Building Apps with Backbone.js and Require.js

Sidney Maestre

Platform Evangelist

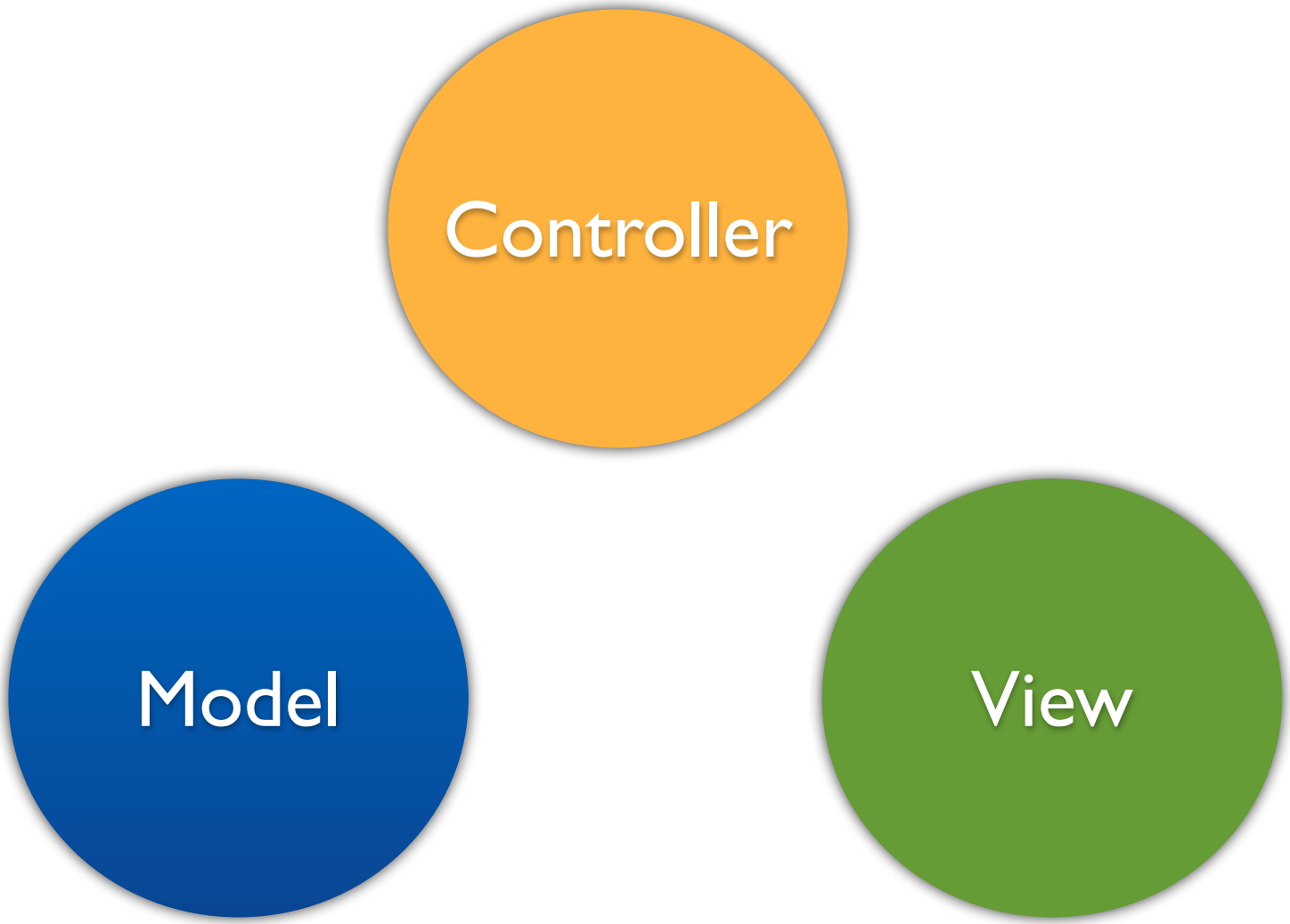
@SidneyAllen
GitHub | Twitter

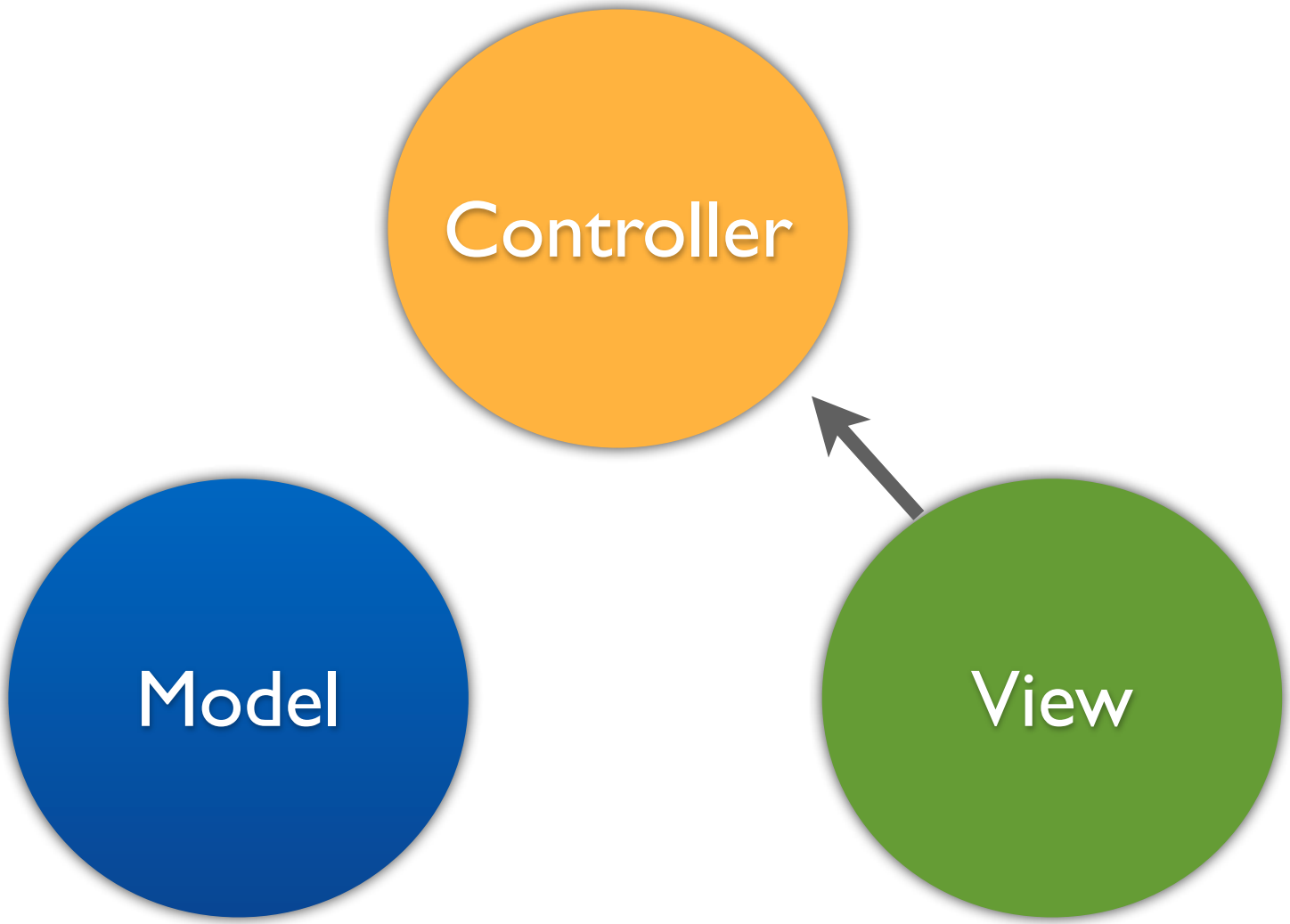
WHAT

