

CS400D1 MEAN Stack Application Design and Development Course Schedule

Week	15 Detailed topics		Lab
1	Architecture of web apps Source control	Course introduction git setup git branching and merging git tagging	Set up git environment Practice branching and merging
2	ES6 new features (contrasted with Python)	Spread operators Arrow functions Module export model Lambda functions Generators	Postman and REST
3	App frameworks - general principles	Anatomy of HTTP request / response HTTP protocol verbs Representational state transfer (REST) Using Postman to explore RESTful APIs JavaScript module architecture	JavaScript problem sets
4	App frameworks - middleware functions	Middleware in Flask, Rails, Express Express setup Error handling in middleware	Writing middleware functions
5	App frameworks - routing	Routing in Flask, Rails, Express URL pattern matching (regex) Chaining functions in routes	Pattern matching in routes
6	Asynchronous event handling	JavaScript event loop Cascading function calls (callbacks)	Async function calls inside routes using callbacks
7	Asynchronous event handling (continued)	Managing asynchronicity with Promises Using the async package Await functions in ES6	Async function calls inside routes using Promises
8	Front-end frameworks	Overview of front-end frameworks: React, AJAX, Angular Back-end templating (Pug, jade, EJS) vs single-page apps (SPAs) with front-end rendering MVC and MVVC in Angular	Angular setup

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9	Angular components	Dependency injection Services Event handling Using REST to access back-end data sources (BEDS)	RESTful BEDS transactions in SPAs and Angular
10	Angular components (continued)	App initialization Interceptors ng- tags and features	Angular services
11	Non-relational databases	mongoDB vs Redis Creating and accessing object collections in mongoDB Emulating relational data with embedded documents and references	mongoDB - CRUD operations
12	Thanksgiving break		
13	Authentication and Authorization	Managing local accounts OAuth 1.0a OAuth 2.0 Passport Protecting individual routes JSON Web Tokens (JWTs)	OAuth with JWT authentication and route protection
14	Testing	Testing frameworks (Mocha / Chai etc) Unit testing back-end routes End-to-end testing with Postman	Test harnesses and running tests
15	Serverless design Deployment	AWS lambda AWS S3 Connecting Express to lambda functions App packaging Containers Configuring deployment environments Deploying on AWS	Project workshop