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October 10th, 2020
Cleaner SPFx Code with Functional Components and React Hooks
by Bill Ayers

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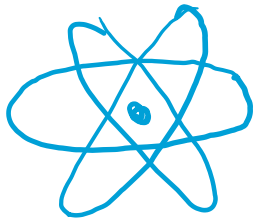
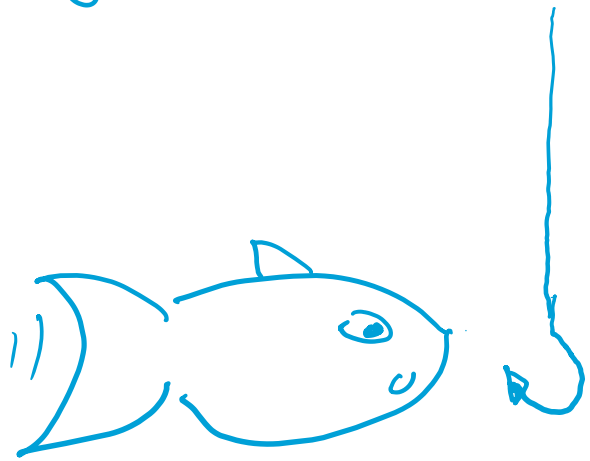
Agenda

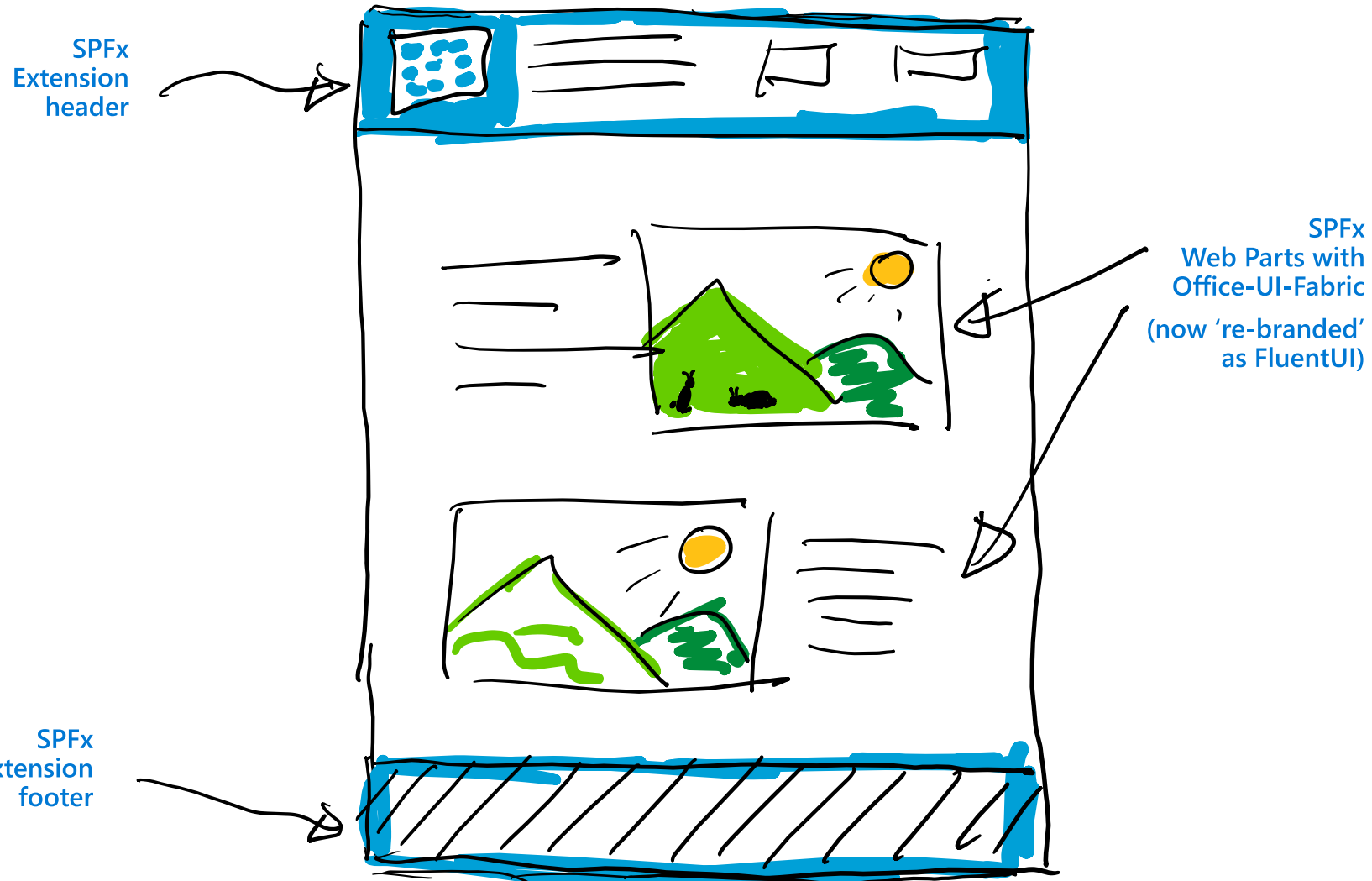
- What is the SharePoint Framework?
- Why ReactJS?
- Functional Components
- Adding state with React Hooks
- Adding special ‘effects’
- Conclusions