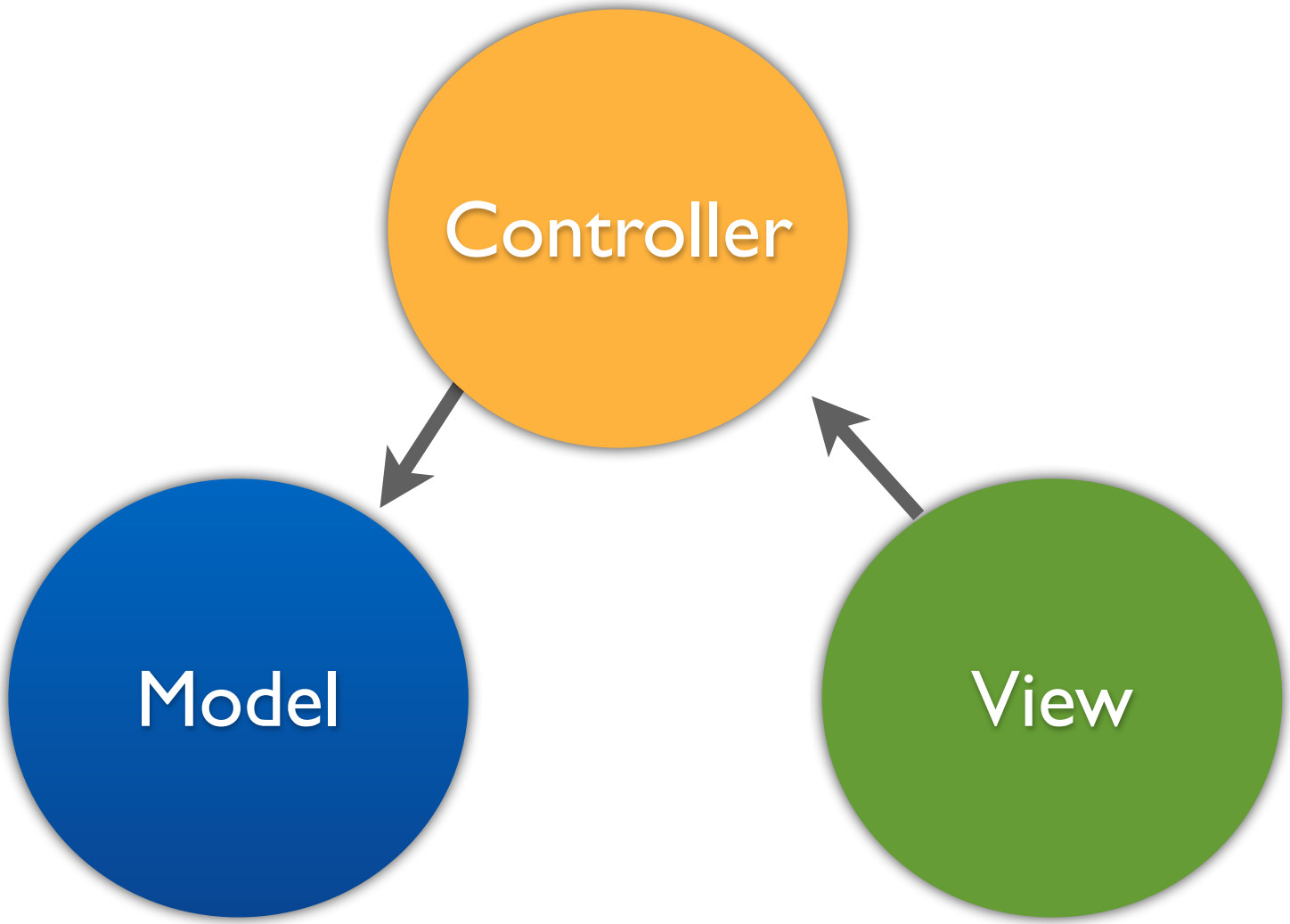
WHY

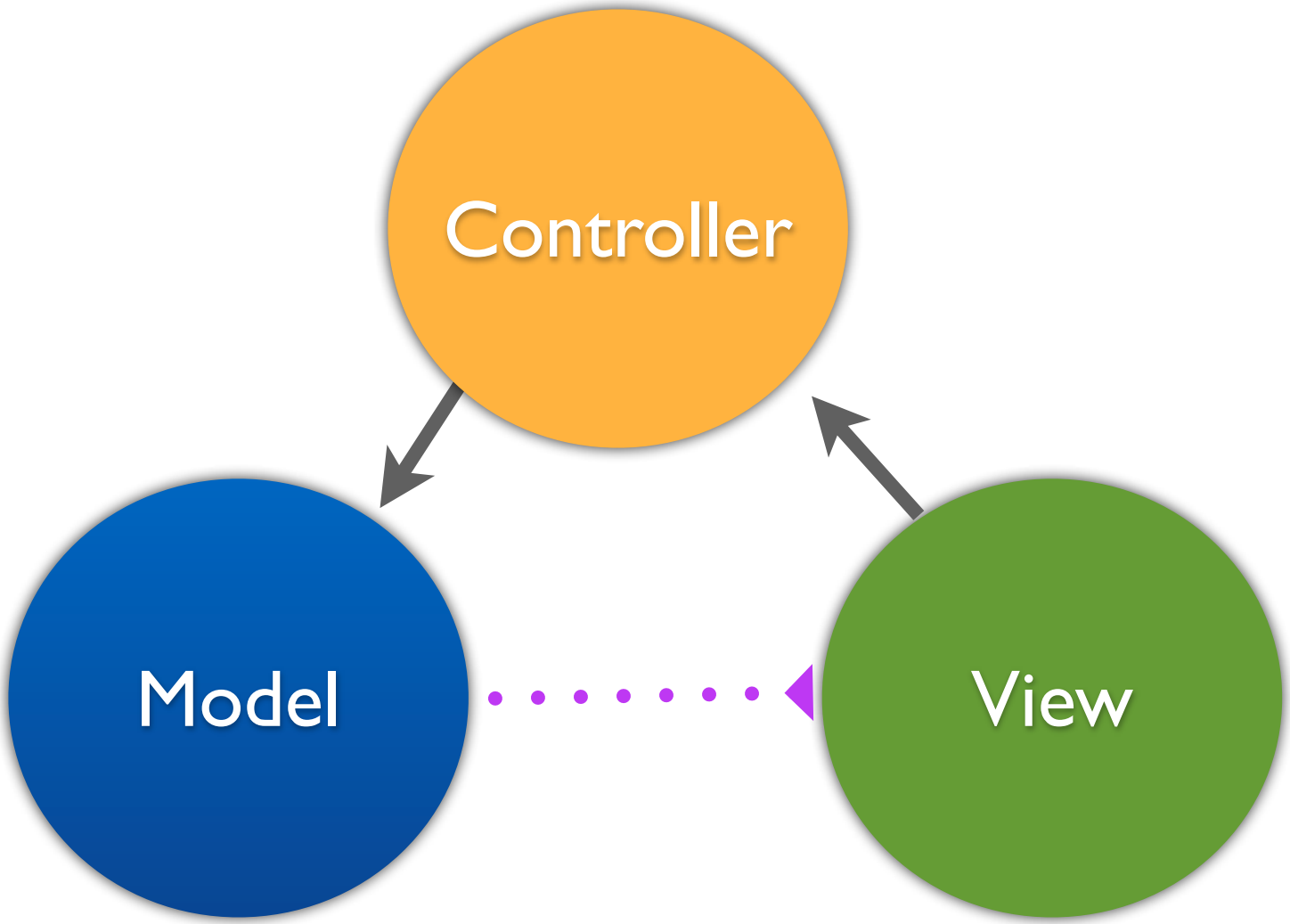
WHY

An ancient program,
written in VB6 and COM
filled with GOTOs must
be unraveled & updated.
Can you untangle
THE
SPAGHETTI
CODE


