

Angular JS - The Nextgen Framework

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Abstract: This paper is all about why Angular JS is the next big thing. Angular JS is an open source complete JavaScript based web application framework. It is used to construct Single page Applications. Angular JS makes the designer work easy of fulfilling the modern technological demands by using the right methodology. Front end development is abridged with the help of such MVC framework.

Keywords: AngularJS; MVC; Abridged.

I. INTRODUCTION

Angular JS was created by Miskohevery (a developer at Google) to simplify web application development. For web designers who have little knowledge about web development by extending vocabulary of HTML, so that if we have a static web server we can create a simple web application without knowledge of what is there in the background. Misko hevery decided the shield like logo because it's similar to HTML5 logo, it shields from low levels of browsers. It is used to build UI and connect different modules of web applications together. It is important to know that Angular is not a library rather it is a framework. It extends HTML by pumping up the properties of HTML elements for a more expressive and readable format. This is a client-side technology. It is a way of accomplishing things in a powerful way that clutch and extends CSS and JavaScript. Rather than updating the front end views we can directly write the application logic which automatically changes the view.

Angular JS is built under design principles that it is scalable, maintainable and modularized at the core. It strengthens the web development techniques with patterns and practices that help modernize web application development in order for them to handle more responsibility that can be shifted from the back-end to the front-end.

It is backed and powered by highly talented and dedicated engineers of Google. Angular is used by over 9000 websites including Netflix, YouTube for ps3, Freelancer, weather.com, Good Films, upwork.com, angularjs.org, jetblue.com, landsend.com, mobileroadie.com. Some of the app are Posse, Mealshaker, Mallzee are made with Angular JS. Talking about, this framework have attracted the designers and developers with its speed, performance, scalability or affordability, easiness.

II. IMPORTANT FEATURES OF ANGULARJS



Fig. 1. Features of Angular JS

1. Two Way Data-Binding:

With the Two Way Data Binding feature we can use various form controls and keep the model updated automatically and also maintain synchronisation of data between the model of the application and the view of the HTML Template. A two way data binding is when a model variable is bound to the HTML element that can perform two things

1. Change the value of the variable.
2. Value of the variable is displayed. In simple words, we are having several HTML element binded to the same variable.

2. Scope:

The scope act as a bridge between the view and controller. It has the function of transferring data from controller to view and from view back to the controller. In real they are the objects that refer to the model.

3. Validations:

Angular have some properties which when applied to forms can validate them. They are applied to the form and its inputs and give us various information about a form or its inputs.

4. Directives:

This is the most powerful component of Angular JS. It helps in extending basic html elements and create a reusable code. Angular JS directives are recognized as ng-where ng stands for Angular.

5. *Controllers:*

The controller is responsible for controlling the data of Angular JS applications. They are regular JavaScript objects. It is defined by ng-controller. It contains attributes as well as functions. Controller contains \$scope as a parameter which refers to the module in which the controller functions.

6. *Modules:*

Modules are the modern approach for developing a project. Module can be considered to be a container for different parts of an application and are used to separate different application logics like controllers, filters, services, directives.

We have two different types of modules:

- a) Angular Module : For initialising the application and its controllers.
- b) Controller Modules : For intialising controllers.

7. *Filters:*

Filters are format styles for your data which is presented to user which modifies the data and value of an expression for displaying to the user. Pipe(|) character is used for clubbing filter with the expressions or directives.

8. *Dependency Injection:*

Dependency injection function allows us to divide the application into multiple parts each as different component which can be injected into one other as dependencies. This helps developer to create, understand and test the applications easily. With the help of this the components become reusable, maintainable and testable.

9. *Routing:*

Routing in general means navigating to different places. The ng Route is a module which helps in routing to different pages without reloading the pages and making it a Single Page Application. We have no need of reloading the whole application for navigating to different pages with ng Route. We must add ng Route as a dependency in the application module.