What is the SharePoint Framework?

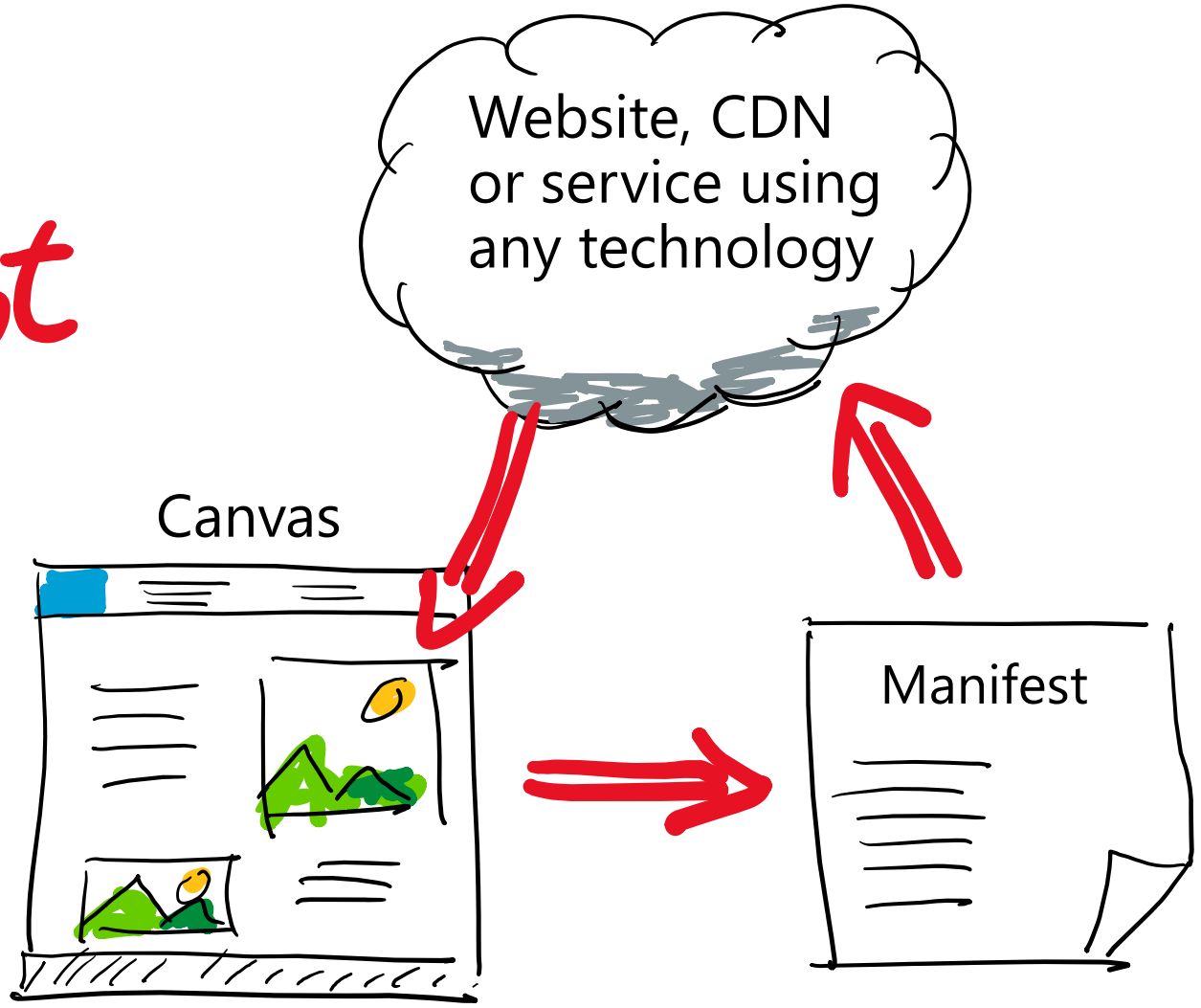
- An application framework used to build and extend modern experiences in SharePoint.



