Create Single Page Application with AngularJS

Create Website Which Give Native-App-Like Experience with Javascript Framework

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***Abstract*—Single Page Application (SPA) is website that give native-app-like experience to user. SPA give more interactivity on the client-side, so we need more Javascript code. AngularJS make Javascript code have a clean and well-architected codebase, so this framework is the best solution for make SPA.**

Keywords—component; Single Page Application, AngularJS, Javascript

I. INTRODUCTION

SPA, single page application, is application that were built for the web. These applications are accessed via a web browser like other website, but offer more dynamic interactions resembling native mobile and desktop apps.

The most notable difference between a regular website and a SPA is the reduced amount of page refreshes. SPA always uses AJAX (a way to communicate with back-end servers without doing a full page refresh) to get data loaded into our page. It causes the process of rendering pages in SPA happens mostly on the client-site.

SPA make more interactivity on the client-side, it cause we need the more Javascript code to make those interactive pieces function well. And the more code is written, the more important it is to have a clean and well-architected codebase. And this is exacly AngularJS can solve the problem.

II. ABOUT ANGULARJS

A. What is AngularJS

The official AngularJS introduction describes "AngularJS as a client-side technology, written entirely in Javascript. It works with the long-established technologies of the web (HTML, CSS, and Javascript) to make the development of web apps easier and faster then ever before". AngularJs is primarily used to build single page applications. AngularJS makes it incredibly easy to build complex web application. AngularJS takes care of advanced features that users have become accustomed to modern web applications, such as:

- Separation of application logic, data models, and views
- Ajax Services
- Dependency injection
- Browser history
- Testing
- And more

B. Key Components

AngularJS includes a number of major components, such as directives, templates, repeaters, moduls, controllers and more. In this paper, we will examine how these components work together to add behavior to our web page.

- Directives, AngularJS uses this to extend HTML with costum attributes and elements. AngularJS directive are define via data-ng-* or ng-* prefixes. There are two types of AngularJS directives : 1). Primitive Directives: These are predefined by Angular team and are part of the AngularJS framework; 2). Custom Directives: These are custom directives that we can define.
- Data Binding, AngularJS support two-way data binding where data from a model is kept in syncronization with a view template at all times.
- Templates, AngularJS template are just plain HTML pages decorated with AngularJS directives. A template in AngularJS is a mixture of directives, expressions, filters and control that combine with HTML to form the view.
- Expressions, AngularJS expressions are Javascript-like code snippets that are written inside the {{ expressions }} syntax. The data from these expressions is bound to HTML. AngularJS expressions are evaluated against the $scope object in AngularJS.
- Repeaters, This is the directive that repeats a given HTML element in a view over the length of repeating data array.

- $scope, Javascript object that acts as glue between the view (template) and the controller.
- Modules, AngulrJS module is a collection of controller, services, directives, etx. The angular.module() function call is used to create, register and retrive modules in AngularJS.
- Controllers, The <module name>.controller() function call is used to create and register controller in AngularJS. The role of controller in Angular is to set state and behavior of the data model ($scope). Controller should not be used to manipulate the DOM directly.

III. Create Simple Single Page Application

We will create To Do List application. This app can create, update, edit and delete the To Do object which have title, description, start date, end date, and priority on client-side. All To Do object doesn't save in the server. This app also can view To Do object based on its priority.

In this paper, we will expline all key component that is used to make this app :

- Directives, we use primitive directives like : 1) ng-app, directive to indicate this page is an AngularJS application; 2) ng-controller, directive to determine which Javascript controller is bound to which view; 3) ng-model, directive to determine the model to which the values of an HTML element's properties are bound; ng-show, used to swho or hides the given HTML element based on the expression provided; 4) ng-click, mouse click event handlers; 5) ng-repeat, acts as repeater.
- Data binding, is used to assign value from edit To Do form automatically and to get new To Do Object that was created by add To Do form.
- Expressions, is used to make To Do Object display has good look. In this app, we use filter date to get simple date display.
- Repeaters, is used to display all To Do Object. We use filter based on priority to make To Do Object group display.
- $scope, we have many $scope element. The main $scope element are : 1) Function for CRUD To Do Object; 2) newToDo to get and save new value of To DO Object; 3) selectedToDo to get exist To Do Object value and update its value.
- Module, we just use angular.modul and <module name>.controller().
- Controller, we use to CRUD handler and show or hide edit To Do form.

In this app, we just make simple controller for CRUD To Do Object. AngularJS make this app simple to developed.

For source code this app, we can acces in this link (https://github.com/AditioPangestu/project-sosif.git).

IV. Conclusion

AngularJS appeared to offered a single framework that could be used to build a variety of dynamic, client-centric applications. AngularJS includes a robust set of features and offers a way to break up code into modules, which is good for reuse, maintenance and testability.

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Statement

I hereby that state that paper, I have been writing is original, not adaptation, nor a translation of ones's paper, nor plagiarism.

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