Setting up a ReactJS Project

Developing Applications using ReactJS

Objectives

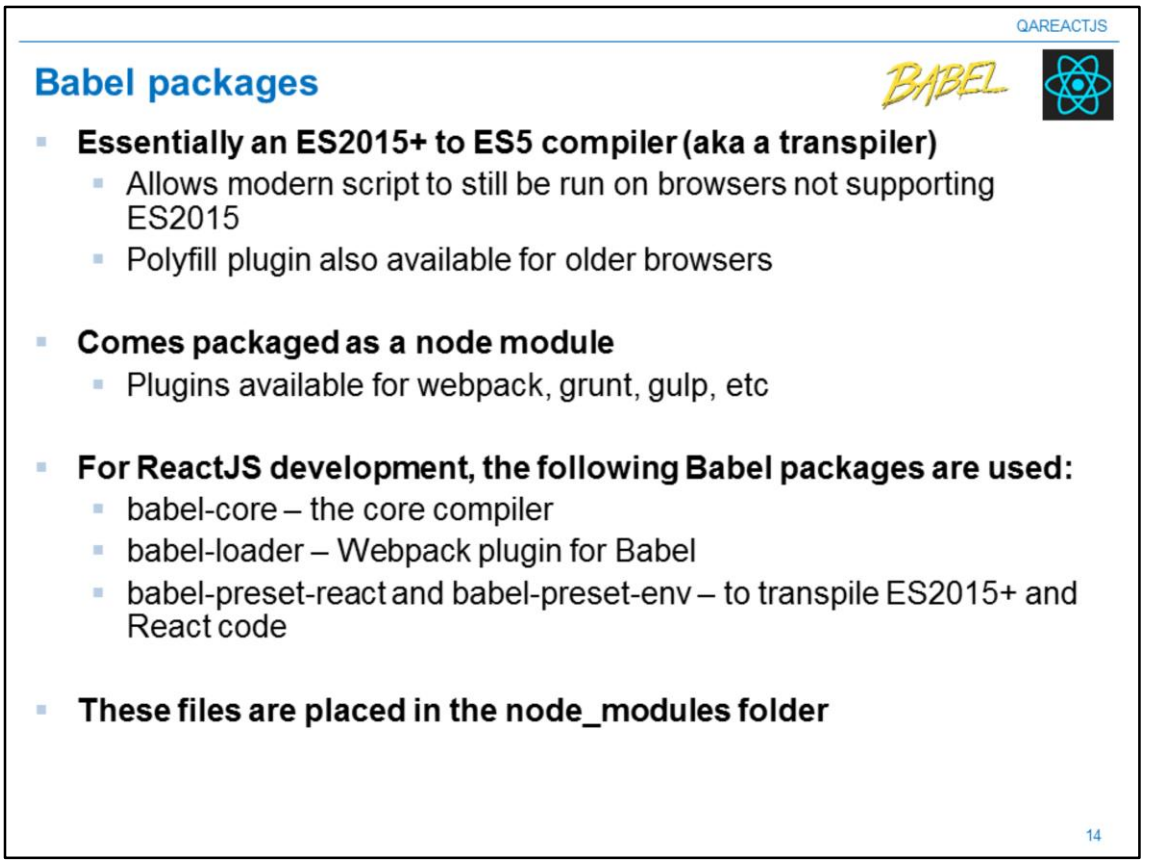
- To understand the anatomy of a ReactJS project
- To have a basic understanding of the modules and files needed to set up a ReactJS project

React Project Fundamentals

- Main project folder
- Folder for all modules to be used in the application
- The main html page
- The entry point for the JavaScript
- File for meta data for node
- Configuration details for webpack