Controller
Model
View


Controller
Model
View

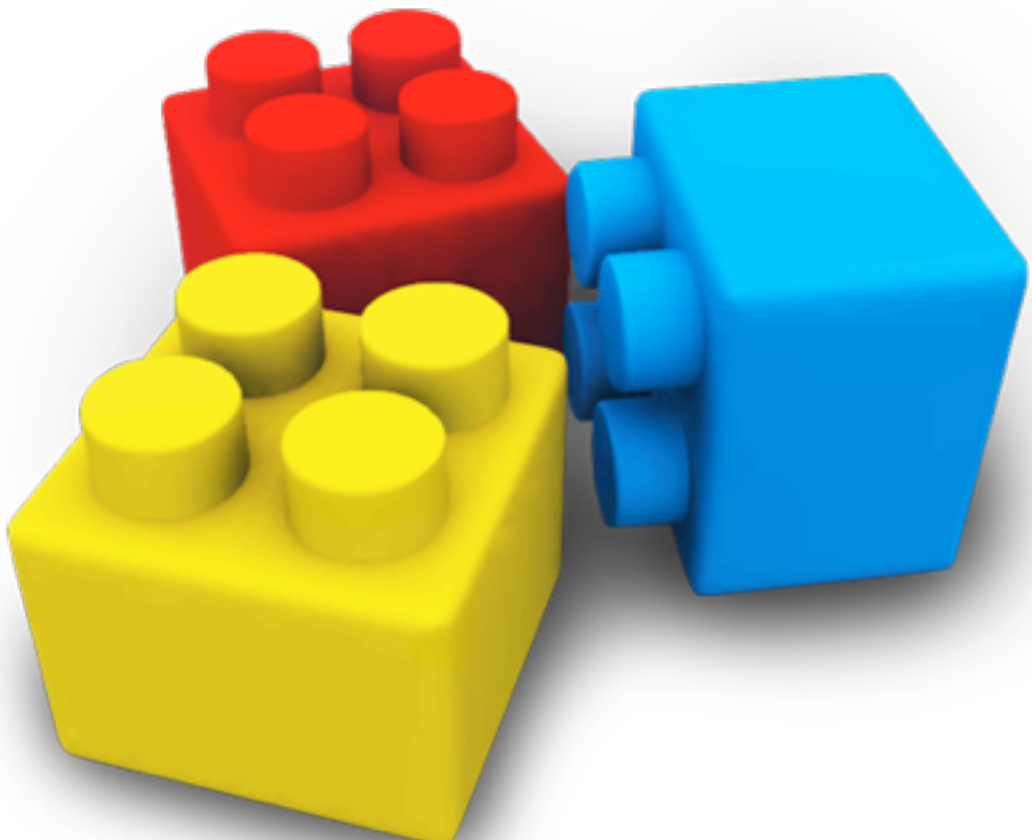

Controller
Model
View


Controller
Model
View

UNDERSCORE.JS

UNDERSCORE.JS

MODULE PATTERN

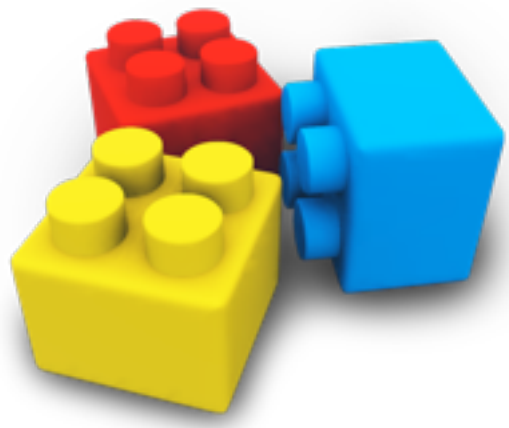


HANDS ON

00-module

MODULE PATTERN

```
var app = (function($){
    var foo = "bar";

    return {
        name : 'module pattern',
        set: function(name) {
            foo = name;
        },
        get: function() {
            return foo;
        }
    };
}(jQuery));
```



MODULE PATTERN

```
app.foo
undefined

app.name
"module pattern"

app.get()
"bar"

app.set("StackMob")
undefined

app.get()
"StackMob"
```

MODEL

MODEL

HANDS ON

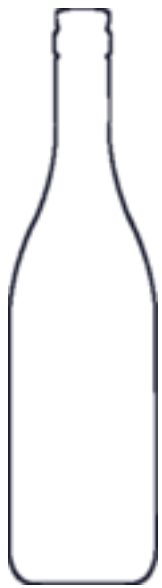
01-model

MODEL

```
Wine = Backbone.Model.extend();
```

MODEL

```
Wine = Backbone.Model.extend();
```



MODEL

```
Wine = Backbone.Model.extend();

firstWine = new Wine({
  winery : 'Clos Pegase',
  year : '2008',
  type : 'Chardonnay',
  size : '750ml',
});
```

COLLECTION

HANDS ON

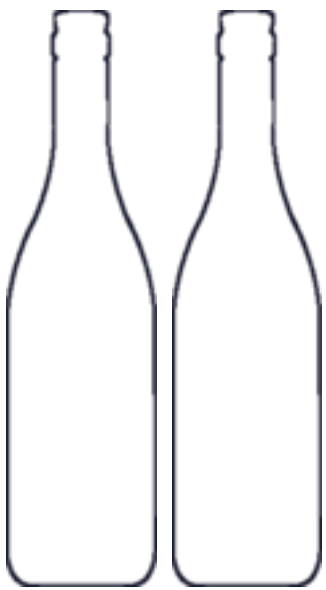
02-collection

COLLECTION

```
Wine = Backbone.Model.extend();

Wines = Backbone.Collection.extend({
  model: Wine
});
```

COLLECTION

```
Wine = Backbone.Model.extend();

Wines = Backbone.Collection.extend({
  model: Wine
});
```



COLLECTION

```
Wine = Backbone.Model.extend();

Wines = Backbone.Collection.extend({
  model: Wine
});

wines = new Wines([
  {winery : "Robert Mondovi"},
  {winery : "CakeBread"}
]);
```

COLLECTION

```
Wine = Backbone.Model.extend();

Wines = Backbone.Collection.extend({
  model: Wine
});

wines = new Wines([
  {winery : "Robert Mondovi"},
  {winery : "CakeBread"}
]);

wines.each( function(model) {
   console.log(model.get('winery'));
});
```

COLLECTION

```
Wine = Backbone.Model.extend();

Wines = Backbone.Collection.extend({
  model: Wine,
});

wines = new Wines([
  {winery : "Robert Mondovi"},
  {winery : "CakeBread"}
]);

wines.each( function(model) {
   console.log(model.toJSON());
});
```

VIEW

HANDS ON

03-home-view

VIEW

```
HomeView = Backbone.View.extend({});
```

VIEW

```
HomeView = Backbone.View.extend({

  render: function() {
    this.$el.append("<h1>Wine Cellar</h1>");
    return this;
  }
});
```

VIEW

```
HomeView = Backbone.View.extend({

  initialize: function() {
      this.render();
  },

  render: function() {

    this.$el.append("<h1>Wine Cellar</h1>");
    return this;
  }
});
```

VIEW

```
HomeView = Backbone.View.extend({

  initialize: function() {
      this.render();
  },

  render: function() {

    this.$el.append("<h1>Wine Cellar</h1>");
    return this;
  }
});

$(document).ready(function() {
    view = new HomeView();
    $('body').append(view.el);
});
```

VIEW

```
HomeView = Backbone.View.extend({

  initialize: function() {
      this.render();
  },

  render: function() {

    this.$el.append("<h1>Wine Cellar</h1>");
    return this;
  }
});
```

VIEW

```
HomeView = Backbone.View.extend({

  initialize: function() {
      this.render();
  },

  render: function() {
    this.$el.empty();
    this.$el.append("<h1>Wine Cellar</h1>");
    return this;
  }
});
```

HANDS ON

04-list-view

VIEW

```
ListView = Backbone.View.extend({
  tagName: 'ul',

  render: function() {
    this.$el.empty();
    this.$el.append("<li>Wine 1</li>");
    this.$el.append("<li>Wine 2</li>");

    return this;
  }
});
```

VIEW

```
HomeView = Backbone.View.extend({

  initialize: function() {
      this.render();
  },

  render: function() {
    this.empty();
    this.$el.append("<h1>Wine Cellar</h1>");

    this.listView = new ListView();
    this.$el.append(this.listView.render().el);

    return this;
  }
});
```

