Fascoon - Doubt Solving Session - 25th September 2021 - May Batch

Note: We will start the session @12

Attendance for the Session:

- Andy
- Poonam
- Prathamesh
- Rushi
- Suresh Yadav
- Vinay
- Amit

Didn't attend today:

- NA

Module Completion

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1. HTML Basics - **DONE**
2. CSS Basics - **DONE**
3. Bootstrap CSS Framework - **IN PROGRESS**
4. Javascript Basics - **DONE**
5. Javascript Advanced - **DONE**
6. Github - **DONE**

Doubts OR Queries

Q.1.[Poonam] Constructor this keyword?

- If you want to implement this keyword, always do it using javascript classes.
- Implementing this keyword in normal objects or normal variables is not recommended.

```
// class Person
```

```
let country = 'India'
const name = 'Amit'
class Person{
    constructor(firstName,lastName){
        console.log('I am a constructor')
        this.firstName = 'Atul'
        this.lastName =  'Sharma'
    }
    displayInfo(){
        console.log(this.firstName)
        console.log(this.lastName)
    }

}
// object or instance of class person
p1 = new Person()
p1.displayInfo()
console.log(country)
```

Q.2.[Amit] Mini Revision of Topics Completed?

- Let's create a small web app, which will display news dynamically.

Q.3.[Naresh] Difference between let and const?

- The value of a const doesn't change.
- The value of a let variable can change.

Q.4.[Suresh] Difference between Re-declaration and Re-initialization??

- **var** keyword - can be re-initialized, or value can be updated from inside and outside the scope.
- **let** keyword - can be re-initialized, or value can be updated only from inside the block scope.
- **const** keyword - once initialized it cannot be re-initialized.

Q.5.[Poonam] Terminal Operations??

- **Save the list of commands in a notepad**

- **Creating a Folder**

```
$ mkdir <folder-name>
```

- **Go inside the Folder**

```
$ cd <folder-name>
```

- **Go Back**

```
$ cd ..
```

- **Clear Terminal**

```
$ clear
```

Q.6.[Vinay] What is the use of Return in a Function?

Ans:

1. return keyword is used to return back to the main program the calculated value or output.
2. return value is supposed to saved in a new variable when calling the function.

```
calcNewSalary(){
```

```
        const newSalary = this.salary + this.increment
        return newSalary
    }
const newSalary = emp1.calcNewSalary()
console.log('New Salary after Hike:', newSalary)
```

Q.7[Poonam] Two functions were used in to fetch news and display the newsdata?? How and why these functions were used??

Ans:

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1. Use of nested function calling.
2. getNewsData() function is just fetching the news, and storing the data in a variable ➜ news_data.
3. fetchNews() function is calling the getnewsData() function, which is called a nested function call i.e ➜ calling a function from inside a function.
4. Once you call fetchNews() function, it will call getNewsData() function
5. getNewsData() will update the value of variable ➜ news_data.
6. This news_data variable will be then given to the HTML View.

Notes:

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1. **var** keyword is accessible inside and outside the block scope.
2. **let** keyword is accessible only inside the block scope.
3. Anything **let** and **const** declared inside the block scope cannot be accessed from outside the block scope.

Practice with Dynamic Data using the following Free APIS

- https://randomuser.me/api/
- https://newsapi.org

- Javascript Advanced - **IN PROGRESS**

- Advanced Javascript Topics:

- Classes
- Objects ➜ JSON Object , Javascript Object , JSON Array, **Object Array**
- Arrays
- Functions
- Local Storage
- Session Storage

Questions:

Q.1[Poonam] What is fetch API , how to get the Data? The Process of API??

Ans:

- What is an API???
  - API stands for application programming interface.

- When computers were introduced as a phone, tablet, people started visiting softwares on their smartphones.

- These smartphones did not have access to the same features as the computer back then.

- API creates a common platform, for data to be accessed on all type of computing devices like:
    - Laptop
    - Smartphone
    - Smart TV
    - Radio
    - Washing Machine which runs on voice assistant
    - Smart Devices like Smart Speaker etc etc etc

- Two popular types of API's are:
    - XML
    - JSON

- What does an API do??

- An API creates and endpoint to access the data in your database.
- Previously, databases were different for applications and websites.

