JavaScript

- Created by Brendan Eich
  - Netscape, now Chief Technology Officer at Mozilla Corporation
- Formalized as ECMAScript (ECMA-262)
  - Dates back to the battles Netscape (JavaScript) vs Microsoft (JScript)
- Multiparadigm Language
  - Functional
  - Object Oriented
  - Imperative
- Prototype-based
- Originally intended for client side, but now increasingly popular on server-side

Agenda

- https://docs.google.com/document/d/1517aC0-wFxxXSREusscwRuTGDEHTr6mrJqtfkoOhNcM/edit

Online Editing

- JsFiddle
  - Recursive AngularJS Views: http://jsfiddle.net/eu81273/8LWUc/18/
- Plunkr
  - Service vs Factory vs Provider
    http://plnkr.co/edit/UDzRruJGVAHBkovf0OPT?p=preview
- http://nitrous.io/
  - Online Dev-Box (virtual machines with a web console)

Best Practices

- Warning highly subjective – constructive feedback welcome :)

Best Practices: Design and Refactoring

- Think in OOP!
  - Flexibility does not replace good software engineering.
  - OOP is actually restricting oneself to a well understood subset of possibilities
- Use a class framework
  - Prototypal inheritance is just cumbersome to write from scratch
- Getter and Setters?
  - I like them: Undefined function already on access
- Unless you are using JetBrain's Webstorm, think twice or thrice when designing an API
  - Avoid refactoring as much as possible
  - Refactoring in JavaScript sucks

Best Practices: Functions

- Functions
  - There is 2 ways to declare a function:
    - function myFunc() { … }
      - Run time
    - var myFunc = { … }
      - Parse time
  - Detailed Differences:
    - http://stackoverflow.com/questions/336859/var-functionname-function-vs-function-functionname
  - See also:
    - http://www.adequatelygood.com/JavaScript-Scoping-and-Hoisting.html

Best Practices: Classes/Prototypes

- http://www.phpied.com/3-ways-to-define-a-javascript-class/
- There is prototypal inheritance, but ...
- Use a framework
  - I use http://prototypejs.org/, maybe there is a more popular one?

Best Practices: Namespaces

- Don't use a Namespace object
- Use requirejs

Best Practices: Arrays

- Never change the prototype
  - array.last
- Assume that someone else changed or might change the prototype of basic objects
  - Array.last: http://jsfiddle.net/L2UNg/
- Conclusion: Use http://underscorejs.org/ for dealing with objects and collections.
  - DON'T do it yourself, you are reinventing the wheel.

Best Practices: JSHint

- JavaScript code quality tool to detect potential errors and problems

- Fork from Douglas Crockford's JSLint
  - More configuration options to make it less hostile to your code :)

- http://www.jshint.com/docs/options/
- http://www.jshint.com/docs/cli/

- sudo npm -g install jshint

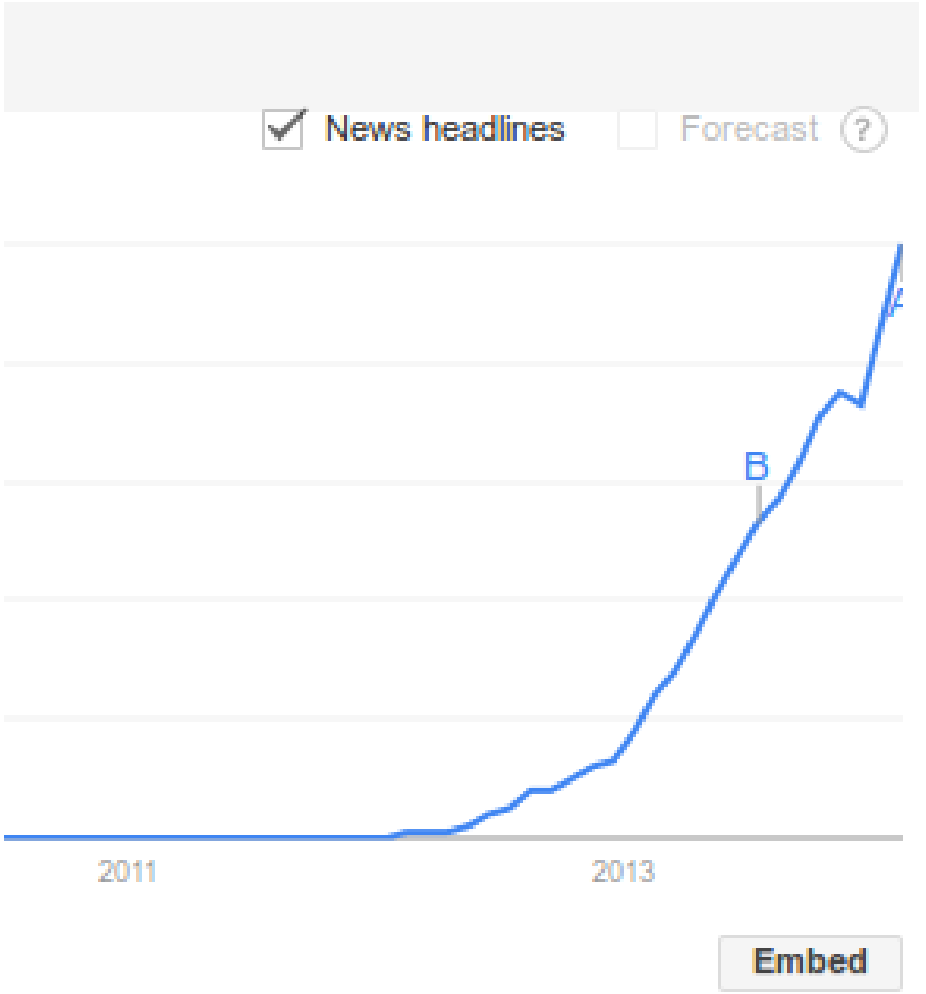
- Put 'use strict' in your functions / modules

AngularJs

http://angularjs.org/

AngularJs: Trend

- http://www.google.com/trends/explore#q=angularjs



Overview

- Features
- Creating a Directive

Hello World in AngularJS

- Bad Example
  - http://jsfiddle.net/zYHYS/
  - Even official docs use(d?) this style, but it promotes bad style
- Good Example
  - http://jsfiddle.net/fG9Pc/1/

Key Features

- Module System
  - angular.module(...)
- Dependency Injection
  - Angular.controller('MyCtrl', ['$scope', function($scope) { … }])

  Two Way Model-View Binding
- Custom Directives
  - <my-cool-widget></my-cool-widget>
- MVC
  - No “Model” class! Cost of “dirty checking”

Scope

- scope is an object that refers to the application model.
  - The scope references the model; the scope is NOT the model!
    - https://github.com/angular/angular.js/wiki/Understanding-Scopes
- It is an execution context for expressions.
- Scopes are arranged in hierarchical structure which mimic the DOM structure of the application.
- Scopes can watch expressions and propagate events.

- Source: http://docs.angularjs.org/guide/scope

Two Way Binding

- http://jsfiddle.net/zYHYS/1/

Custom Directives

- http://jsfiddle.net/CE9fa/1/

Angular @ Runtime

- $compile takes a String and returns a template function