TEMPLATES

HANDS ON

05-basic-template

TEMPLATE

```
<script type="text/template" id="listTemplate">
    <li><%= winery %></li>
</script>
```

TEMPLATE

```
<script type="text/template" id="listTemplate">
    <li><%= winery %></li>
</script>

ListView = Backbone.View.extend({
  tagName: 'ul',

  initialize: function() {
    this.template = _.template($('#listTemplate').html());
    this.render();
  },

  render: function() {
      ...
      this.$el.append(this.template({winery : "Cakebread"}));

      return this;
    }
});
```

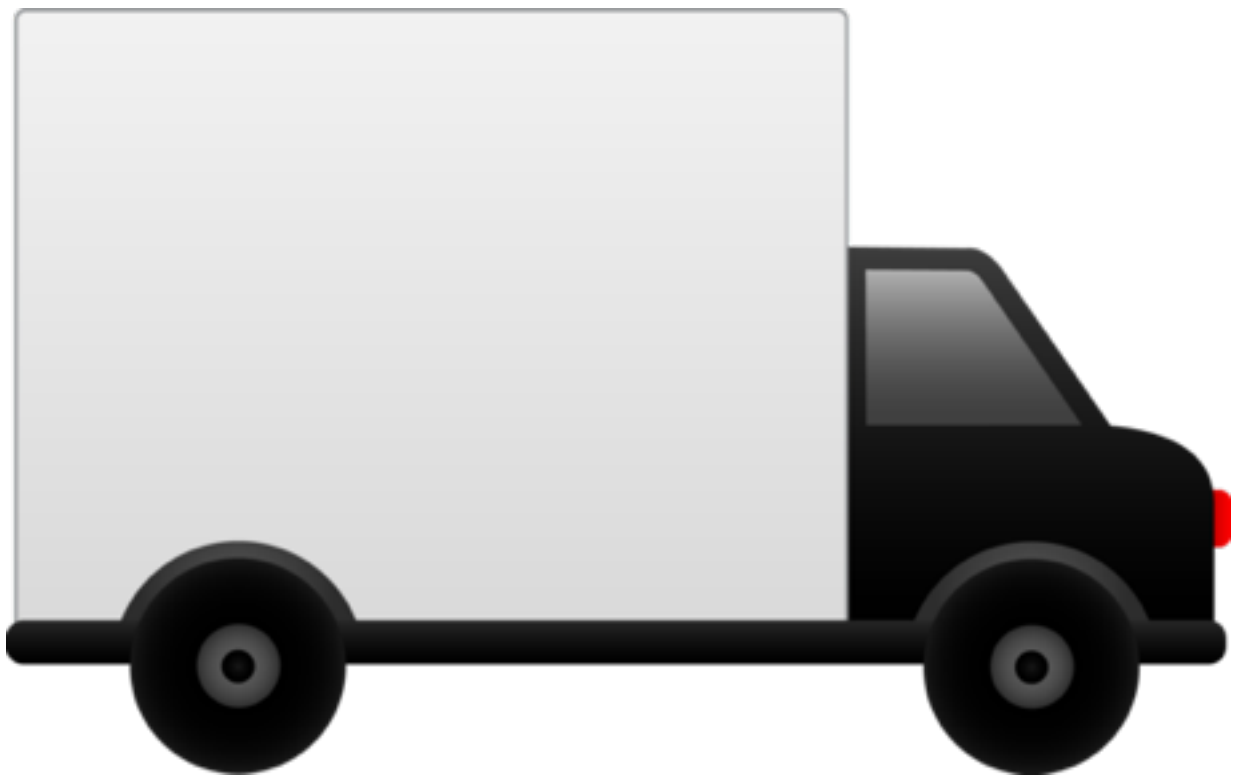
HANDS ON

06-collection-template

TEMPLATE

```
ListView = Backbone.View.extend({
  initialize: function() {
    this.template = _.template($('#listTemplate').html());
    this.listenTo(wines, "all", this.render);
    this.render();
  },

  render: function() {
    var self = this;

    this.$el.empty();

    wines.each(function(model){
      self.$el.append(self.template( model.toJSON() ));
    });

    return this;
  }
});
```

ROUTER



ROUTER

HANDS ON

07-basic-router

ROUTER

```
AppRouter = Backbone.Router.extend({
  routes:{
    "":"home",
    "add":"add"
  },

  home:function () {
    new HomeView();
  },
  add:function () {
    new AddView();
  }
});
```

ROUTER

```
var app = (function($){

  ...

  var initialize = function() {
    wineApp = new AppRouter();
    Backbone.history.start();
  }

  return { initialize : initialize }

}(jQuery));


$(document).ready(function () {
    app.initialize();
});
```

HANDS ON

10-adv-router

ROUTER

```
var initialize = function() {
  var wines = new Wines();

  wineApp = new AppRouter({collection : wines});
  Backbone.history.start();
}
```

ROUTER

```
AppRouter = Backbone.Router.extend({
  routes:{
    "":"home",
    "add":"add"
  },

  initialize:function(options) {
    this.collection = options.collection;
  },

  home:function () {
    new HomeView({collection:this.collection});
  },
  add:function () {
    new AddView({collection:this.collection});
  }
});
```

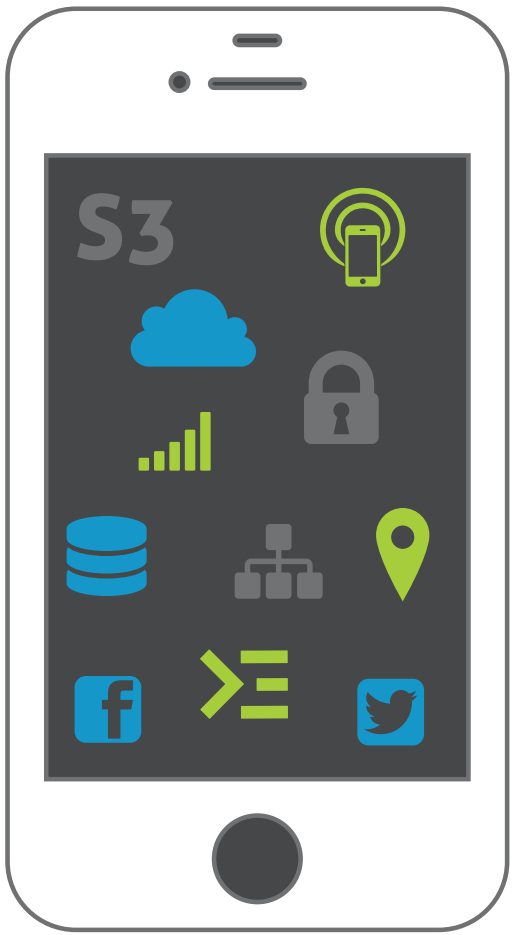
HANDS ON

9-events

EVENTS

```
AddView = Backbone.View.extend({

  events: {
    "click #addBtn": "add",
    ...
  },

  ...

  add: function(e) {
    // do something...

    return this;
  }
});
```

