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**useMemo hook
Capstone Project Frontend (Guideline only)**

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```
===================================================================
useMemo hook (Performance Optimization Eg02)
===================================================================

import { useMemo, useState } from "react"

export default function Eg01() {
    const [counterOne, setCounterOne] = useState(1)
    const [counterTwo, setCounterTwo] = useState(1)
    const incrementOne = () => {
        setCounterOne(counterOne + 1)
    }
    const incrementTwo = () => {
        setCounterTwo(counterTwo + 1)
    }
    /*
    ///////////////////////////01
    const isEven = () => {
        console.log('Even Called')
        let i = 0
        while (i < 1000000000)
            i++
        return counterOne % 2
    }*/
    const isEven = useMemo(() => {
        console.log('Even Called')
        let i = 0
        while (i < 10000000000)
            i++
        return counterOne % 2
    }, [counterOne])
    return (
        <div>
            <button onClick={incrementOne}>Count 1 - {counterOne} </button>
            <br /><br />
            {/*<span>{isEven() ? 'Even' : 'Odd'} </span>*/}
            <span>{isEven ? 'Even' : 'Odd'} </span>
            <br /><br />
            <button onClick={incrementTwo}>Count 2 - {counterTwo} </button>
        </div>
    )

}
```

Capstone Project Frontend (Guideline only)

Create a new react application
>create-react-app client
Create various components
- aboutus.js
- contactus.js
- Header.js
- MainComponent.js   -> Login and Dashboard
- SignupComponent.js   -> Create new user
- indexComponent.js   -> Home Page
- url.js   -> Backend url (APIs)

url.js
```
module.exports = "http://localhost:8080"
```

aboutus.js
```
import React from 'react'
export default class Aboutus extends React.Component{
    render(){
        return(
            <div className='container mt-5'>
                <p className='jumbotron'>Welcome to Aboutus</p>
            </div>
        )
    }
}
```

Similarly design contactus.js, MainComponent and Signup Components
Download following libraries
'react-router-dom', 'axios'
>yarn add react-router-dom axios --save
indexComponent.js
```
import React from "react";
import {NavLink, Route, BrowserRouter as Router, Routes} from
'react-router-dom'
import Aboutus from "./aboutus";
import Contactus from "./contactus";
import SignupComponent from "./SignupComponent";
import MainComponent from "./MainComponent";
export default class IndexComponent extends React.Component{
    render(){
        return(
            <div>
                <div className="nav nav-pills">
                    <Router>
                        <div className="nav-item">
```

```jsx
                                <NavLink to = "/aboutus"
className='nav-link'>About us</NavLink>
                            </div>
                            <div className="nav-item">
                                <NavLink to = "/contactus"
className='nav-link'>Contact us</NavLink>
                            </div>
                            <div className="nav-item">
                                <NavLink to = "/signup"
className='nav-link'>Signup</NavLink>
                            </div>
                            <div className="nav-item">
                                <NavLink to = "/login"
className='nav-link'>Login</NavLink>
                            </div>
                            <br/><br/>
                            <Routes>
                                <Route path="/aboutus"
element={<Aboutus/>}></Route>
                                <Route path="/contactus" element=
{<Contactus/>}></Route>
                                <Route path="/signup"
element={<SignupComponent/>}></Route>
                                <Route path="/login"
element={<MainComponent/>}></Route>
                            </Routes>
                        </Router>
                    </div>
                </div>
            )
        }
}
```

SignupComponent.js
Use Validations Here

```jsx
import React from 'react'
import axios from 'axios'
import url from './url'
export default class SignupComponent extends React.Component {
    constructor() {
        super()
        this.state = {
            status:''
        }
    }
    render() {
        return (
            <div className='container mt-5'>
                <form onSubmit={this.signup} className='btn
btn-outline-warning w-50'>
                    <h3 className='text-primary'>Signup user </h3>
                    <div className='form-group my-2 btn btn-outline-dark p-3
w-100'>
                        <label>User id</label>
```

