous delivery

An API-first approach can help you manage the complexity of working in the cloud.
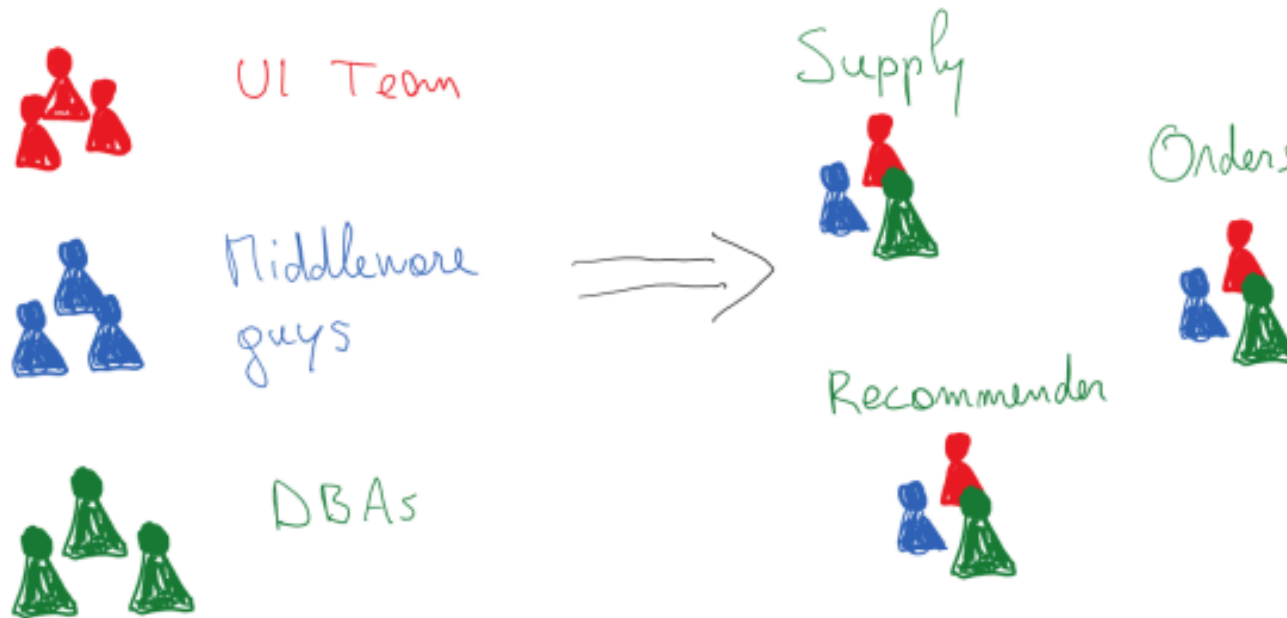
Microservices

Monolithic Architecture

UI
Business Logic
Data Access Layer

Microservice Architecture

UI

Microservice
Microservice
Microservice
Microservice
Microservice
Microservice

UI Team

Middleware guys

DBAs

Supply

Orders

Recommender

"Any organization that designs a system … will inevitably produce a design whose structure is a copy of the organization's communication structure."
-- Melvin Conway, 1968

(Source: Martin Fowler)

Microservices Characteristics

Decentralized Data Management

Decentralized Governance

Design for Failure

Infrastructure Automation
IT'S AN API!

Evolutionary Design

Microservices and Continuous Delivery/DevOps

- Business wants things fast! 1000s of deployments to production a day (Netflix, Amazon, Google, etc)
- Container services and orchestration for fast deployment
- More and more Dev teams maintain their services in production
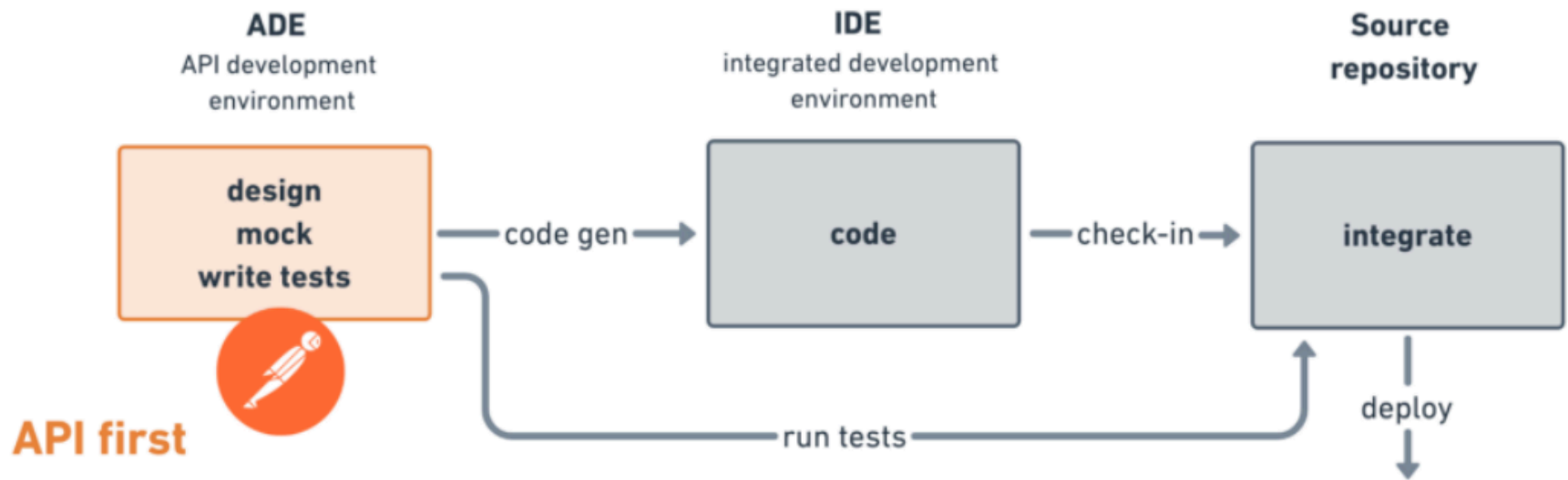
Microservices Adoption

API First

When you're developing new functionality, the <u>functionality should first be exposed as an API in your organization</u>. This provides the following benefits:

- **Earlier validation**: getting early feedback on the design allows the team to adapt to any new inputs while the cost of change is still relatively low. This reduces overall cost over the lifetime of the project.
- **Clear abstraction layer:** showing only the necessary details to the intended user hides internal complexity.
- **Decoupling dependencies:** by adhering to a contract between internal services, dependencies are decoupled so that work can progress independent of other teams' work. Working in parallel minimizes the project's overall development time.
- **Faster growth:** building out the API design at an early stage takes future functionality into account, laying the groundwork for expansion, and accommodates the ability to quickly scale to other apps, devices, and platforms.
- **Freedom from constraints:** focusing first on the API instead of the code and implementation frees the design from legacy constraints.

API First with Postman

Next Project Assignment

Fake it till You Make it:

https://medium.com/better-practices/https-medium-com-postman-engineering-fake-it-till-you-make-it-mocks-for-agile-development-f4d050cad694

Complete all steps in the article.

This is individual work and submitted the same as last exercise (web screen shot).

Turn it in on Canvas by Oct 2; 5% of Project Grade

Upcoming

Quiz 2 due 11pm TONIGHT

The questions are from **Lessons 7-10**. You cannot collaborate with your classmates about this quiz prior to, or during the taking of the quiz. **NOTE:** Once you start the quiz you will have only 15 minutes to complete it. Be sure to review the lessons before you begin.

Friday Class

Walk through upcoming project details and assignments