StackMob


S3

Amazon S3

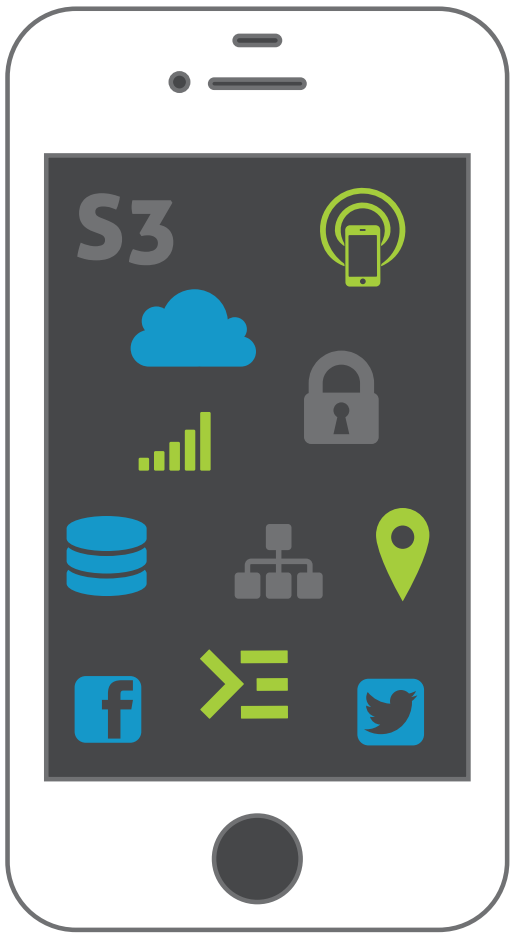
Datastore

Analytics

Load Balancing

Facebook

Access Controls



User Authentication

Push Notifications

Versioning

Geo Queries

Collaboration

Twitter

Custom Code

and talk to **any** API

and talk to **any** API

Easy to use SDKs

Easy to use SDKs

HTML

HTML

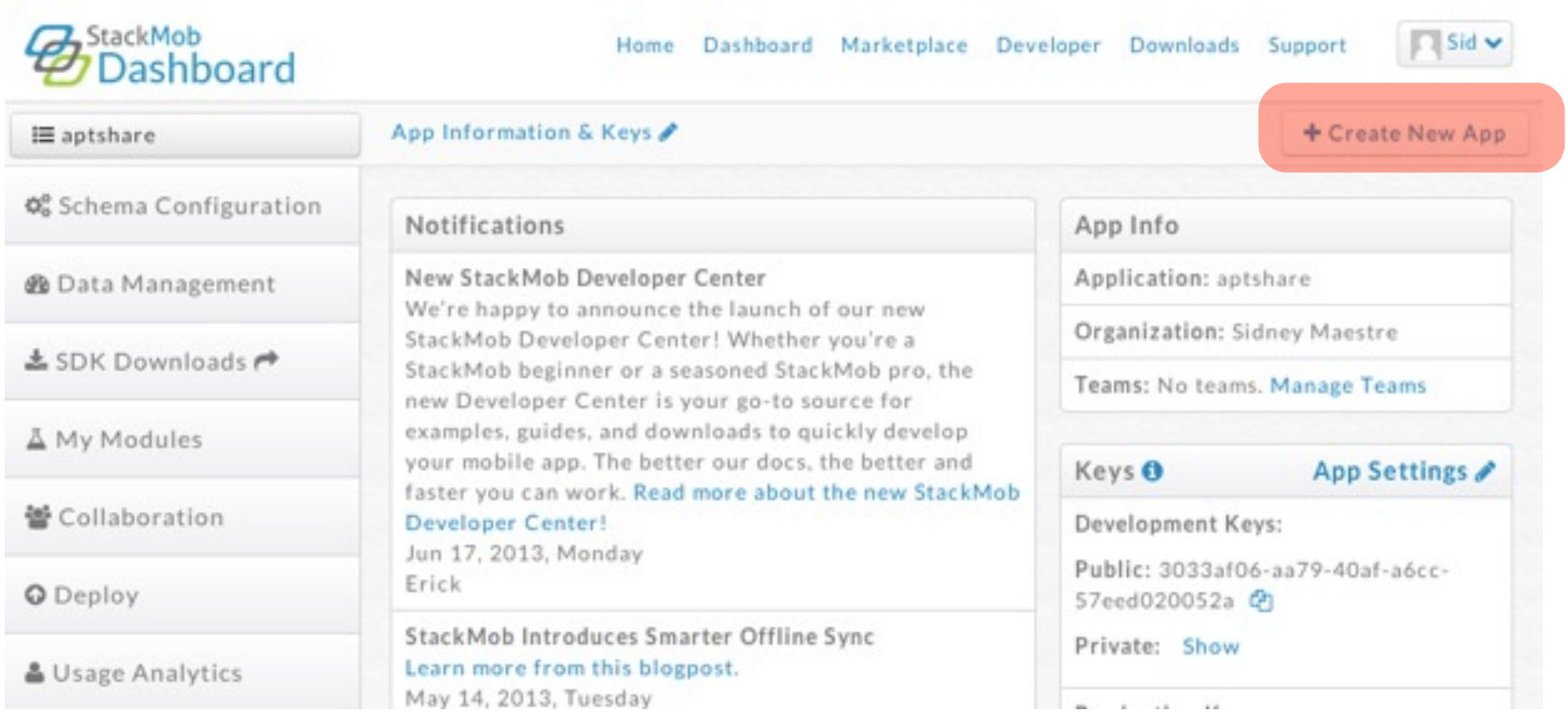
HANDS ON

stackmob-init.js

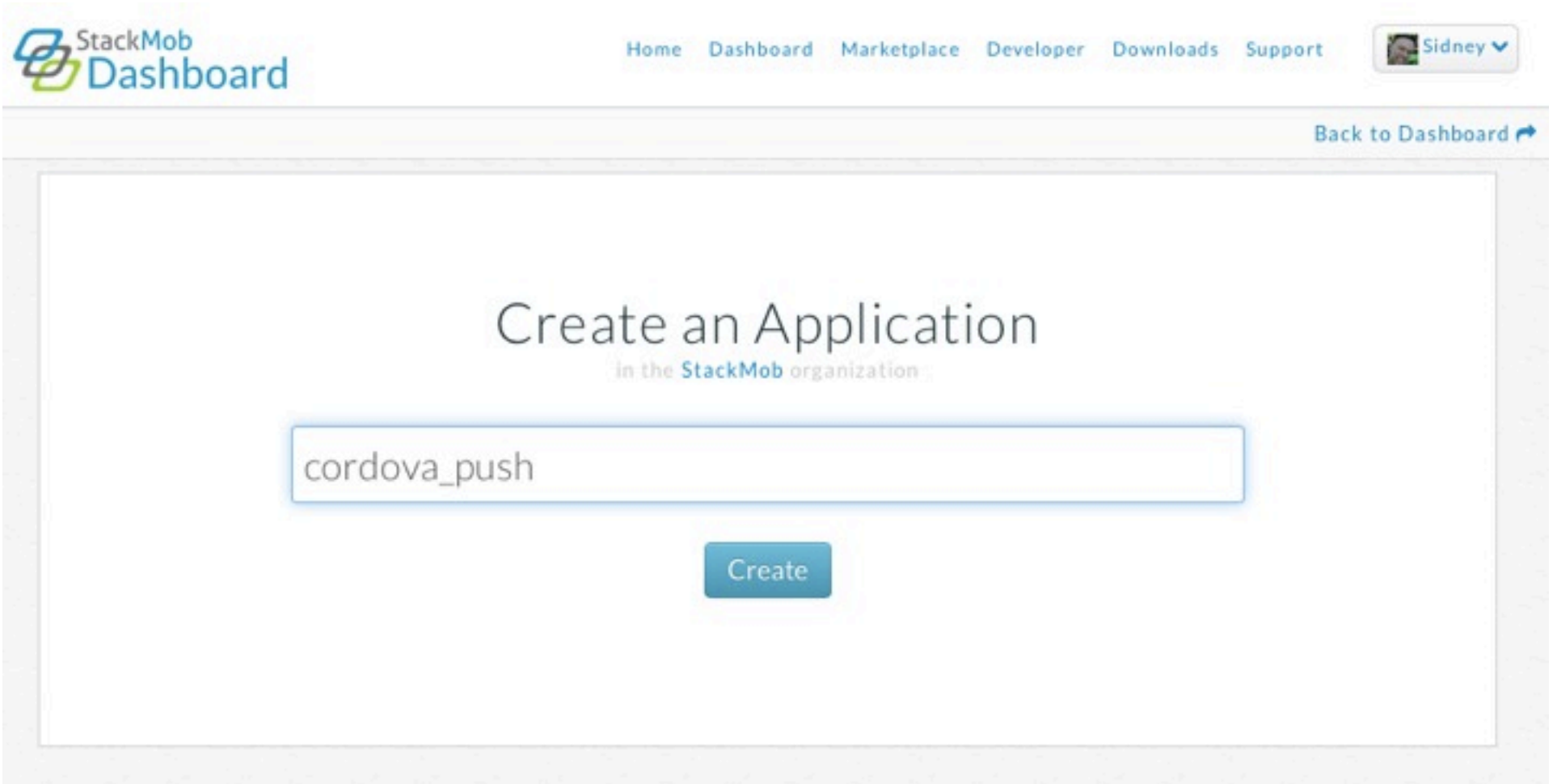
INIT

```
StackMob.init({
    publicKey: "814004dd-a72a-4425-9d2e-63d21d76588e",
    apiVersion: 0
});
```