III. ANGULAR JS DIRECTIVES

This is the most powerful component of Angular JS. It helps in extending basic html elements and create a reusable code. Angular JS directives are recognized as ng- where ng stands for Angular. Angular JS have features like data bindings. The most commonly used directives are:

ng-app: This directive initializes an Angular JS Application. [1]

ng-bind: This directive binds the AngularJS application data to HTML tags. [1]

ng-model: This directive binds the values of AngularJS application data to HTML input controls. [1]

ng-controller: Specifies a JavaScript controller class that evaluates HTML expressions. [1]

ng-repeat: This directive repeats HTML elements for each item in a collection. [1]

ng-show & ng-hide: Conditionally show or hide an element, depending on the value of a boolean expression. Show and hide is achieved by setting the CSS display style. [1]

ng-view: The base directive responsible for handling routes that resolve JSON before rendering templates driven by specified controllers. [1]

ng-if: Basic if statement directive that allow to show the following element if the conditions are true. When the condition is false, the element is removed from the DOM. When true, a clone of the compiled element is re-inserted. [1].

IV. MODEL VIEW CONTROLLER

MVC or Model View Controller is a design pattern currently being used ubiquitously for developing web applications. The name itself describes three parts which specifically have different meaning

1. *Model:*

The model here only represents the data and nothing else. It is independent of both the controller and the view. It is the lowest level in the pattern same as the database. Model part contains the data which is displayed to user on the SPA. Model has the responsibility of managing the application data. Upon the the request from view to display the data it responds by answering the instructions from controller to update itself.

2. *View:*

View is the front end part which displays the model data to the user. It is the highest level in the pattern. View part presents the data to user in a particular format as per the controllers instructed decision. View is also independent of both the controller and the model. In short view is the User Interface with which the user interacts and perform actions which gets forwarded to controller and model.

3. *Controller:*

Controller is like a coordinator. It is the middleware or the middle part of the pattern and its function is to coordinate the instructions and decisions made by it to view and to the model. It is the heart of an application. It accepts certain input and converts it into the commands for Model or View. When user gives an input controller responds to it and interacts on the model data and sends it to the view for a formatted display.

V. WHY DO WE NEED MVC ?

We need MVC because MVC is a design pattern for web applications commonly used for developing user interfaces that divides the application into three interconnected components and each having a major functionality. Because of this separate interconnected components the code becomes efficient for reuse and parallel development.

MVC is also popular because the application logic is separated from the user interface. The whole process works like when user clicks a button or interacts with the interface then the view part communicates with the controller to deliver the data requested by the user by contacting with model and forwarding the model data to view and then view presents the data in a format appropriate for user.

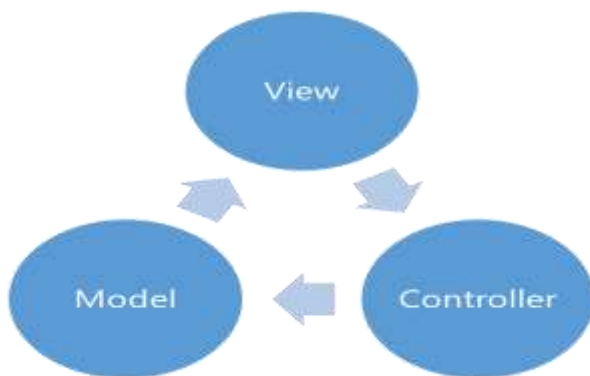


Fig. 2. Model View Controller

VI. ANGULAR JS APPLICATIONS

Angular JS is a multipurpose application javascript framework which can be used to develop applications like shopping cart, to do list, my notes etc. The application which we are discussing will be Kitchen order Ticket.

No More Paper People! Kitchen Order System is a display system for every Restaurant that replaces paper tickets. It is written or digital record given to the kitchen or bar for you to receive any item or entree from there. Here are some of the benefits of putting such technology in place:

1. Reduced Waste

2. A higher calibre of customer service, leading to increased sales
3. Track Tickets & Fulfilment Times
4. Integrated Online Ordering Process
5. Increased order accuracy, with fewer headaches
6. Enhanced kitchen efficiencies

Why Kitchen Order System?