- Now we use the same database for your website and mobile application as well.
- However, the database if written for Web, cannot be accessed on the mobile.
- Which is why we use API endpoints.
- APIs need to be designed.
- Popular technologies to design APIs:
    - Node.js
    - Laravel
    - Express
- Hence, API is just a technology which gives an access point to access the data of a database.
- Popular free APIs for learning software development:
    - News API
    - Random User API
    - Stock Market API etc etc etc

- **Javascript Mini App:** Display Random user data using Random User API

Q.2[Vinay][General] Not Understanding Javascript works???

Ans:

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1. Javascript is just a tool, a programming language.
2. There are two programming languages:
    - Application Programming languages.
        - Examples:
            - Flutter
            - Javascript
            - PHP
            - Python
    - System Programming languages.
        - Examples:
            - Python
            - C++
            - Rust

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3. Programming languages are used to create your end product.
    - End Product examples:
        - E-commerce website

    - Blog
    - Social Media website

To create a simple recipe book using javascript.

- HTML ➜ Structure of the Application
- CSS ➜ Design of the Application
- Javascript ➜ Behavior of the Application
- Database ➜ NOSQL, MYSQL, Firebase etc etc
    - To store your recipes
    - Storage can be done using tables or collections

Module Completion

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7. React.js - Basics - **DONE**

React Topics Done:

- React Structure
- React Installation
- React Components??
    - Stateful Components
    - Stateless Components

- **React Installation**

- To install a react app, use the following command:

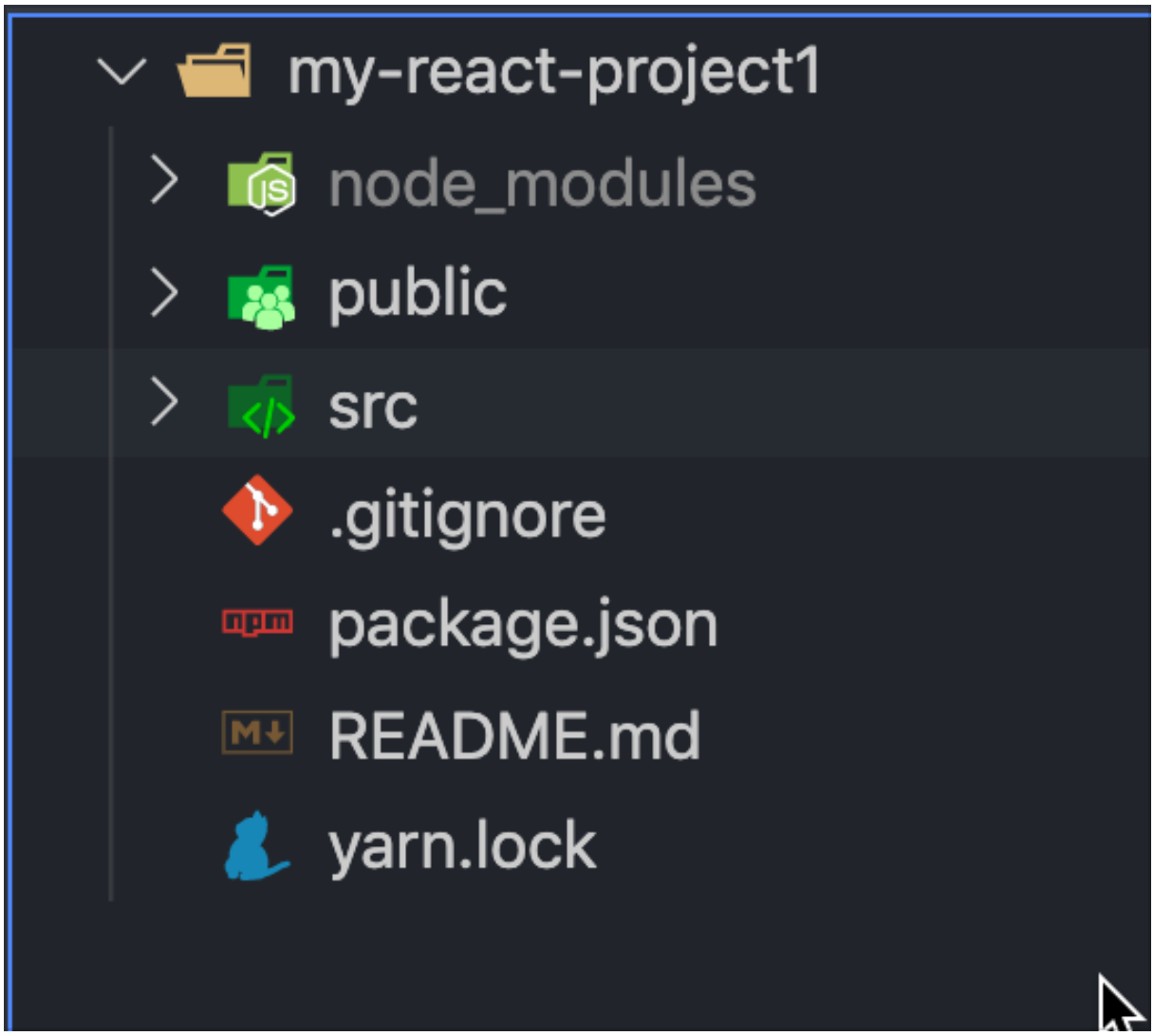
```
$ npx create-react-app <name-of-your-app>
$ npx create-react-app myReactProject1
```