Canvases and Manifests

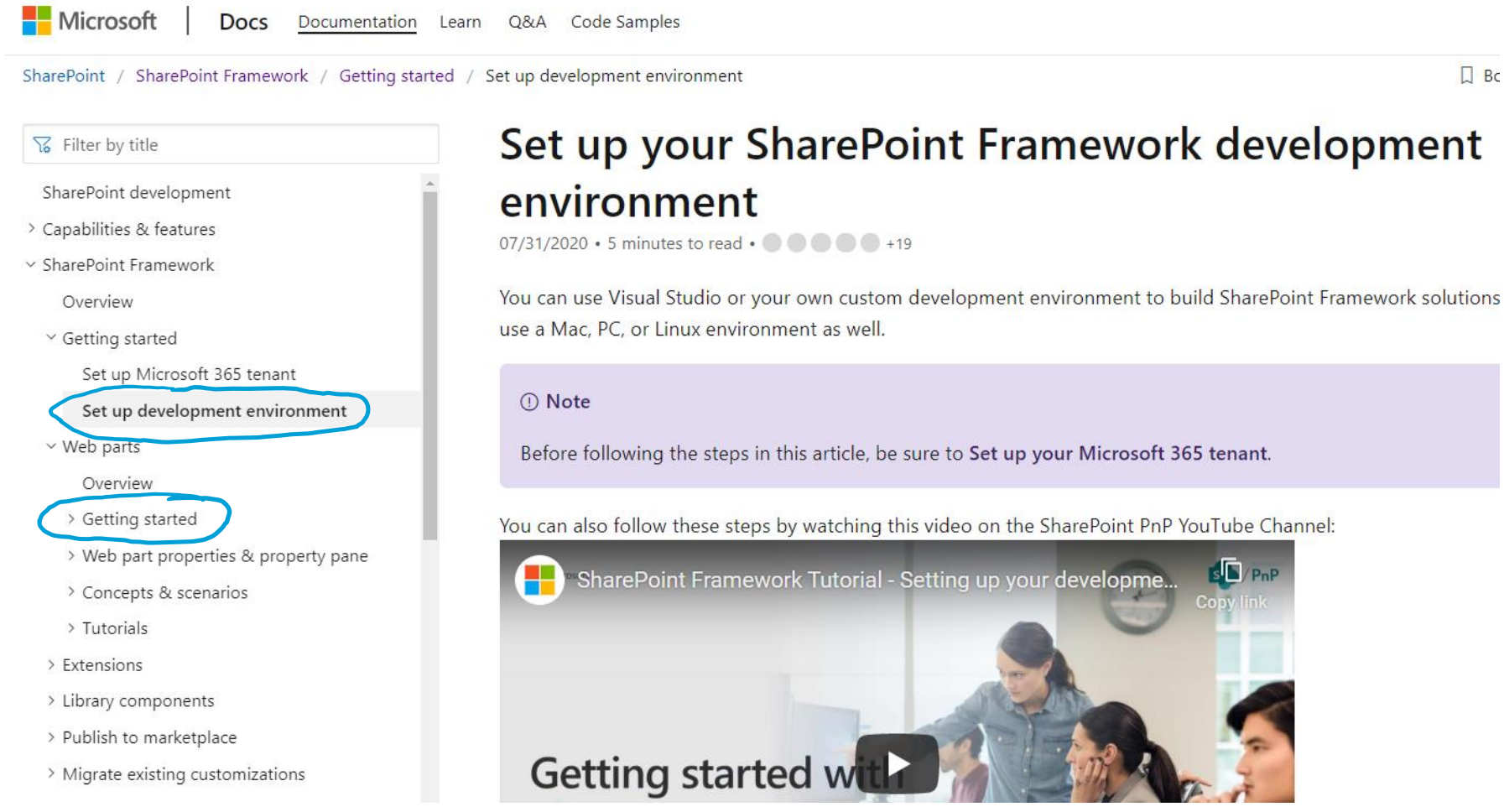
- Manifest file
- Web site or service
- ~~Cross-platform~~ JavaScript