- Despite being just a small piece of paper, KOT carries the magic formula of efficient communication amongst service personnel.
- It co-ordinates dealings between the kitchen, billing counter and the guest service staff. Nevertheless, a KOT makes a waiter accountable for the services provided to the table he is in charge of.
- You steer clear of any inaccuracy or errors at counters, because a control mechanism is established. Know which entree is most popular and track the orders before bill is generated.
- It leaves no room for misconduct by staff, since you can always settle bills for all KOTs generated.

The Process is:



Fig. 3. Process of Kitchen Order Ticket

Benefits of KOT:

- Easy User Interface
- Quick Table Booking.
- Easy Product managing
- Quick thermal paper bill print.



Fig. 4. Tables Page

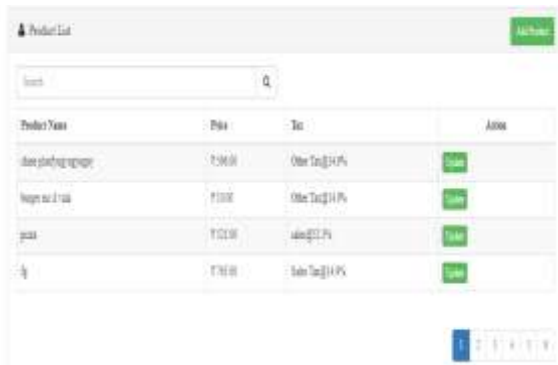


Fig. 5. Product List



Fig. 6. Paper Roll Bill

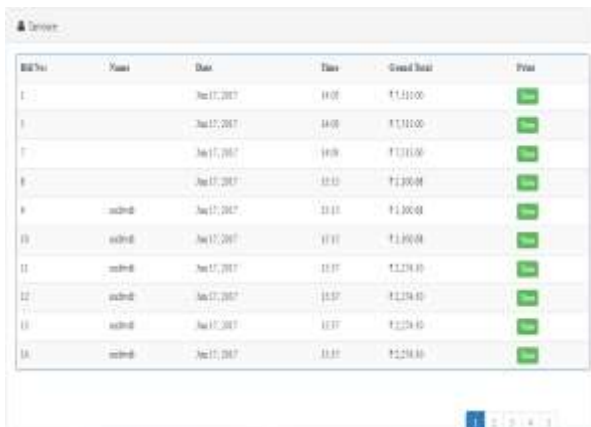


Fig. 7. List of Bill

VII. ADVANTAGES

1. Advantages of Angular:

- Angular JS allow us to create Single page application and its maintenance is also easy.
- Angular JS is more intuitive as it makes use of HTML as a declarative language. Moreover, it is less brittle for reorganizing.
- Angular JS is unit testing ready, and that is one of its most compelling advantages.

- Few attributes can be added to your HTML and take the benefits of a simple Angular app in as much as five minutes.
- It is possible to do two-way data binding capability to html.
- Reusable components.
- In Angular JS, the we can achieve more functionality with shorter code than normal JavaScript.
- In Angular JS, view is html pages at front end, and controller is written in JavaScript do the backend processing.

2. Why Angular?:

- We can organize web application numerously at client side.
- Powering HTML by including directives functionality, custom tags, attributes, expressions, templates within HTML.
- Encourage Test Driven Development.
- Encourage Model View Controller and Model-View-ViewModel design pattern.
- Reusable Code
- Single Page Apps (SPA) can be easily made and managed.

VIII. CONCLUSION

Angular JS is totally a new concept with faster implementations with the help of predefined libraries and directives, routing, services, validations, resources and animations as well as functionality make it an innovative approach for extending HTML. In spite being of the same download size Angular JS can do everything that j Query does and much more. Now unit tests and integrated tests can be easily carried on. Most important part of it is that it is backed by google so it works well both for prototyping projects and large-scale production applications.

IX. REFERENCES

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