BACKBONE.JS

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Introduction

What?

       JS Framework — Backbone.js

Why?

       Modularity , Simplicity

Whom?

Beginners to Intermediate

                 *Beginners => Basic JS + Jquery

Plan

Day 1:

1.5 hrs   JS concepts +Underscore library

1.5 hrs   Basic Elements of Backbone

Day 2:

1 hr Example with Backbone – Local Storage

1 hr Example with Backbone – Persistance
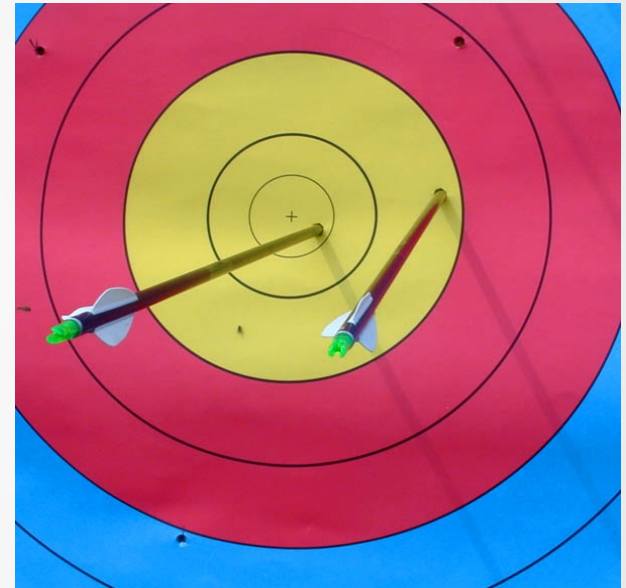
1 hr Modular Development – RequireJS

Goal

Understading the necessity of MV* Framework
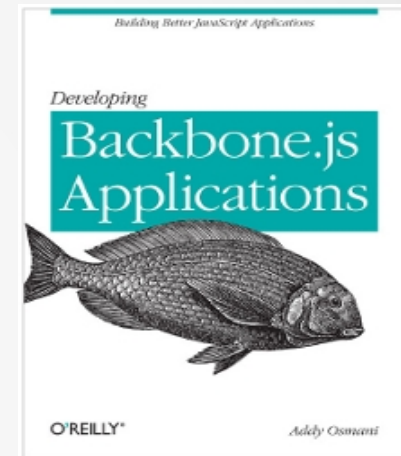
Understanding the basic elements of Backbone

Overview on designing web app with backbone

Sharing experience / knowledge

Resources / Books

- http://backbonejs.org/

- http://addyosmani.github.io/backbone-fundamentals/

- Javascript The Good Parts – Douglas Crockford

- https://developer.mozilla.org/en/Learn/JavaScript

- https://developer.mozilla.org/en-US/docs/Web/JavaScript/A_re-introduction_to_JavaScript

Practice

http://jsfiddle.net/

- jquery 2.1.0

- https://cdnjs.cloux/libs/json2/20140204/json2.min.js

- https://cdnjs.cloudflare.com/ajax/libs/underscore.js/1.8.2/underscore-min.js

- https://cdnjs.cloudflare.com/ajax/libs/backbone.js/1.1.2/backbone-min.js
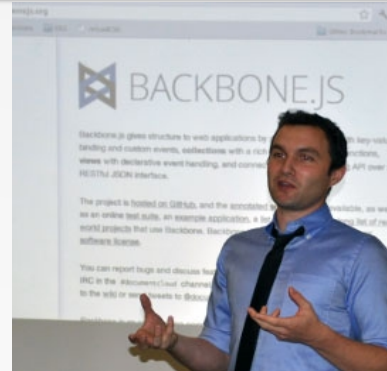

- https://github.com/kbalavignesh/backbone_training

Backbone.js

- Author — Jeremy Ashkenas
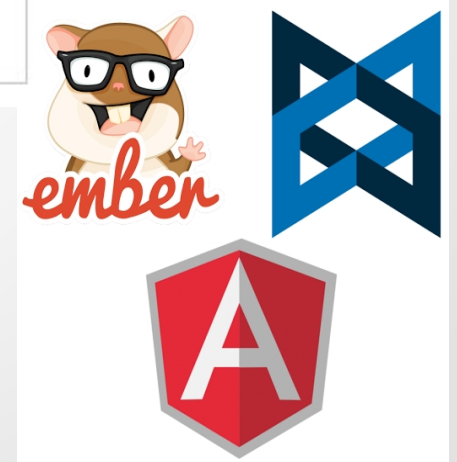
- Stable Release — 1.1.2