Documents
Conversations
Pages



Getting Started

https://docs.microsoft.com/en-us/sharepoint/dev/spfx/



Why ReactJS?

```
? Which framework would you like to use?
  No JavaScript framework
> React
  Knockout
```

- Component model
- Super efficient virtual DOM
- Use Office-UI-Fabric (or whatever it's called now)
- Funky syntax

A reminder of the generated SPFx web part for React

https://developer.microsoft.com/fluentui

Why Functional Components?

```
function MyComponent(props) {
  return <h1>Hello, {props.name}!</h1>;
}
```

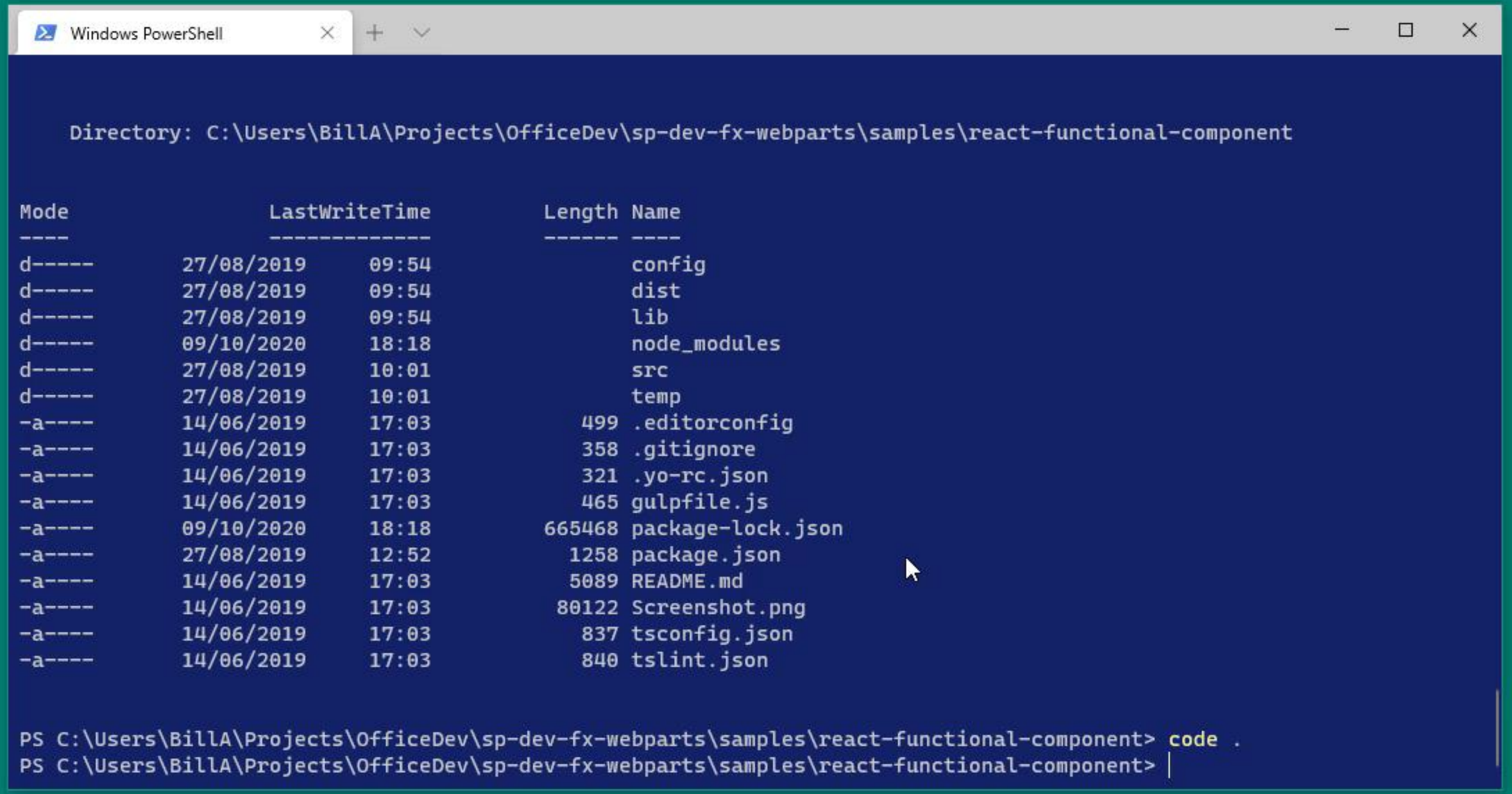
- Clean and Simple
- No *this*, *that* and the other
- No lifecycle methods like constructors, componentDidMount etc. etc.
- Functional programming kudos
- Trivially easy to test
- Been part of ReactJS for a while

