MVC

MV\*

MVW

MV Whatever

Angular

Traditional concept of a controller doesn’t exist

React is often called the V in MVC, but actually it’s more like VC

Controller view

React views that handle data concerns and compose other dumb components together

Has child components under it

Promote reuse and separation of concerns

2-way bindings

Knockout, angular, ember

Eliminates boilerplate

But introduces risk of cascading updates, making the flows difficult to reason about and debug

Can be difficult to determine the source of an update.

Contrasts with ReactJS pattern of unidirectional data flows

JSX

Optional markup syntax used by ReactJs

It’s not HTML, but similar

Compiles down to JS, similar to LESS compiling down to CSS

Very readable

Supports matching tags, indenting, etc.

Separation of concerns?

Angular, Knockout and Ember actually put JS in your HTML, so they’re doing the opposite of what React is doing.

They’re all using a DSL embedded in your HTML

JS is actually a full featured programming language, hence provides a more robust framework in which to manipulate your markup.

Since JS and HTML don’t support a binding similar to Java and compiled language, it makes sense to keep them closer together.

HTML doesn’t support good debugging of where typos in html occur, since it’s either very liberal in accepting stuff, or just plain fails.

Fail fast, fail loudly

JSX editors

Sublime - JSX plugin

Github Atom

Jetbrains Webstorm

Adobe brackets

Virtual DOM

Compare current and discard

It’s more efficient to only change what’s changed as opposed to everything

2-way binding

When data changes, UI is redrawn

No virtual DOM

They blindly update DOM whenever state changes

Abstraction over the DOM

When state changes, React compares the current state to what it should look like, then calculates the least expensive way to update the DOM.

Avoids layout thrashing

Saves processing and battery life

Other UI component frames have started introducing similar (angular, ember) to avoid needing to redraw entire containers when a child changes.

Angular - track by feature

Ember - glimmer rendering engine

React provides hooks to manually control rendering updates

shouldComponentUpdate method

Can tell React not to update a component even when data changes

Immutable components

PureRenderMixin + immutability

When a component needs to change, a new copy is simply created

Allows React to perform reference comparisons

Synthetic events

Allow React to abstract away native browser events quirks

Allow React to optimize attaching event handlers behind the scenes

For example, if you attach event handlers to every row in a table, react will actually move the handlers further up, for efficiency

Isomorphic support

Render on server where there’s no DOM

React Native

Can be used in native apps

Terms

Layout thrashing

When browser must recalculate tons of stuff in response to a single item being changed.