50 topics checklist

ECS639: Web Programming

Dr Paulo Oliva

HTTP, cookies and sessions

Top ten topics:

Stateless communication protocols	
Four main HTTP verbs and their semantics	
Safe HTTP verbs, and idempotent HTTP verbs	
Purpose of most common HTTP headers (request and response)	
Semantics of most common HTTP response codes	
HTTP request and response sequence	
Purpose and process for storing cookies on a user's browser	
Purpose and process of establishing a session (dynamic linking)	
HTTP requests/responses and Django's Request/Response objects	
URLs and URIs, and how they are used in an HTTP request	

Web Frameworks and Architecture

Top ten topics:

Using virtual environments and a development server	
MVC-based web frameworks	
Template hierarchy and template language (/templates/)	
URL dispatchers (urls.py and uses of regex for dynamic URLs)	
View functions (views.py)	
Application data (models.py, migrations and ORM)	
Working with static files	
Abstraction layers for web apps (e.g. Request/Response object)	
Separation of concerns (e.g. CSS for style and HTML for content)	
DRY for web apps (e.g. Python decorators)	

Frontend Development

Top ten topics:

The Document Object Model (DOM)	
Basics of HTML5 and CSS3, including use of classes, tags and ids	
Javascript functions and prototypes	
Javascript regular expressions and input validation	
jQuery object and its methods	
Ajax with XMLHttpRequest	
Ajax with jQuery	
jQuery plugins and extensions	
Boostrap and responsive apps	
Basics of AngularJS	

Security and Performance

Top ten topics:

Cross-Site Scripting (XSS) and other injection attacks	
Cross-Site Request Forgery (CSRF) attacks	
Session Hijacking	
Keeping users' password secure (hashing + salting)	
HTTP versus HTTPS	
Ways to reduce number of HTTP requests	
Ways to improve progressive rendering	
Ways to reduce response time	
Security and performance related HTTP headers	
Testing web apps (unit tests) and deployment process	

REST and Web APIs

Top ten topics:

Model-based APIs	
Web APIs and the semantics challenge/gap	
Appropriate use of HTTP response codes for APIs	
Conditional HTTP requests	
Content negotiation and hypermedia menus	
Application state versus Resource state	
Basic principles of REST: Connecteness	
Basic principles of REST: Self-descriptive responses	
Basic principles of REST: Contrained media-types	
Designing a REST API	