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Hands-on Workshop "Web Development with Angular 2 and TypeScript"

Participants of this 3-day workshop will gain practical skills while exploring the best practices and principles of developing Angular 2 applications and get familiar with multiple sample applications illustrating solutions for real-world challenges. During this course we'll cover all the latest APIs (routing, dependency injection, forms). Participants will get a detailed code review of a front end part of a sample application "Online Auction".

By the end of this hands-on course, participants will understand:

- How to jump-start a new Angular project
- How to arrange the client-side navigation in single-page applications
- How to communicate with servers using HTTP and WebSocket protocols

And they'll be able to:

- Write code in TypeScript with the Angular 2 framework and deploy it in any modern web browser
- Unit test the router, services, and components
- Automate the building and deployment processes using the Webpack bundler and npm scripts

This workshop will take place from 9:00AM to 5:00PM with 45 minute break for lunch and two more 15 minute breaks. This workshop consists of 60% lectures and 40% of the hands-on work. Participants will receive the PDFs of all slides and all code samples covered in this course.

The Instructor

Yakov Fain is the lead author of the Amazon bestseller "Angular 2 Development with TypeScript" as well as a number of other technical books on programming. Yakov works as a software architect at the IT consultancy Farata Systems and develops software products for the insurance industry. A Java Champion, he has taught multiple classes and workshops on web and Java-related technologies, presented at international conferences, and published more than a thousand blog posts at <http://yakovfain.com>.

Prerequisites

To gain the most from this class attendees should understand the syntax of JavaScript and HTML. No prior experience of working with AngularJS framework is required.

Your organization has provide computers for participants, a meeting room, and a projector.

Course Outline

Unit 1

- High-Level Overview Angular 2
- Introduction to TypeScript language
- Overview of the TypeScript/Angular development process and tooling
- Manual creation of the SystemJS-based project
- Auto-generation of the projects with Angular CLI
- Angular modules
- Getting familiar with Angular components
- Bringing Together Data and Views with Data Binding
- HelloWorld in TypeScript/Angular
- Code review and a setup of the first version of the online auction application.

Unit 2

- Web site navigation with component router
- Passing data to routes
- Child routes
- Guards and resolvers
- Auxiliary routes
- Lazy loading
- Inter-component communications
- Component communication via binding and events
- Mediating component communication via the common parent
- Dynamically passing HTML fragments to component's templates
- Code review of the online auction with implemented routing

Unit 3

- Angular's implementation of Dependency Injection
- Providers and Injectors

Flavors of providers (classes, factories, values)

- Mediating component communication via the injectable service
- Promises (pull) versus Observables (push)
- Observable events
- Observable HTTP requests
- Code review of the online auction with dependency injection

Unit 4

- Working with forms
- Template-driven and reactive forms
- Data Validation
- Change detection
- Component lifecycle
- Implementing the client-side search in the online auction

Unit 5

- Communication with servers using HTTP and WebSocket protocols
- Creating a Web server using the NodeJS framework
- Consuming server's data with observables
- Subscribing for bid notifications in the online auction
- Pushing bid notifications to the subscribers

Unit 6

- Unit testing and deployment
- Using the Karma test runner
- Bundling apps for deployment with Webpack
- Generating and deploying apps using Angular CLI
- Building and deploying the online auction

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