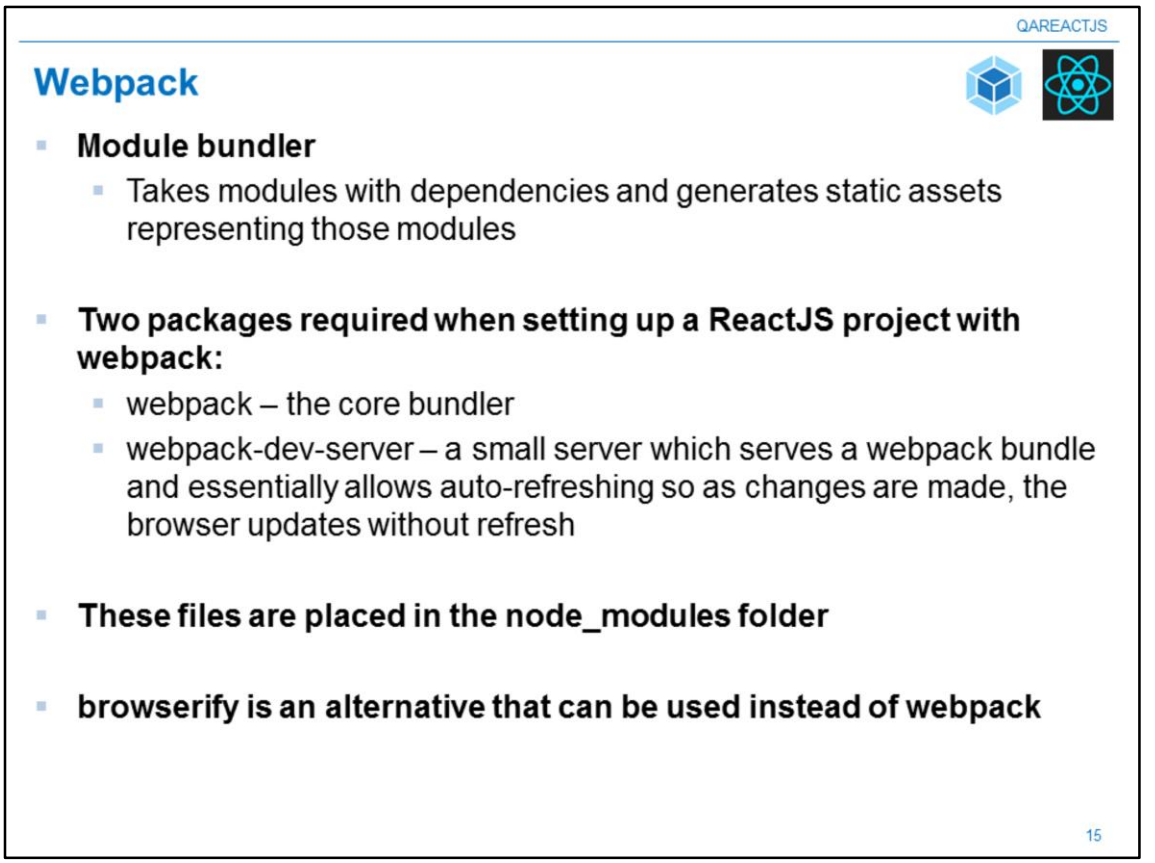
react and react-dom packages

- **Main react packages split into two:**
  - react and react-dom
  - **react** package:
    - Contains `React.createElement`, `.createClass`, `.Component`, `.Children` methods and other helpers related to elements and component classes
  - **react-dom** package:
    - Contains `ReactDOM.render`, `.unmountComponentAtNode` and `.findDOMNode` methods, along with server-side rendering support
- **Other packages for other add-ons can also be used**
- **These are placed in the node_modules folder**



Live demonstration available at http://babeljs.io/repl/

Babel logo from: https://github.com/babel/babel



Webpack logo from: https://github.com/webpack/webpack

Other files

- **index.html**
  - Essentially contains the HTML template that React will help populate.
  - Generally has at least one empty element with an id to address it by
  - Contains a script reference to a file index.js
    - Rarely stored on disk
    - Created and held by the server for the lifetime of the app
      - Can be created on disk by running webpack on the command line or terminal
- **main.js**
  - The entry point for JavaScript execution
  - Contains the information to render to the browser using React
- **package.json**
  - Contains information for node to be able to run the application
- **webpack.config.js**
  - Contains information needed by webpack to render the HTML correctly
  - Also contains some server information