- The above command will install the required files to run a react app.

- **What is Yarn?**

- Yarn is alternative to npm.
- It was developed by facebook.
- It is not recommended to use both package managers at the same time.
- Either you use yarn or npm.
- It is recommended to use npm over yarn.

- **React Application Structure:**



- The main parts of your React App Structure are:
  - **node_modules folder:**
    - contains the npm packages that is used to build your project.

- **public folder:**
  - contains the index file of your project which is used by the server to process your app.
  - contains metadata of your project.
- **src:**
  - contains your components
  - contains your assets
  - contains your apis
  - contains your state management - redux, mobX.
- **app.js file:**:
  - This file will render your application components.
- **index.js file:**
  - This file will render your app.js file.
- **package.json file:**
  - This file contains the information of the packages you are using.
  - Also contains the information of the commands you can run.

- **What are Components???**

- In Modern programming, component is a small broken down module of a software program.
- Parts of a software program are broken down into components.
- Some types of these components are:
  - Stateful Components
  - Stateless Components
  - Container Components
  - Dumb Components
  - Smart Components
- Different types of React Components:
  - Class Component
  - Function Component
  - **New ➜** React Hooks Component

- **Stateful Components**

- A component which holds some data is called stateful component.

- **Example:**

```
import React from 'react'
class ProductInfo extends React.Component(){
      constructor(props){
              super(props);
              this.state = {
                  product_name:'Iphone6',
                  product_price:50000,
                  product_qty:100
              }
      }
      render(){

          return(
              <h1> Products Info </h1>
              )

          }
}
```

- **Stateless Components**

- A component which holds no data is called a stateless component.
- It is declared using a function.

- **Example:**

```
import React from 'react'
function display(){
          return(
              <h1> I am Display </h1>
              )
}
export default display;
```

- **Refer the Example**

Next Topic:

- Containers
- React Routing

- **Topic:** Containers

- **What is a Container Component?**

- A container component is a component doesn't have its own component.
- A container component has other components imported inside it.
- A Container component is used to create a singlepage of your web application.
- A single page can have multiple components.
  - **For Example: Divide tatamotors.com - landing page into components?**
  - **Solution:**
    - We need the following components:
      1. <NavigationMenu />
      2. <Slider1 />
      3. <Slider2 />
      4. <Latest />
      5. <About us />
      6. <Footer />
    - Hence, tatamotors.com - main page has total 6 components.
    - These components can be imported in a single page which is your container file in react.

```
import React from 'react'
export default function IndexPageContainer(){

  return(
      <React.Fragment>
          <NavigationMenu />
          <Slider1 />
           <Slider2 />
```

```
            <Latest />
            <About us />
            <Footer />
        </React.Fragment>
        )
}
```

- **Topic:** React Routing

- **What is Routing?**

- Routing in programming means switching from one page to another OR switching from one component to another component.
- Routes are created to switch between components or pages.
- The user will be given a link in the View of your application to navigate to that specific page.