- License — MIT

- http://backbonejs.org/

UNDERSCORE.JS

- Dependency

  Underscore.js -> http://underscorejs.org/

JS Frameworks

Metric	AngularJS	Backbone.js	Ember.js
Stars on Github	27.2k	18.8k	11k
Third-Party Modules	800 ngmodules	236 backplugs	21 emberaddons
StackOverflow Questions	49.5k	15.9k	11.2k
YouTube Results	~75k	~16k	~6k
GitHub Contributors	928	230	393
Chrome Extension Users	150k	7k	38.3k

https://www.airpair.com/js/javascript-framework
-comparison

Testimonials

- Digg

- LinkedIn Mobile

- Bit Torrent

- Wordpress

- Documentcloud

World's most misunderstood programming language

- http://javascript.crockford.com/javascript.html
- JavaScript —The Good Parts

  Read Appendix— Awful Parts & Bad Parts

JS OOP Basics- DataTypes

- Numbers,
- Strings,
- Booleans,
- null,
- undefined
- Objects (arrays, functions, regex, objects)

JS OOP Basics — Object

- Objects in JavaScript are class-free

  http://www.phpied.com/3-ways-to-define-a-javascript-class/

- Prototypal programing language

  http://jsfiddle.net/kbalavignesh/4m8kc6gv/

JS OOP Basics —Reference

- Objects are passed around by reference. They are never copied.

- http://jsfiddle.net/kbalavignesh/d5g5k0tL/

JS OOP Basics— Prototype

- Object.prototype — an object that comes standard with JavaScript.

- http://jsfiddle.net/kbalavignesh/rp68Ln5s/

- Delegation

JS OOP Basics — Global abatement

- http://jsfiddle.net/kbalavignesh/s6njz5wz/

JS OOP Basics – Functions

- Functions in JavaScript are objects.

- Function objects are linked to Function.prototype (which is itself linked to Object.prototype).

- http://jsfiddle.net/kbalavignesh/a92f3aos/

JS OOP Basics –Closure

- A closure is a function having access to the parent scope, even after the parent function has closed.

- http://jsfiddle.net/kbalavignesh/xq5qmz9n/

JS OOP Basics – Arrays

- Array.prototype

```
var empty = [];

var numbers = ['one', 'two'];

console.log(empty.length);

console.log(numbers.length);
```

Underscore.js

- forEach —   iterate over collections
- sortBy() — sort a collection on a specific attribute
- map()   — iterate through a collection, mapping each value through a transformation function
- pluck()   — extract a specific attribute
- size()   — return the size of a collection
- isEmpty()— determine whether a collection is empty
- groupBy()— group a collection into groups of like items
- pick() — extract a set of attributes from a model
- omit() — extract all attributes from a model except those listed
- keys() and values() — get lists of attribute names and values
- pairs() —   get list of attributes as [key, value] pairs

- http://jsfiddle.net/kbalavignesh/ujq80qm3/20/

Underscore —Micro Template

- `<%=interpolate%>`   `<%-escape%>`   `<%evaluate%>`
- http://www.2ality.com/2012/06/underscore-templates.html

- pre compiled templates
- http://stackoverflow.com/questions/13536262/what-is-javascript-template-precompiling