Prerequisites

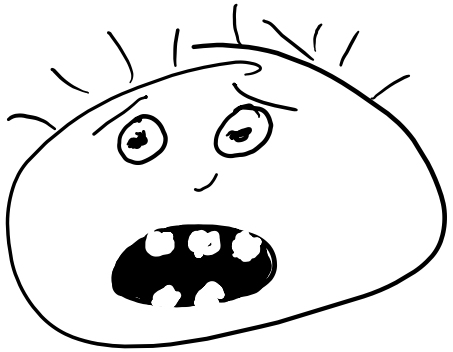
- Version 16.8 of React or later
- Included from Version 1.9.1 of the SharePoint Framework

Making an SPFx web part with a functional component

https://github.com/pnp/sp-dev-fx-webparts/tree/master/samples/react-functional-component


Windows PowerShell
Directory: C:\Users\BillA\Projects\OfficeDev\sp-dev-fx-webparts\samples\react-functional-component
Mode LastWriteTime Length Name
d----- 27/08/2019 09:54 config
d----- 27/08/2019 09:54 dist
d----- 27/08/2019 09:54 lib
d----- 09/10/2020 18:18 node_modules
d----- 27/08/2019 10:01 src
d----- 27/08/2019 10:01 temp
-a---- 14/06/2019 17:03 499 .editorconfig
-a---- 14/06/2019 17:03 358 .gitignore
-a---- 14/06/2019 17:03 321 .yo-rc.json
-a---- 14/06/2019 17:03 465 gulpfile.js
-a---- 09/10/2020 18:18 665468 package-lock.json
-a---- 27/08/2019 12:52 1258 package.json
-a---- 14/06/2019 17:03 5089 README.md
-a---- 14/06/2019 17:03 80122 Screenshot.png
-a---- 14/06/2019 17:03 837 tsconfig.json
-a---- 14/06/2019 17:03 840 tslint.json
PS C:\Users\BillA\Projects\OfficeDev\sp-dev-fx-webparts\samples\react-functional-component> code .
PS C:\Users\BillA\Projects\OfficeDev\sp-dev-fx-webparts\samples\react-functional-component>

