



BACKBONE.JS

**Working with
BackboneJS**

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Working Knowledge on

JavaScript

HTML

CSS

jQuery (recommended) / Zepto

MVC basics

Hands-on workshop



BACKBONE.JS Prerequisites

Hands-on workshop

Aptana Studio IDE

Latest backbone library

Interest to learn

Introduction to Model
Introduction to View
Introduction to Collection
Introduction to Routers
Server Request
Tips and References

Introduction



BACKBONE.JS What is Backbone ?

Its a library not a framework

Not just MVC

Supports tools and utilities to build rich web application faster.

Gives structure to web applications dividing responsibilities using MVC

Model (which is key value binding and events (custom)

Collection lots of utility functions

Views handles events and connects together using restful JSON data.



BACKBONE.JS Structure of Backbone Application

Built on JavaScript for client side app development

Routers that handle page transitions

Views that render models

Models that represent data

Collection that manage multiple models

What is expected from the server side

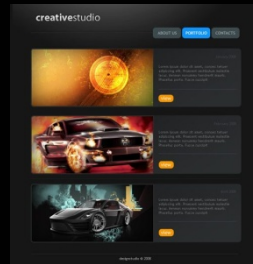
(ASP.net, Java, PHP, etc.,)

JSON Data



BACKBONE.JS

Backbone Anatomy



Routers
Views
Models
Collection



JSON DATA

Asynchronous



RESTful Endpoint
ASP | PHP | Servlet



Application Loads Fast

First time the application will download and cache them for subsequent visits.

Interactive,

The response is usually immediate as all the application data is cached.

User interacts with client side data and avoids roundtrip for every transaction.

Scalable

The framework grows as per the demands of the application

Can not be indexed by search engine robots

They see an empty page when it visits the application.

Involves additional work to index your application.

Testing

Testing the application is a pain. Needs to be broken in to small pieces.

Security

Users of your application will have a copy of your code.

unless you secure them with server side.



BACKBONE.JS SPA (Single Page Application)

Has become a modern approach to building web application

Responsive

Device based

Not much to navigate hence easy for people to use

Saves time on page redraw

Faster response via ajax

Closest possible experience to a desktop application

Increases experience due to leverage on the client side resources



Technology is new (amateur)

Lack of tools

Usually cumbersome

Lacks SEO

Dependency on Browser versions



GMAIL

Facebook

Twitter

Etc.

(SPA is a concept not a strict definition)



BACKBONE.JS Why Backbone JS ?

Developing an application that is
Robust
Readable
Structured
Testable and
Maintainable application is not easy

Backbone has tools that minimize the effort of
creating them.

jQuery / Zepto (mini version of jQuery)
Underscore for templating



BACKBONE.JS

Lets create an application

Add the JavaScript libraries in the following order

jQuery

Underscore

Backbone

Models | in Backbone



Hold data and dispatch events
when data changes.

Models are core of your application

They contains application state, logic and behaviour.

Models are single point of data.

Models provide lifecycle of your application.

objects are created > validated > hooked to a data source

Models communicate changes to rest of
application via events.



Define new models

Instantiate models

Working with model properties / attributes

Model events

Model identity

Default values

Model validation



BACKBONE.JS Define a new model

Usually you extend from `Backbone.Model()` and create your custom model.

```
var Company = Backbone.Model.extend( { } );
```



id , model.cid, defaults,
initialize(args, options),
get("attribute")
set("attribute", value);
has(attribute) // returns true if that attribute exists
clear() // removes all attribute
unset() // will remove a specific property
escape() // will escape if the property contains html
toJSON([options])
validate()

Views | in Backbone



Are components that interact with users gather,
display or update the data (Models)
Usually are major part of your application
Handle events both triggered by model and users



Purpose of Views

Creating / Defining Views

Instantiation of views

View Properties

Rendering Views

Interaction of View with model

View events



Define by extending `Backbone.View.extend()`;
All views have an element (`el`) they can be either
created in the view or passed to view's
constructor as a parameter.

Templates | in Backbone



BACKBONE.JS Templates

Using jQuery to create template many views may become slow.

Routers | in Backbone

Listening to URL changes

Backbone uses client side routing i.e. backbone will trigger an event when the application changes the URL

Collections | in Backbone



Collection group related models

Sorting

Add / Remove

Iterate

Get Elements

Events

Added | Removed | Changed | Destroyed

Collection Synchronised | Collection reset | Validation Error

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