- **Creating Routing Configuration in your React Application:**

- **Step1:** Install your react router

- For web applications you will use ➜ react-router-dom

```
$ npm i react-router-dom
```

- **Step2:** Import BrowserRouter from react-router-dom in your application root file.

```
import { BrowserRouter as Router } from 'react-router-dom'
```

- **Step3:** Wrap the Router around your main <App /> Component

---

```
```

```
import React from 'react';
import ReactDOM from 'react-dom';
import { BrowserRouter as Router } from 'react-router-dom'
import './index.css';
import App from './App';
import reportWebVitals from './reportWebVitals';
ReactDOM.render(
  <React.StrictMode>
          <Router>
                  <App />
          </Router>
  </React.StrictMode>,
  document.getElementById('root')
);
reportWebVitals();
```

- **Step4:** Create your Routes

- You can create routes in your App.js file or separately in a new file like Routes.js

- Import Switch and Route from react-router-dom

```
import { Switch,Route } from 'react-router-dom'
```

```
import React from 'react'
import './App.css';
import DashboardContainer from './Containers/
DashboardContainer';
import { Switch,Route } from 'react-router-dom'
function App() {
  return (
      <Switch>
          <Route
              exact
```

```
                path='/dashboard'
                component={DashboardContainer}
            />
        </Switch>
    );
}
export default App;
```

- **Topic: Adding Links using react-router-dom**

- **What is the difference between HTML Anchor Tag and React Link Tag??**

  - HTML Anchor Tag is used to do navigate between pages.
  - It has attribute or properties like href.
  - href is given the value of the page you want to navigate to.
  - React Link tag is similar to HTML Anchor Tag.
  - However, it does not refresh the entire page.
  - Instead, it just switches the component which needs to be switched.
  - React Link helps to reduce the refresh rate of the website.
  - Also the pages are switched very fast and enhances the User Experience.

- **Creating Links using your React-Router**

- **Step1:** Import Link from react-router-dom

```
import { Link } from 'react-router-dom'
```

- **Step2:** Create the Link Tag

```
<Link to='/dashboard' />
```

- **Difference between HTML <a> Tag and React <Link> Tag??**

```
<a href='/dashboard' />
```

```
<Link to='/dashboard' />
```

- **Topic:** 404 Route

  - If the route is not found in your application, then the 404 Route will be trigged by the React Router.
  - Usually the 404 Route is by default created by many web technologies such as PHP, Laravel etc etc.
  - However in react, you need to create your custom 404 Page.

- **Creating a 404 Route in React**

- **Step1:** Create a component for the 404 Route

```
import React, from 'react'
import './index.css'
const imgURL = 'https://images.unsplash.com/photo-1532382147828-96bdb28b7b04?ixid=MnwxMjA3fDB8MHxwaG90by1wYWdlfHx8fGVufDB8fHx8&ixlib=rb-1.2.1&auto=format&fit=crop&w=1100&q=80'
export default function Page404() {
    return (
        <div className="not-found-page">
            <img
                src={imgURL}
                alt='404.png'
            />
        </div>
    )
}
```

- **Step2:** Design the component with some CSS

```
.not-found-page{

        top:10%;
        left:10%;
        position:fixed;

}
```

- **Step3:** Create a Route in your router to activate the 404 Page

```
<Route path='*' component={Page404} />
```

Questions:

Q.1[Andy]

Why we do import:

```
import {Route} from ' react-route-dom'
```

Instead of:

```
import Route from ' react-route-dom'
```

Ans:

- Because it is a not a default exported file.

Q.2[Poonam] Types of file exports

1. **Default Exports:**

   - If you want to export a file, **after you create it** use default exports

2. **Normal Exports:**

   - If you want to export a file, **when you are creating it**. then just use a normal export.

Topic: Passing Dynamic data using React Link Tags

- We can pass data in the url.

```
<Link to='/player/:id'/>
```

- We can pass data in the body.

```
<Link to={{
                pathname:'/mumbai-indians',
                props:{
                    owner:'Nita Ambani',
                    head_coach:'Mahela Jayawardene',
                    bowling_coach:'Shane Bond'
                }
            }}>
</Link>
```