DASHBOARD


StackMob Dashboard
Home
Dashboard
Marketplace
Developer
Downloads
Support
Sid
aptshare
App Information & Keys
+ Create New App
Schema Configuration
Data Management
SDK Downloads
My Modules
Collaboration
Deploy
Usage Analytics
Notifications
New StackMob Developer Center
We're happy to announce the launch of our new StackMob Developer Center! Whether you're a StackMob beginner or a seasoned StackMob pro, the new Developer Center is your go-to source for examples, guides, and downloads to quickly develop your mobile app. The better our docs, the better and faster you can work. Read more about the new StackMob Developer Center!
Jun 17, 2013, Monday
Erick
StackMob Introduces Smarter Offline Sync
Learn more from this blogpost.
May 14, 2013, Tuesday
App Info
Application: aptshare
Organization: Sidney Maestre
Teams: No teams. Manage Teams
Keys
App Settings
Development Keys:
Public: 3033af06-aa79-40af-a6cc-57eed020052a
Private: Show

CREATE APP


StackMob Dashboard
Home
Dashboard
Marketplace
Developer
Downloads
Support
Sidney
Back to Dashboard
Create an Application
in the StackMob organization
cordova_push
Create

COPY

Choose a Project Type

Use our Starter Project | Use Your Own Existing Project

Set up Starter Project

1. Download JavaScript Starter Project v0.9.2
2. Edit `app.js` and add your public key to the `StackMob.init(..)` block:

Showing information for app: cordova_push

```
StackMob.init({
    publicKey: "f7dbe38c-7400-40cf-a2c1-d51c360333e7",
    apiVersion: 0
});
```

HANDS ON

10-stackmob.html

STACKMOB SDK

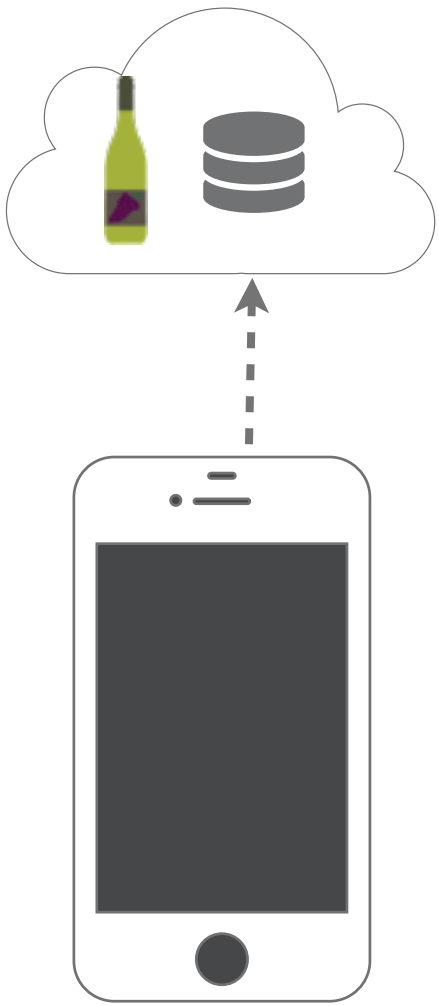
```
stackmob-js-0.9.2-min.js"
stackmob-init.js
```

STACKMOB

```
var Wine = StackMob.Model.extend({
  schemaName: "wine"
});

var Wines = StackMob.Collection.extend({
  model: Wine
});
```

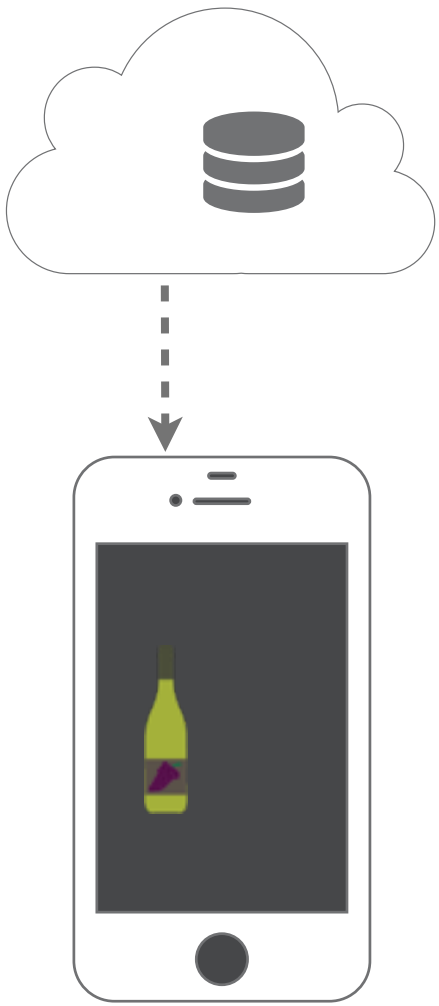
FETCH

```
var Wine = StackMob.Model.extend({
  schemaName: "wine"
});

var Wines = StackMob.Collection.extend({
  model: Wine
});

var wines = new Wines();

wines.fetch({async: true});
```



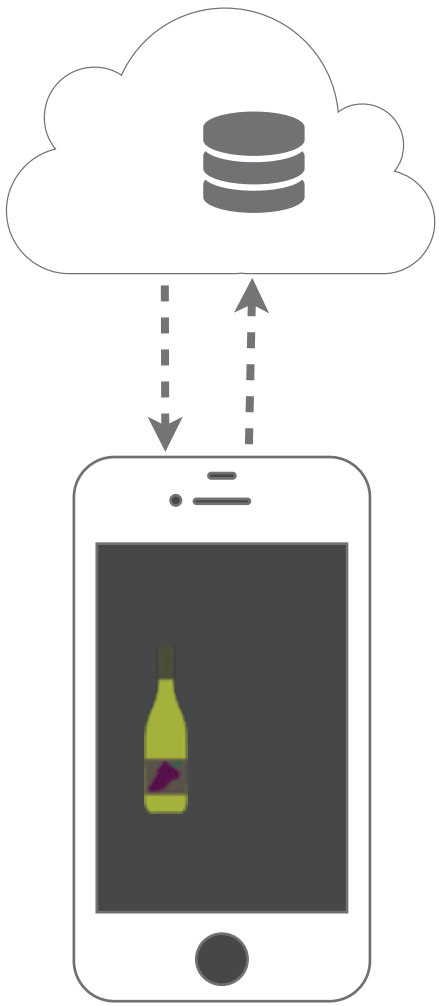
FETCH

```
var Wine = StackMob.Model.extend({
  schemaName: "wine"
});

var Wines = StackMob.Collection.extend({
  model: Wine
});

var wines = new Wines();

wines.fetch({async: true});
```



CREATE

```
var Wine = StackMob.Model.extend({
  schemaName: "wine"
});

var Wines = StackMob.Collection.extend({
  model: Wine
});

var wines = new Wines();

wines.fetch({async: true});

var wine = new Wine({name:‘Robert Mondavi});

wine.create({
    success: function(model){
      wines.add(model);
    }
});
```