- other template engines

    Mustache, jQuery—tmpl

- how to select - http://garann.github.io/template-chooser/

MVC -Design Pattern

Image Source - http://addyosmani.github.io/backbone-fundamentals/
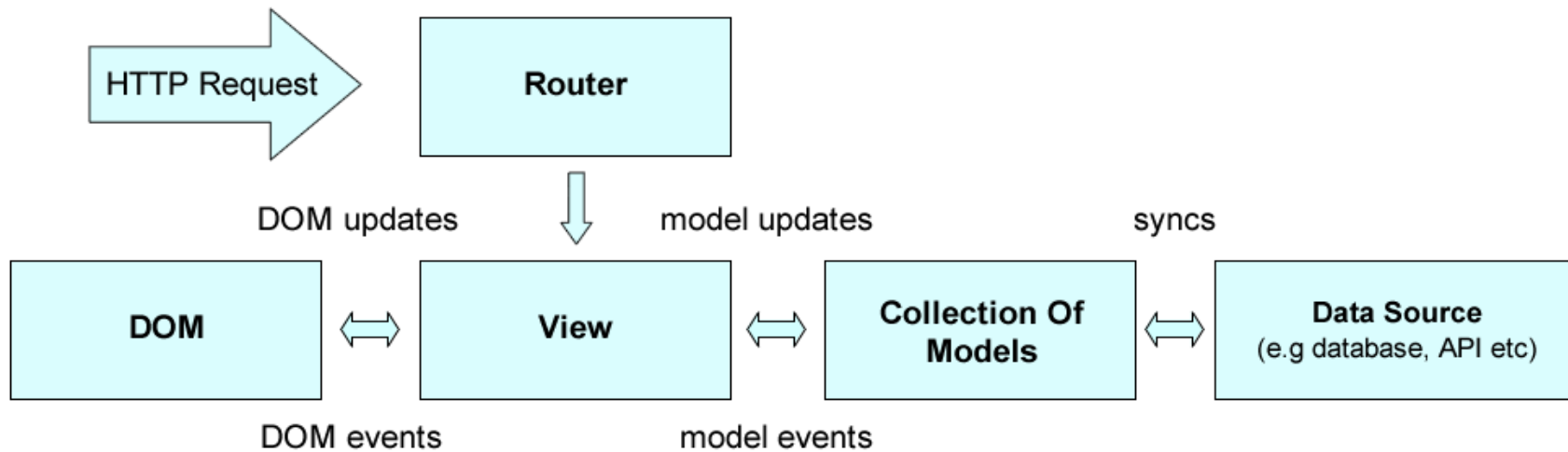
Backbone Basic Elements

- Model

- Collections

- View

- Router

- Events

- Sync

Model

- Holds the attributes

- Takes care of Validation

- Persistance

- Announces updates

- id, idAttribute, cid

- Default, set, get values - https://jsfiddle.net/kbalavignesh/ujq80qm3/9/

- Change Event - https://jsfiddle.net/kbalavignesh/ujq80qm3/10/

- Validation - http://jsfiddle.net/kbalavignesh/ujq80qm3/11/

- Complete Validation - http://jsfiddle.net/kbalavignesh/ujq80qm3/12/

Model –Exercise

- Create Model book

  book_name – max 30 chars

  author_name – max 20 chars

  price - max 500 Rs

- Create book models – set values and create model instances

Collection

- Holds models

- Announces add/remove/reset/update model

- Collection - http://jsfiddle.net/kbalavignesh/ujq80qm3/13/

- Collection get by id - http://jsfiddle.net/kbalavignesh/ujq80qm3/14/

- Collection events - http://jsfiddle.net/kbalavignesh/ujq80qm3/15/

- Collection with underscore functions - http://jsfiddle.net/kbalavignesh/ujq80qm3/16/

- Collection sort functions - http://jsfiddle.net/kbalavignesh/ujq80qm3/17/

Collection – Exercise

- Create collection – library

  add books to library

- Log message on add event

- Log message on remove event

- Sort collections by book name

Persistance

- Collection.fetch() => HTTP GET

- Model.save() => HTTP PUT (for existing model —update)

- Model.save() => HTTP POST (for new model — create)

- Model.destroy() => HTTP DELETE

- model.save(attrs, {patch: true}) => HTTP PATCH

Event

- Event within object

  - http://jsfiddle.net/kbalavignesh/ujq80qm3/18/

- Event across objects

  - http://jsfiddle.net/kbalavignesh/ujq80qm3/19/

View

- Logic to present model

- el — el is basically a reference to a DOM element and all views must have one

View – Exercise

- Create view to render the library data.

- Use underscore template

Router & History

- Bookmark

- To Share the link

- To enable backbutton

http://backbonetutorials.com/what-is-a-router/#/route/action

Local Storage — HTML5

- Local storage within browser

- Alternative to cookies

- Can save atleast 5MB

- Stored per domain

localStorage.setItem("name", "Bala");

localStorage.getItem("name");

localStorage.removeItem("name");

http://www.w3schools.com/html/html5_webstorage.asp

TODO List — Example

- Demo - http://backbonejs.org/examples/todos/

- ToDo Examples for all Framework - http://todomvc.com/

- Explanation - http://backbonejs.org/docs/todos.html