

REACTIVE ANGULAR 8 APPLICATIONS

Course Script

Topic	Slides	Files	Comments
Introduction	2		<ul style="list-style-type: none">- Course participant intro.- Course intro.
Angular Overview	3	angular/	<ul style="list-style-type: none">- Draw the diagram of Angular – Components, Directives, Pipes, Services, Modules, Routes.- Gauge audience knowledge and adjust course content difficulty.
Init project	4	phone-book-starter	<ul style="list-style-type: none">- Use ng new to create a new app, then walk through the main app files.- Copy-paste the content and angular.json config from phone-book-starter and walk through the files.
Useful links	5	-	<ul style="list-style-type: none">- Showcase main Angular resources websites.- Remind audience to use the API documentation if they get stuck during exercises.
Schematics	6	-	<ul style="list-style-type: none">- Explain the purpose of schematics. Show how schematics can be defined.- Download and use the Angular console app as a tool to easily learn and memorize schematics.- Mention the usage of custom schematics and show an example project.
Angular project config	7-8		<ul style="list-style-type: none">- Explain the layers of angular.json, starting with schema config.- Explain the concept of angular projects. Use the course materials to showcase multiple projects.- Explain the concept of builders. Go through the built-in builders.

			<p>Mention Webpack as a point of reference to builders.</p> <ul style="list-style-type: none"> - Mention custom builders.
Project intro	9		
Http Client	10	<ul style="list-style-type: none"> - showcase the contacts.service.ts in the app - use observables-vs-promises example 	<ul style="list-style-type: none"> - Use .toPromise to convert a Http call from Observable to promise - Sketch and discuss the differences between promise and observables
Observables Part 1	11	<ul style="list-style-type: none"> - use snippets/observable-binding: - user-inputs - debounce - stream-control 	<ul style="list-style-type: none"> - Explain how rxjs is used throughout the whole Angular framework (start with template bindings, http, forms, router, etc). - Explain what's happening in the listed files.
Observables Part 2	12	<ul style="list-style-type: none"> - use snippets/observable-binding/higher-order-observables 	<ul style="list-style-type: none"> - Explain what higher order observables are.
Forms	13-14	<ul style="list-style-type: none"> - snippets/forms 	<ul style="list-style-type: none"> - Explain differences between model and template-driver form, use cases, modules, etc. - Convert the template-driver form to model-driver. - Show form control selection, listening for values. - Mention FormArrays. - Mention validators – async and non-async. Explain validator structure.
Advanced Form controls	14	<ul style="list-style-type: none"> - snippets/advanced-control 	<ul style="list-style-type: none"> - Implement snippets/advanced-control. - Explain controlValueAccessor, methods and give overview of the Form API (FormsModule, ReactiveFormsModule).
Custom directives	15	<ul style="list-style-type: none"> - snippets/attribute-directive 	<ul style="list-style-type: none"> - Explain differences between structural and presentational directives.

			<ul style="list-style-type: none"> - Explain differences in directive and component lifecycle - Generate a simple highlight directive and build it out, explaining its properties.
Custom pipes	16	<ul style="list-style-type: none"> - snippets/pipes 	<ul style="list-style-type: none"> - Explain pipe chaining, passing arguments to pipes. - Explain differences between pure and pure pipes (there's an example in the snippets). - Implement custom transformCasePipe.
Components overview	17	-	- Give overview of components, asking the audience to figure out how well they're known.
Content projection	18	implement contact-card	<ul style="list-style-type: none"> - Explain component transclusion/projection. - Give examples with select slots. - Give examples with querylists containing @ContentChildren.
View projection	19	-	<ul style="list-style-type: none"> - Give examples with ViewChild and ViewChildren. - Explain differences between view and content projection.
Dynamic components	20	snippets/dynamic-components	<ul style="list-style-type: none"> - Explain dynamic component rendering steps and elements involved. - Show component destruction. - Show moving of components.
Template rendering	21	snippets/templates	<ul style="list-style-type: none"> - Explain TemplateRef and template rendering. - Pass context in template. - Use ngTemplateOutlet and ngTemplateContextOutlet.
Routing	22	phone-book-router phone-book-router-children phone-book-router-named-outlet	<ul style="list-style-type: none"> - Explain concepts as the app gets updated. - Attempt to fix the functionality on every major step.
Modules	23	phone-book-modules	<ul style="list-style-type: none"> - Break the app down into modules.