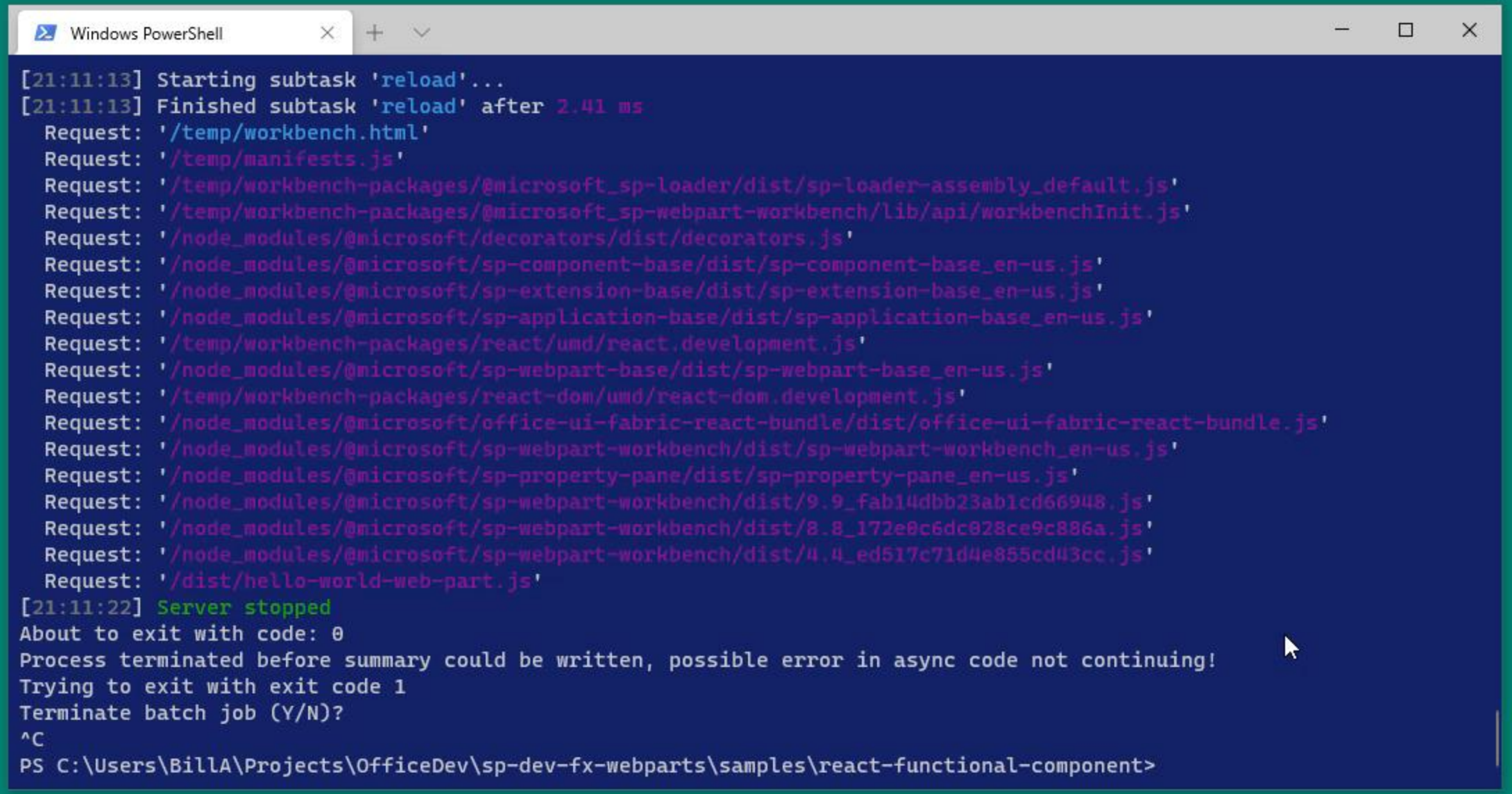
Don’t get in a state over State!



```
const [value, setValue] = React.useState(parseInt(props.initialValue));
```

Making an SPFx web part with a functional component with state

https://github.com/pnp/sp-dev-fx-webparts/tree/master/samples/react-functional-stateful-component