HANDS ON

11-update

TEMPLATE

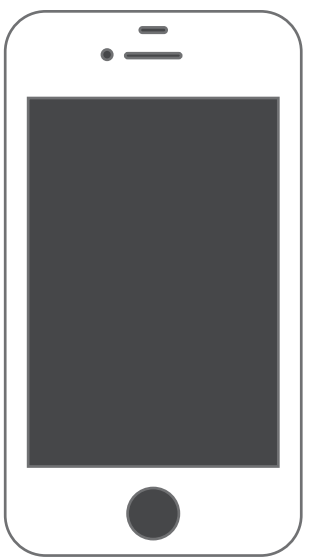
```
<script type="text/template" id="listTemplate">
  <li><a href="#update/<%= wine_id %>"><%= winery %></a></li>
</script>
```

ROUTER

```
AppRouter = Backbone.Router.extend({
  routes:{
    "":"home",
    "add":"add",
    "update/:id":"update"
  },

  ...

  update:function(e) {
    model = this.collection.get(e);
    new UpdateView({model: model});
  }
});
```

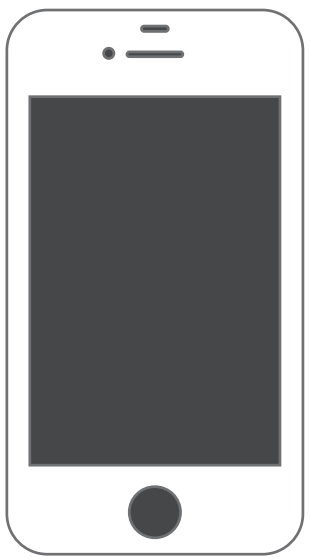
VIEW

```
var UpdateView = Backbone.View.extend({
    ...
  initialize: function() {
    this.model = this.options.model;
  },

  save: function(e) {
    this.model.save({winery:$('#winery').val()}, {
      success: function(model) {

      }
    });

    return this;
  }
});
```



VIEW

```
var UpdateView = Backbone.View.extend({
    ...
  initialize: function() {
    this.model = this.options.model;
  },

  save: function(e) {
    this.model.save({winery:$('#winery').val()}, {
      success: function(model) {

      }
    });

    return this;
  }
});
```

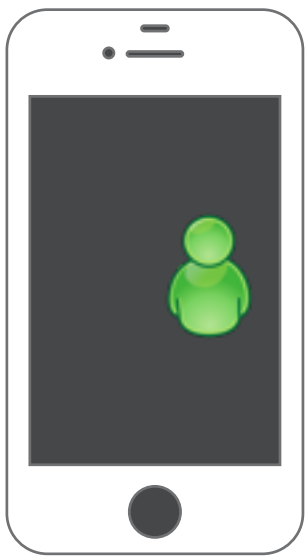


HANDS ON

12-user

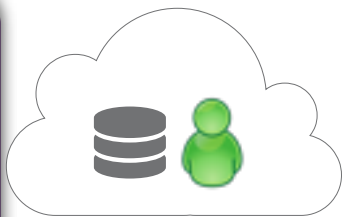
SIGNUP

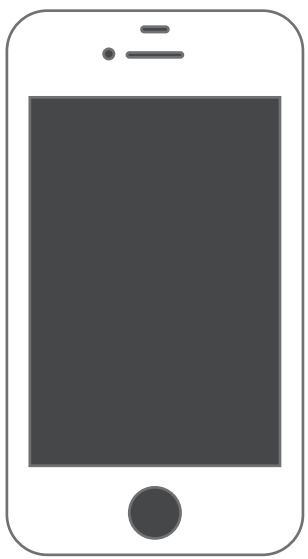
```
signup:function (e) {
  e.preventDefault();

  var username = $("#signUpForm input.username").val();
  var pw = $("#signUpForm input.password").val();

  var user = new StackMob.User({ username: username,
                                 password:  pw });

  return this;
}
```



SIGNUP

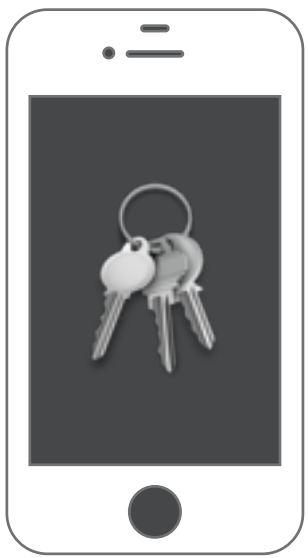
```
signup:function (e) {
  e.preventDefault();

  var username = $("#signUpForm input.username").val();
  var pw = $("#signUpForm input.password").val();

  var user = new StackMob.User({ username: username,
                                 password:  pw });

  user.create({
    success: function(data) {
      console.log(data.toJSON());
    },
    error: function(error) {
      console.log(error);
    }
  });

  return this;
}
```





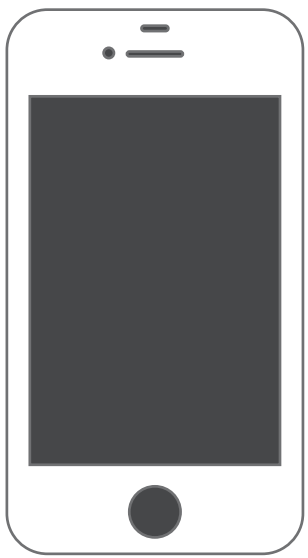
LOGIN

```
login:function (e) {
  e.preventDefault();

  var username = $("#signUpForm input.username").val();
  var pw = $("#signUpForm input.password").val();

  var user = new StackMob.User({ username: username,
                                 password:  pw });

  return this;
}
```



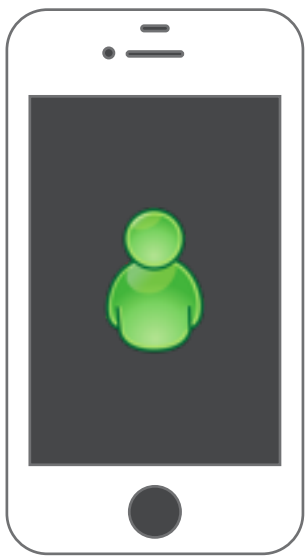
LOGIN

```
login:function (e) {
  e.preventDefault();

  var username = $("#signUpForm input.username").val();
  var pw = $("#signUpForm input.password").val();

  var user = new StackMob.User({ username: username,
                                 password:  pw });

  user.login(true,{
    success: function(data) {
      console.log(data);
    },
    error: function(error) {
      console.log(error);
    }
  });

  return this;
}
```



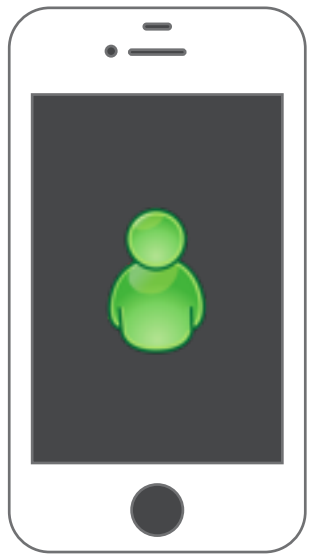
LOGIN

```
login:function (e) {
  e.preventDefault();

  var username = $("#signUpForm input.username").val();
  var pw = $("#signUpForm input.password").val();

  var user = new StackMob.User({ username: username,
                                 password:  pw });

  user.login(true,{
    success: function(data) {
      console.log(data);
    },
    error: function(error) {
      console.log(error);
    }
  });

  return this;
}
```



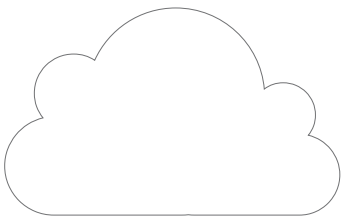
STATUS

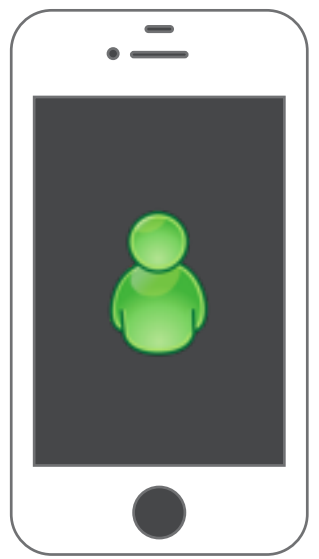
```
status:function (e) {
  e.preventDefault();

  console.log(StackMob.isLoggedIn());

  return this;
}
```