		phone-book-modules-lazy	<ul style="list-style-type: none"> - Explain imports, exports, declarations, providers, bootstrap, entryComponents. - Add preloading-strategy.
Redux principles	24-31	redux/	<ul style="list-style-type: none"> - Explain redux main principles.
Redux concepts	31-35	-	<ul style="list-style-type: none"> - Explain redux concepts – actions, reducers, effects, store.
Immutability	36	snippets/immutable.js	<ul style="list-style-type: none"> - Explain immutability and why it is used.
Reactive architecture	37-38	phone-book-starter phone-book-containers	<ul style="list-style-type: none"> - Explain reactive architecture and the reasoning behind it. - Convert phone-book-starter to phone-book-containers.
NGRX intro	39-40		<ul style="list-style-type: none"> - Explain the need for the ngrx library and the main benefits it gives (less boilerplate, debug tools, etc).
Setup store	41-42	phone-book-store	<ul style="list-style-type: none"> - Setup @ngrx/store - Check if everything works by installing and using Redux devtools.
Store feature	43	phone-book-store-feature	<ul style="list-style-type: none"> - Move the store to a feature module.
Store feature entity	44	phone-book-store-feature to phone-book-store-complete	<ul style="list-style-type: none"> - Use @ngrx/entity to further define actions and reducer functions for the contacts store.
Store effects	45-46	phone-book-complete	<ul style="list-style-type: none"> - Use @ngrx/effects. - Finish off by adding actions and reducers for groups. - Clean up components from old architecture.
Store router	47	phone-book-store-router	<ul style="list-style-type: none"> - Add route guards. - Restructure effects to use guards.
Unit testing	49	/angular-testing/jest	<ul style="list-style-type: none"> - Explain differences between Jasmine and Jest. - Outline benefits of Jest.

			<ul style="list-style-type: none"> - Explain how unit tests work in Angular (ng test).
Unit testing core concepts	50-51		<ul style="list-style-type: none"> - Explain the structure of unit tests. Give examples from practice.
Getting started with the unit testing project	52	test-pack, snippets/jest-config snippets/lib-path test-pack/1st.spec.ts	<ul style="list-style-type: none"> - Start a new Angular project, using phone-book-starter's assets. - Configure Jest by copying the files from snippets. - Start with 1st.spec.ts to demonstrate how tests work.
Teardown	53	test-pack/observable.spec.ts	<ul style="list-style-type: none"> - Demonstrate teardown with observables. - Explain specifics of writing async unit tests.
Unit testing structures	54-56	-	<ul style="list-style-type: none"> - Explain the main unit testing structures and their purpose.
Testing pipes	57	test-pack/my-upper.pipe.ts	<ul style="list-style-type: none"> - Explain how pipes are tested.
Testbed	58	-	<ul style="list-style-type: none"> - Setup testbed for service, http, component, directive and router tests and explain what it does.
Testing services	59	test-pack/services	<ul style="list-style-type: none"> - Explain the 3 main ways to mock services.
Testing HTTP	60	test-pack/http	<ul style="list-style-type: none"> - Demonstrate the flow for testing HTTP
Testing components	61	test-pack/components	<ul style="list-style-type: none"> - Demonstrate component initialization. - Demonstrate testing using the component template. - Demonstrate testing using the component instance. - Demonstrate async testing.
Testing directives	62	test-pack/directives	<ul style="list-style-type: none"> - Explain the technique for testing directives (using a mock component).

			<ul style="list-style-type: none"> - Demonstrate testing directives async.
Testing routing	-	test-pack/router	<ul style="list-style-type: none"> - (Bonus - If time allows it) - Demonstrating testing of the router.
E2E testing	63-64	/angular-testing/protractor	<ul style="list-style-type: none"> - (There is more material in this part that time allows to be covered – carry it out until the time runs out). - Give examples from practice to demonstrate what E2E tests are used form. - Explain how E2E tests work in Angular (ng e2e).
E2E Config	65	/configuration	<ul style="list-style-type: none"> - Go through protractor.conf.js and explain the options – running through different browsers, different file pattern matching and so on.
Protractor concepts	66-67	/tests/simple-test.e2e-spec.ts /tests/interaction-test.e2e-spec.ts /tests/scenario-test.e2e-spec.ts /tests/lists.e2e-spec.ts	<ul style="list-style-type: none"> - Develop a specification step-by-step, following the files in snippets/tests. Start of by simple selection, interaction and expectation.
Protractor tests	68	phone-book-e2e-scenario, phone-book-e2e-ordered-scenario phone-book-e2e-page-objects	<ul style="list-style-type: none"> - Develop the tests incrementally, by adding extra complexity to each step. - Try to reach or explain the usage of page objects.