Windows PowerShell
[21:11:13] Starting subtask 'reload'...
[21:11:13] Finished subtask 'reload' after 2.41 ms
Request: '/temp/workbench.html'
Request: '/temp/manifests.js'
Request: '/temp/workbench-packages/@microsoft_sp-loader/dist/sp-loader-assembly_default.js'
Request: '/temp/workbench-packages/@microsoft_sp-webpart-workbench/lib/api/workbenchInit.js'
Request: '/node_modules/@microsoft/decorators/dist/decorators.js'
Request: '/node_modules/@microsoft/sp-component-base/dist/sp-component-base_en-us.js'
Request: '/node_modules/@microsoft/sp-extension-base/dist/sp-extension-base_en-us.js'
Request: '/node_modules/@microsoft/sp-application-base/dist/sp-application-base_en-us.js'
Request: '/temp/workbench-packages/react/umd/react.development.js'
Request: '/node_modules/@microsoft/sp-webpart-base/dist/sp-webpart-base_en-us.js'
Request: '/temp/workbench-packages/react-dom/umd/react-dom.development.js'
Request: '/node_modules/@microsoft/office-ui-fabric-react-bundle/dist/office-ui-fabric-react-bundle.js'
Request: '/node_modules/@microsoft/sp-webpart-workbench/dist/sp-webpart-workbench_en-us.js'
Request: '/node_modules/@microsoft/sp-property-pane/dist/sp-property-pane_en-us.js'
Request: '/node_modules/@microsoft/sp-webpart-workbench/dist/9.9_fab14dbb23ab1cd66948.js'
Request: '/node_modules/@microsoft/sp-webpart-workbench/dist/8.8_172e0c6dc028ce9c886a.js'
Request: '/node_modules/@microsoft/sp-webpart-workbench/dist/4.4_ed517c71d4e855cd43cc.js'
Request: '/dist/hello-world-web-part.js'
[21:11:22] Server stopped
About to exit with code: 0
Process terminated before summary could be written, possible error in async code not continuing!
Trying to exit with exit code 1
Terminate batch job (Y/N)?
^C
PS C:\Users\BillA\Projects\OfficeDev\sp-dev-fx-webparts\samples\react-functional-component>

Fetching data using special ‘effects’

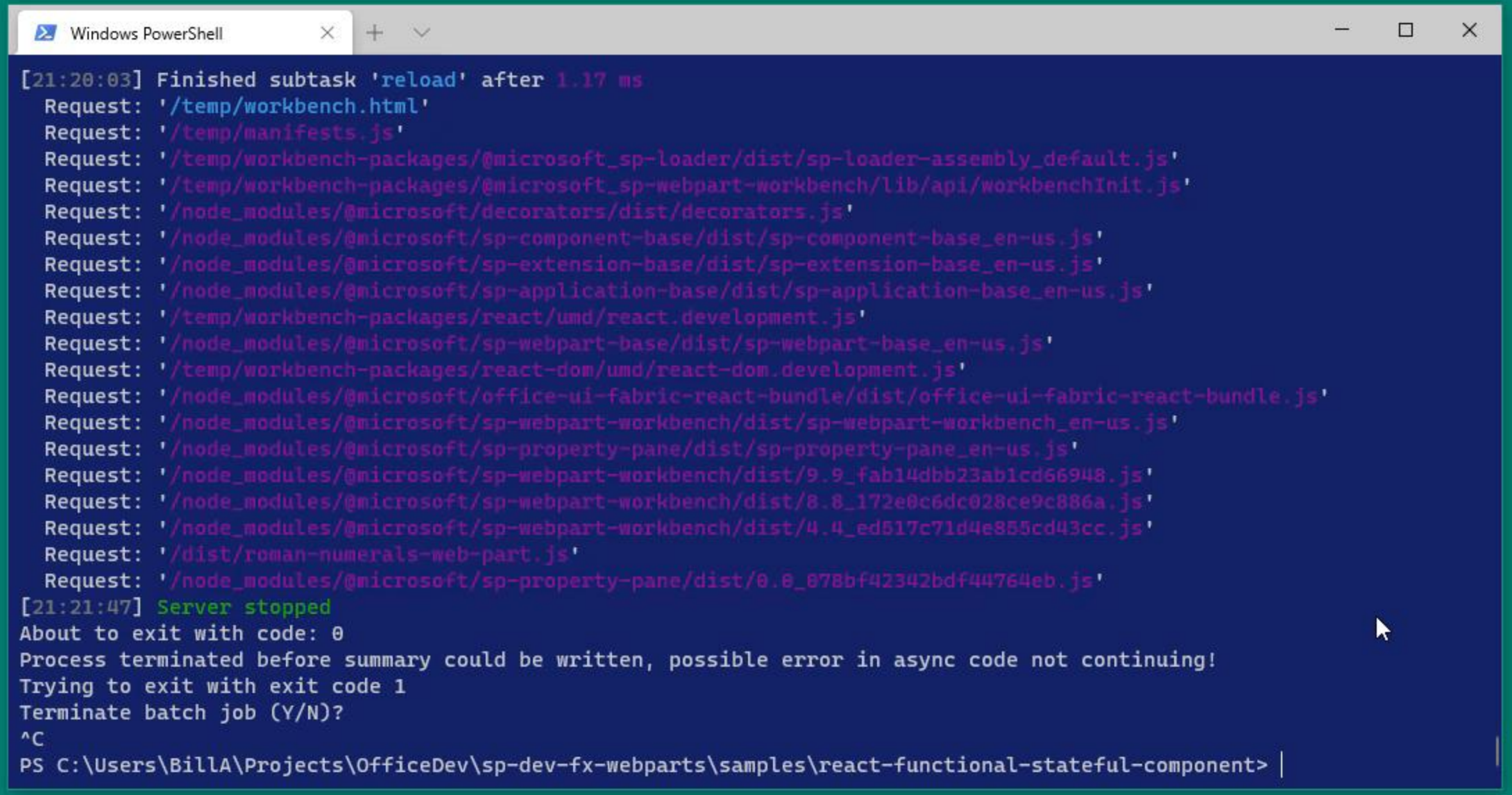
Fetching data using special 'effects'

```
const initialTeamsList: MSGraph.Group[] = null;
const [teamsList, setTeamsList] = React.useState(initialTeamsList);

React.useEffect(() => {
  graph.me.joinedTeams.get().then(teams => { setTeamsList(teams); });
  }, []);
```