LOGOUT

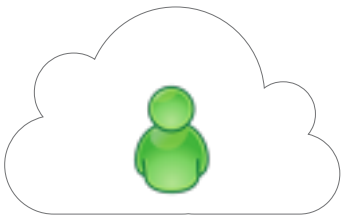
```
logout:function (e) {
  e.preventDefault();

  var user = new StackMob.User();

  return this;
}
```

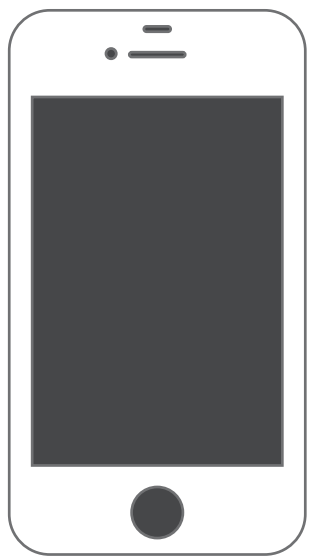




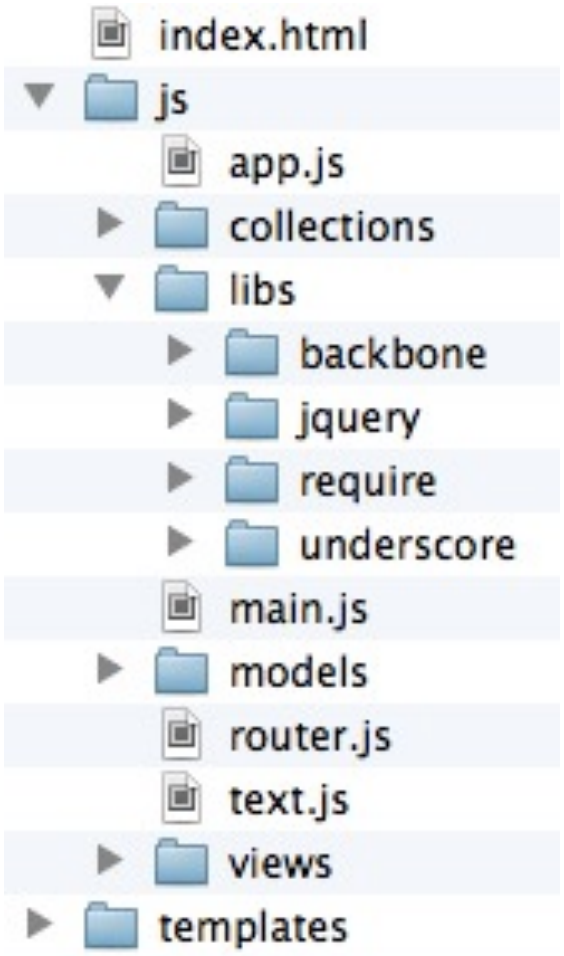
LOGOUT

```
logout:function (e) {
  e.preventDefault();

  var user = new StackMob.User();
  user.logout({
    success: function() {
      console.log("logout success");
    },
    error: function(error) {
      console.log(error);
    }
  });

  return this;
}
```



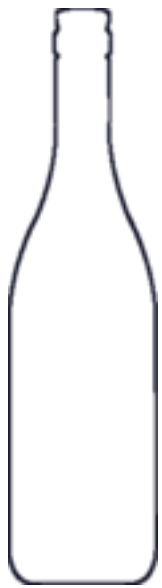


STRUCTURE


index.html
js
app.js
collections
libs
backbone
jquery
require
underscore
main.js
models
router.js
text.js
views
templates

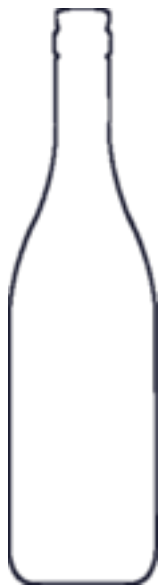
MODEL

```
Wine = Backbone.Model.extend();
```



MODEL

```
define([
  'backbone'
], function(Backbone) {

  var WineModel = Backbone.Model.extend();

  return WineModel;

});
```

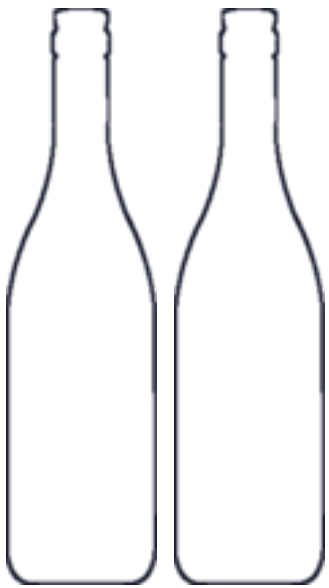


COLLECTION

```
Wine = Backbone.Model.extend();

Wines = Backbone.Collection.extend({
  model: Wine
});
```

COLLECTION

```
define([
  'backbone',
  'models/wine/Model'
], function(Backbone,Model){

  var WineCollection = Backbone.Collection.extend({
    model: Model
  });

  return WineCollection;
});
```



VIEW

```
ListView = Backbone.View.extend({
  ...
  render: function() {
    var         el = this.$el,
        template = this.template;

    el.empty();

    wines.each(function(wine){
      el.append(template( wine.toJSON() ));
    });

    return this;
  }
});
```

VIEW

```
define([
  'jquery',
  'underscore',
  'backbone',
  'text!templates/wine/WineListTemplate.html'
], function($, _, Backbone,WineListTemplate){

  var WineListView = Backbone.View.extend({

     ...

  });

  return WineListView;
});
```

HANDS ON

require

BOOTSTRAP

```
<script data-main="js/main" src="js/libs/require/require.js"></script>
```

MAIN.JS

```
require.config({
  baseUrl: "/js/",
  paths: {
    jquery: 'libs/jquery/jquery-1.8.2',
    underscore: 'libs/underscore/underscore-1.4.4',
    backbone: 'libs/backbone/backbone-1.0.0',
    templates: '../templates',
    app: 'app'
  },

  shim: {
    underscore: {
      exports: '_'
    },
    backbone: {
      deps: ["underscore", "jquery"],
      exports: "Backbone"
    }
  }
});
```

MAIN.JS

```
require(['jquery','app'], function( $, App ){

    $(function(){
      App.initialize();
    });

});
```

APP.JS

```
define([
  'router'
], function(Router){

  var initialize = function() {
    Router.initialize();
  };

  return {
    initialize: initialize
  };
});
```

ROUTER

```
define([
  'jquery',
  'underscore',
  'backbone',
  'views/home/HomeView',
  'views/wine/AddView',
  'collections/wine/WineCollection'
], function($, _,Backbone, HomeView, AddView, UpdateView, Wines) {
  ...

  var initialize = function(){
    var wines = new Wines();
    var app_router = new AppRouter({collection: wines});

    Backbone.history.start();
  };
  return {
    initialize: initialize
  };
});
```

ROUTER

```
AppRouter = Backbone.Router.extend({
  initialize: function(options) {
      this.collection = options.collection;
  },

  routes:{
        "":"home",
        "add":"add"
  },

  home:function () {
     this.changePage( new HomeView({collection : this.collection}) );
  },

  add:function () {
    this.changePage( new AddView({collection : this.collection, router : this})
  },

});
```

R.JS

BUILD.JS

```
({
    appDir: "../",
    baseUrl: "js",
    dir: "../../appdirectory-build",
    paths: {
      ...
    },

    shim: {
       ...
    },
    modules: [
        {
            name: "main"
        }
    ]
})
```

BUILD

```
node r.js -o build.js optimize=none
```

347k

OPTIMIZE

```
node r.js -o build.js
```

134k

Resources

bit.ly/freebackbonejs

github.com/SidneyAllen

developer.stackmob.com

Q&A