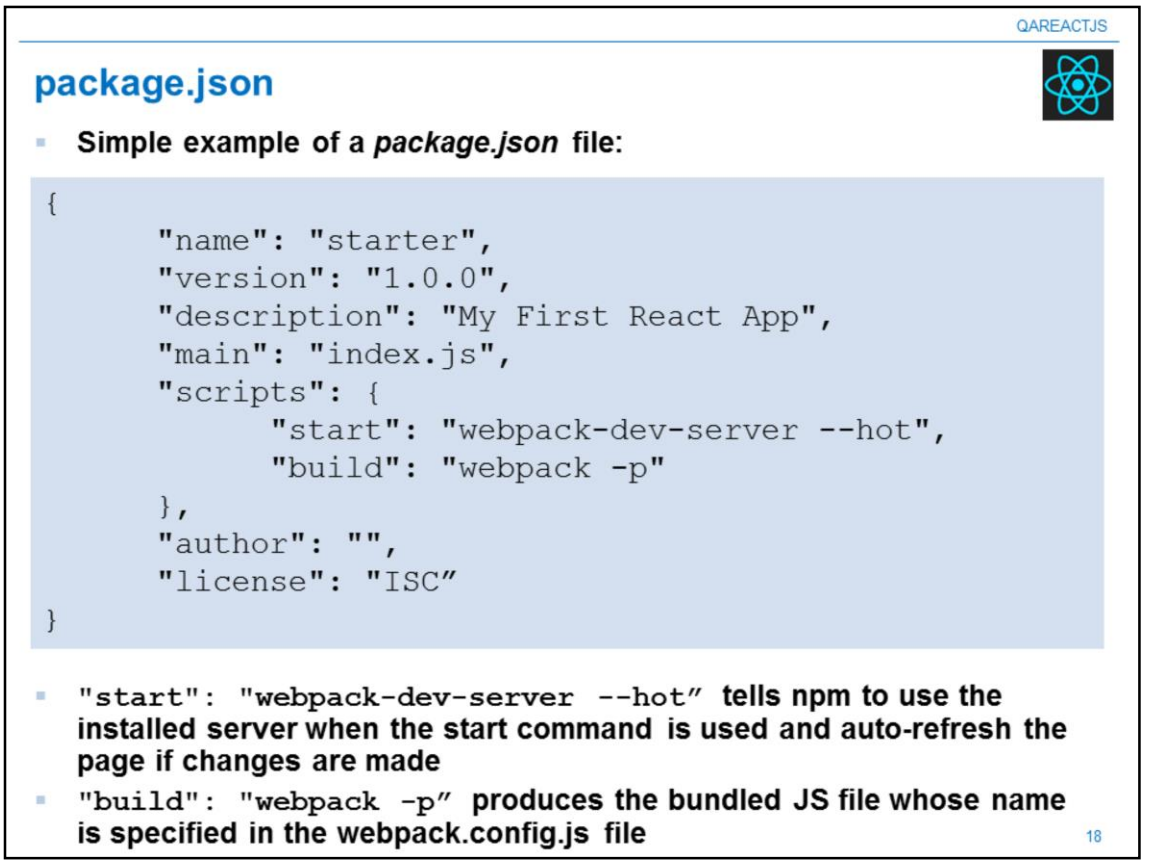
main.js

- **Simple example of a *main.js* file:**

```
import React from 'react';
import ReactDOM from 'react-dom';

ReactDOM.render(
      <h1>Hello, World!</h1>,
      document.querySelector('#app')
);
```

- **ES2015 is used to import classes that can be found in the React library**
- **`ReactDOM.render()` contains a mixture of HTML and JavaScript**
  - More on that later!



When dependencies are present, running npm install in the same folder that contains the package.json file will install the dependencies listed. This means that the node_modules folder is not absolutely necessary when pushing to a git repository, as any developer cloning the repository will get a copy of the package.json file and will be able to install the necessary dependencies.

In general, npm install will retrieve the most recent version of a package that is compatible with that listed in the package.json file, but a health warning, compatibility is not always guaranteed!

In the projects you will be working on, you may see an npm_shrinkwrap.json. This is a file included to ensure that the projects install the versions of the packages that were used at the time of writing the course.

webpack.config.js

- **Simple example of a *webpack.config.js* file:**

```
module.exports = {
     entry: ['babel-polyfill','./main.js'],
     output: {
         path: __dirname,
         filename: 'index.js'
     },
     resolve: {
         extensions: ['.js', '.jsx'],
     },
     devServer: {
         inline: true,
         port: 8080
     },
     devtools: 'source-map',
     module: {
         loaders: [{
                  test: /\.jsx?$/,
                  exclude: /node_modules/,
                  loader: 'babel-loader',
                  query: {
                      presets: ['env', 'react']
                  }
         }]
     }
}
```

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Setting up a Project

- **Done by a mixture of command line/terminal execution and code editing**
- **Each new project should be set up locally**
  - Avoids clashes with global installations on individual computers
- **After a single project has been set up, can be used as a template for all others**

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Exercise Time

- **Complete EG02 – Setting Up a ReactJS Project**