Making an SPFx web part with a data-driven functional component

https://github.com/pnp/sp-dev-fx-webparts/tree/master/samples/react-functional-component-with-data-fetch


Windows PowerShell
[21:20:03] Finished subtask 'reload' after 1.17 ms
Request: '/temp/workbench.html'
Request: '/temp/manifests.js'
Request: '/temp/workbench-packages/@microsoft_sp-loader/dist/sp-loader-assembly_default.js'
Request: '/temp/workbench-packages/@microsoft_sp-webpart-workbench/lib/api/workbenchInit.js'
Request: '/node_modules/@microsoft/decorators/dist/decorators.js'
Request: '/node_modules/@microsoft/sp-component-base/dist/sp-component-base_en-us.js'
Request: '/node_modules/@microsoft/sp-extension-base/dist/sp-extension-base_en-us.js'
Request: '/node_modules/@microsoft/sp-application-base/dist/sp-application-base_en-us.js'
Request: '/temp/workbench-packages/react/umd/react.development.js'
Request: '/node_modules/@microsoft/sp-webpart-base/dist/sp-webpart-base_en-us.js'
Request: '/temp/workbench-packages/react-dom/umd/react-dom.development.js'
Request: '/node_modules/@microsoft/office-ui-fabric-react-bundle/dist/office-ui-fabric-react-bundle.js'
Request: '/node_modules/@microsoft/sp-webpart-workbench/dist/sp-webpart-workbench_en-us.js'
Request: '/node_modules/@microsoft/sp-property-pane/dist/sp-property-pane_en-us.js'
Request: '/node_modules/@microsoft/sp-webpart-workbench/dist/9.9_fab14dbb23ab1cd66948.js'
Request: '/node_modules/@microsoft/sp-webpart-workbench/dist/8.8_172e0c6dc028ce9c886a.js'
Request: '/node_modules/@microsoft/sp-webpart-workbench/dist/4.4_ed517c71d4e855cd43cc.js'
Request: '/dist/roman-numerals-web-part.js'
Request: '/node_modules/@microsoft/sp-property-pane/dist/0.0_878bf42342bdf44764eb.js'
[21:21:47] Server stopped
About to exit with code: 0
Process terminated before summary could be written, possible error in async code not continuing!
Trying to exit with exit code 1
Terminate batch job (Y/N)?
^C
PS C:\Users\BillA\Projects\OfficeDev\sp-dev-fx-webparts\samples\react-functional-stateful-component>

Links

- Getting started with SPFx: https://docs.microsoft.com/en-us/sharepoint/dev/spfx/
- Blog: spdoctor.com -> Articles -> Building SPFx Web Parts with React Functional Components
- Samples: https://github.com/pnp/sp-dev-fx-webparts, under Samples look for react-functional-*****
- React Hooks intro: https://reactjs.org/docs/hooks-intro.html (or just Bingle for "react hooks")

Functional Components

- Use SPFx 1.9.1 (or later)
- No need to refactor existing code
- Learn about React Hooks
- Try the react-functional-samples on Github
- Write cleaner code!

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