Adv Web Dev and Architecture
COMP4537
Lecture 0
course structure

Amir Amintabar, PhD

Outline

- Assignments
- several labs
  - Lab 0,1,2 done individually
  - Rest of the labs in pairs
  - Term project in group of max 4
  - Individual Book authoring (class participation)
- Preferred IDE: visual studio Code (highly recommended)
- There will be lots of quizzes, random schedules, four review quizzes this week alone

In this course

- The goal is to learn and implement API-centric architectures. You should review HTML, CSS, and JavaScript on your own to prepare for the course.
- You will need to choose and maintain a hosting service for your assignments, ensuring they are always online. We will cover Ajax calls and advanced JavaScript concepts like promises and use relational databases for CRUD operations.
- We will explore existing API web services and
- create our own secure RESTful APIs. In addition to lab assignments, you will work on ~~**two**~~ **one** main projects focused on various web application architectural patterns.

Also …

- Will be familiar with tools:
  - Chrome Web development tools
- API testing tools (Postman)
- Other technical terms you may be exposed to

- Closure, promises, fetch, defer, execution stack
- Public-key private key, content delivery network (CDN)
- Single sing on, web push notifications, HTML5 Canvas
- Cookies, session, local storage, web-workers, microservices, injection attack,
- Security, encryption, hashing,
- RDBMS, CRUD, 1:M, M:M, 1NF, 2NF,
- The goal however is to **focus on the architecture of what you want to implement**

Review the course outline

- Quizzes , may be during lecture (may be the begging or the middle), during labs all in person unless announced otherwise
- No make up assignment, No make up quizzes, No make up exam
- You need to bring your laptop to exam venue
- No cheating of any sort/level will be tolerated. *Violators will be reported (no exception)*
- You need to understand every single line of your code, otherwise you will get 0
- Hosting (refer to the course home page on learning hub)
- **Talk to Me:**
- Everything I plan for this course is designed to contribute to your success.
- Email me or DM me on Discord if something is bothering you. Please ask for clarification if you think there's anything we do in class that doesn't help you as a software developer to have a better job—and, consequently, a better life.
- Assignment Update: If I notice that something important is missing, I may update the assignments to help you prepare for your career development.

Review the course learning hub

- **Creative vs exam taker vs instruction follower (which one the industry hires?)**
- **Check out course home page at learning hub**

You need SSL to host your assignments

- You need to **host your assignments (deploy them in remote servers)**starting this week
- E.g.
  - https://johnGates.xtr/comp4537/labs/1/titleofLab/
  - https://johnGates.azurewebsites.net/comp4537/labs/1/quizCreator/
- Note! You will need SSL for term project (you may need it for your assignments depending on each assignment and choices you make)

- Lets review the learning hub of the course

Plagiarism

- Claiming that a work is your own, but it is not
- Act of claiming someone else's work, ideas, or intellectual property as your own without giving proper credit or attribution. (src chatGPT 3.5*)
- You still need to know exactly what every single line of your code does (else 0)

- All students are required to refrain from acts of plagiarism or any other form of academic dishonesty. Assignments/ submissions may be submitted to third party AI tools to investigate possible plagiarism.

* I use AI tools such as chatGPT to grammar check, receive suggestions, generate contents and even asses your work

chatGPT and other AI models

- Check out course outline or learning hub homepage

Project Ideas to have in mind from now

- For your term project, you developed an API server based on microservice architecture, with multiple endpoints powered by pre-trained AI models from Hugging Face. You will need to host LLM models on your hosting services.
- Your API server, serves API consumers (client apps that consume your APIs). As a proof of concept, you will also need to create a client app to consume those API endpoints with simple user management and authentication. This app will fulfill services by sending API requests to your API server.
- Examples of those microservices/services could include:
- AI services
- API gateway
- Authentication services
- Database services
- User management

Term Project Ideas to Explore:

1. **Using Programmable Drones**:
    1. Develop a web API to remotely control a drone. This c d to either guide the drone on tours or create 3D models of objects by scanning them from various angles with the drone.
2. **Interactive Classroom Tool**:
    1. Create an interactive tool that allows students to quickly post questions during class and privately submit their answers to the instructor. This tool would function similarly to Zoom's chat feature but without the need for the Zoom app. Additionally, the app could store a history of each student's answers to questions for later review.
3. **Training an Ai model** to make phone calls using the voice given as sample input and make meaningful conversations (user enters topic or purpose of the call)
4. Anything that lets an app consume your APIs to control a hardware (smart light, RC toys, etc)

Class participation and book authoring

- Attending all labs and lecture are mandatory
- You will author a book based on what you have learned in Web computing and relevant contents (assignment posted

References

- chatGPT used for proofreading of this lecture note.