

Comparative Analysis between JQuery and Angularjs

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Abstract- Most of the web site serves dynamic content from a database but offers little in the realtime of user interactivity beyond paging through images, watching videos, and clicking on links. When developing an interactive application main goal is content display and content creation. Basically HTML was not designed for creating dynamic views, it was designed to display a “static” content and doesn’t offer an efficient means for manipulation after initial loading of full page. JQuery doesn’t effectively help with this drawback. It offers a way to change the Document Object Model (DOM) but does not offer an easy way to write code against a flexible model state, and then sync it back with the server again. so there is new way to build rich interactive web application is Angularjs and WebAPI that fully embraces what can be done with a Web browser. Angularjs designed to work as a two-way model binding between the DOM and a rich JavaScript object model.

Keywords- AngularJS, Data Binding, DOM, JQuery , Single Page Applications.

I. INTRODUCTION

The web development has been changing very quickly. In today’s world there are some programming languages used for web developing. JavaScript XUL, HTML, AngularJS are languages. Choose the right framework it may affect our project performance, speed and development. Some languages are being updated and new framework are introducing. javascript provides many functions and developers can write logic in multiple way, so it looks different even though it works same. Language like AngularJS provides Model view – view model architecture so when change in model it directly affects in view and vice versa. In traditional way the whole page get refreshed for a single request. AngularJS solved the problem of developing Single page Application by extending the functionality of HTML with directives.

II. ANGULAR JS

AngularJs was built as a modified on top of JQuery, to add MVC concepts to front end engineering. AngularJS is a JavaScript framework. It can be added to an HTML page with a <script> tag. AngularJS extends HTML attributes with Directives, and binds data to HTML with Expressions [1].

AngularJS is a product introduced by Google and it is an open source MVC-based framework. AngularJS is a great tool for develop highly rich client-side web applications.

Framework

Angularjs is not just a JavaScript library but a framework, which are designed to work together in a truly interconnected way, it instructs us to follow some rules and a structured approach.

A library is collection of functions that are useful in web applications to do tasks like HTTP requests and DOM manipulation, for example JQuery and underscore.js. Code that we write will be in charge and calls into the library.

III. SINGLE PAGE APPLICATION (SPA)

AngularJS provides many functions, by using that functions web applications can be build using Single page Application. SPA is a web Application which loads single page. All code which is use in application like Javascript, CSS, HTML is retrieved with only single page load and small requests are responded without refreshing the whole page. It has disadvantage like first time when the page is loaded it takes bit more time as it downloads most of the resources at one time.

Advantages of SPA:

- No need to refresh whole page for small request
- Fast and responsive
- It can work offline as all pages are already loaded on server.

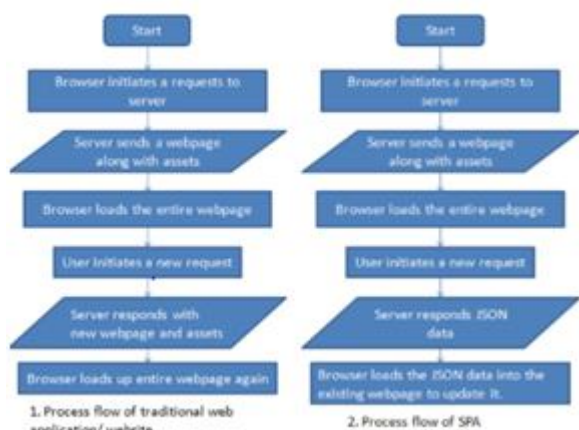


Fig. 1.1 Difference between traditional website and SPA

IV. ADVANTAGES OF ANGULARJS OVER JQUERY

In This paper we compare the AngularJS with jQuery on the basis of certain principles for Evaluation.

jQuery and AngularJS are not having more features in common with something they differ from each other and jQuery is a library while AngularJS is a framework but they are the two most widely used JavaScript toolsets in web development.

jQuery and AngularJS can be used together, but for good performance,, only one of them should be used in application.

jQuery and AngularJS have some common features like animation support, AJAX/JSONP(JSON with padding) but they also have some differences.

Data Binding is one of the useful feature in AngularJS. It can be one way or two way.This makes data not relying on another for the presentation. whereas mode (data) is the DOM in jQuery.

For example, From HTTP New request small new data comes (http module), it is added to the scope (\$scope.data) in controller and rendered in HTML template as {{ data }}.

In jQuery something like \$('#data').render (); it may render a whole new page and we won't even know what it is or where this content came from.

AngularJS is an MVVM(Model-view-viewmodel) Framework Used for creating SPA (Single Page Applications).Here loads templates on demand using requests so application stays more modular and easier to maintain,

debug or update not like JQuery which loads all code at once and showing and hiding different parts of DOM.

AngularJS Supports RESTful API whereas jQuery does not support.

AngularJS supports the MVC pattern whereas jQuery does not support.

AngularJS supports Deep Linking Routing whereas jQuery doesn't.

The AngularJS file size is quite heavier than that of the jQuery file size.

AngularJS is used where a heavy web application need to develop whereas using JQuery becomes complex and difficult to maintain when the size of a project increases.

Angular JS	jQuery	Function	Sr. No.
Yes	Yes	Abstracts the DOM	1
Yes	Yes	Unit Test Runner	2
Yes	Yes	Deferred Promises	3
Yes	Yes	Cross-Module Communication	4
Yes	Yes	Animation Support	5
Yes	Yes	AJAX / JSONP	6
Yes	No	RESTful API	7
Yes	No	Integration Test Runner	8
Yes	No	MVC Pattern Support	9
Yes	No	Templating	10
Yes	No	Two-way Data Binding	11
Yes	No	Dependency Management	12
Yes	No	Deep-Link Routing	13
Yes	No	Form Validation	14
Yes	No	Localization	15
38KB	32KB	File Size	16

Table 1.1 AngularJs vs JQuery

V. MATHEMATICAL MODEL

Consider [1],

Loading time for web application developed in JQuery is = LTJ

Loading time for web application developed in Angular JS is =LTAnJ

Transition Time for web application developed in JQuery is =TTJ

Transition Time for web application developed in Angular JS is = TTAnJ

Complexity of Code is = CJ
Complexity of Code is = CAnJ

Let, S1, S2 be the sets of criterions to measure performance of web technology.

S1 = {LTJ, TTJ, CJ}

S2 = {LTAnJ, TTAnJ, CAnJ}

The project finds out the result that, S1 > S2

VI. OTHER PARAMETERS

The other parameters for comparison of angularjs vs jquery are as follows:

6.1 Size and Complexity of the code

The code Write using AngularJS is less than that jquery. The advance methods AngularJS i.e By providing a structured environment for building SPAs, the risk of producing “spaghetti code” is greatly reduced.

The jquery Code structure is easier to fall into the trap of “spaghetti code” which can lead to confusion on larger projects with no clear design direction or code maintainability.

6.1.1 Sample Code JQuery

```
<!DOCTYPE html>
<html>
<head>
<title>jquery example</title>
<scriptsrc="js/jquery-1.11.2.js"></script>
</head>
<body>
<script type="text/javascript">
    $(function () {
        $(document).keyup(function () {
            var name = $("#txt").val();
            $("#lbl").html(name);
        });
    });
</script>
</body>
</html>
```

```
});
});
</script>
<div>
    Name <input type="text" id="txt" placeholder="please enter name" />
<h1 >
<b id="lbl"></b>
</h1>
</div>
</body>
</html>
```

Output-



Fig 1.2 Output of JQuery code.

6.1.2 Sample code AngularJS

```
<!DOCTYPE html>
<html data-ng-app>
<head><title>angular example</title>
<scriptsrc="js/angular.min.js"></script>
</head>
<body>
<div>
    Name <input type="text" placeholder="please enter name" data-ng-model="name" />
</div>
</body>
</html>
```

Output-



Fig 1.3 Output of AngularJS code.

6.2 Security

Most of the security issues arrives due to wrong data input while sending request to server. AngularJS validates the input form while client side sends request and if wrong data input from user, it shows notify the user. For E.g. If User enters wrong email id like “example#.com then validation scripts will give alert to user about enter valid email ID. Using Angular JS we can make our own Validation Functions.

6.3 Loading Time

Loading Time of webpage should be less so Application becomes fast and user friendly. SPA load one whole page at first time and after for each request to response it calls JSON and does not load the whole page just a some part of page. And Traditional process load whole page for each new request so it takes same amount of time for each request while SPA applications takes less time after first loading of page.

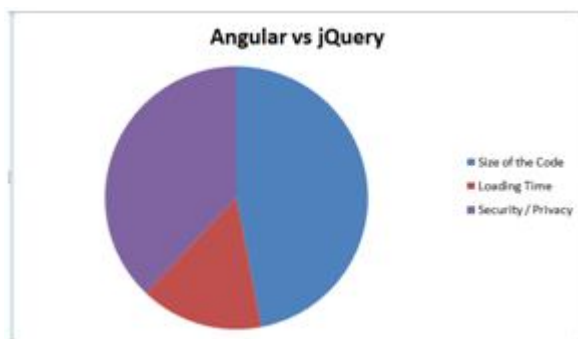


Fig 1.4 Performance Comparison of jQuery and AngularJS

VII. CONCLUSION

To decide which framework is best for your application matter of finding application’s requirement and strength of each framework .To figure out this requires deep knowledge of advantages and disadvantages of each framework. All the framework have some common feature like they are open source and views, events, data modules and routing.

JQuery can be use when web application size is small but as the size increases project in jquery will becomes more complex whereas in AngularJS it can handle complex project and easy to make web applications using more functions provided by AngularJS. AngularJS instructs and gives structure that apply to various projects like Controllers, Services and directives which makes easier to get into and out of project. Angular support all current browsers IE9 and up

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