```jsx
                            <input type='text' placeholder='Enter Userid'
className='form-control' name='userid'></input>
                        </div>
                        <div className='form-group my-2 btn btn-outline-dark p-3
w-100'>
                            <label>User Name</label>
                            <input type='text' placeholder='Enter User Name'
className='form-control' name='uname'></input>
                        </div>
                        <div className='form-group my-2 btn btn-outline-dark p-3
w-100'>
                            <label>Password</label>
                            <input type='password' placeholder='Enter Password'
className='form-control' name='upwd'></input>
                        </div>
                        <div className='form-group my-2 btn btn-outline-dark p-3
w-100'>
                            <label>User email</label>
                            <input type='email' placeholder='Enter User email'
className='form-control' name='email'></input>
                        </div>
                        <div className='form-group my-2 btn btn-outline-dark p-3
w-100'>
                            <label>User Address</label>
                            <input type='text' placeholder='Enter User Address'
className='form-control' name='address'></input>
                        </div>
                        <div className='form-group my-2 btn btn-outline-dark p-3
w-100'>
                            <label>Contact</label>
                            <input type='text' placeholder='Enter Contact'
className='form-control' name='contact'></input>
                        </div>
                        <div className='form-group my-2 w-25 mx-auto' align =
'center'>
                            <input type='submit' className='btn
btn-outline-success' value='Signup'></input>
                            <h3>{this.state.status}</h3>
                        </div>
                    </form>
                </div>
            )
        }
        signup = (e) => {
            e.preventDefault()
            let obj = {
                "userid" : e.target.userid.value,
                "uname" : e.target.uname.value,
                "upwd" : e.target.upwd.value,
                "email" : e.target.email.value,
                "address" : e.target.address.value,
                "contact" : e.target.contact.value
            }
            axios.post(url+"/insert/createUser",obj)
                .then((posRes)=>{
                    console.log(posRes.data)
```

```
                    this.setState({
                        status : posRes.data.userInsert
                    })
            },(errRes)=>{
                console.log(errRes)
            })
        }
}


***MainComponent.js***
import axios from 'axios'
import React from 'react'
import url from './url'
import Header from './Header'
import './style.css'
let cart = []
export default class MainComponent extends React.Component {
    constructor() {
        super()
        this.state = {
            login: false,
            products: []
        }
    }
    componentDidMount() {
        axios.get(url + "/fetch")
            .then((posRes) => {
                this.setState({
                    products: posRes.data
                })
            }, (errRes) => {
                console.log(errRes)
            })
    }
    render() {
        return (
            <div className='container mt-5'>
                <div hidden={this.state.login}>
                    <form onSubmit={this.login} className='btn
btn-outline-dark text-white w-50'>
                        <div className='form-group my-2 btn btn-outline-info
p-3 w-75'>
                            <label className='float-left'>Username</label>
                            <input type='text' placeholder='Enter User name'
className='form-control' name='uname'></input>
                        </div>
                        <div className='form-group my-2 btn btn-outline-info
p-3 w-75'>
                            <label className='float-left'>Password</label>
                            <input type='password' placeholder='Enter
Password' className='form-control' name='upwd'></input>
                        </div>
                        <div className='form-group my-2 w-25 mx-auto'
align='center'>
```

```jsx
                            <input type='submit' className='btn
btn-outline-success' value='Login'></input>
                        </div>
                    </form>
                </div>

                <div hidden={!this.state.login}>
                    <button onClick={this.logout} className='btn
btn-outline-danger float-right mt-4 mr-5'>Logout</button>
                    <Header />
                    <div className='h4 text-info mb-2' align="right">
                        Total amount:- {this.calculateTotal()}
                        <button onClick={() => { this.buyNow() }}
className='btn btn-outline-success mx-5'>Buy Now</button>
                    </div>
                    <div className='row'>
                        <div className='col-10'>
                            <div className='row row-cols-3'> {/*Carousel
prefered */}
                                {this.state.products.map((e, i) => (
                                    <div className='col my-3'>
                                        <div className='card'>
                                            <div className='card-header'>
                                                <img src={e.p_img}
className='card-img-top'></img>
                                            </div>
                                        </div>
                                        <div className='card-body'>
                                            <div className='h2
card-title'>{e.p_name}</div>

                                            <div className='h4 card-subtitle
text-muted'>{e.p_cost}</div>
                                        </div>
                                        <div className='card-footer'>
                                            <button onClick={() => {
alert(e.p_desc) }}

                                                className="btn
btn-outline-info btn-block btn-sm"

                                                data-toggle="tooltip"
                                                data-placement="bottom"
                                                title={e.p_desc}>Learn
More</button>     {/*Do with Modal */}
                                            <button onClick={() => {
this.addToCart(e) }} class="btn btn-outline-success btn-block btn-sm">Add to
Cart</button>
                                        </div>
                                    </div>
                                ))}
                            </div>
                        </div>
                        <div className='col'>
                            <div className='row my-3'>
                                {cart.map((e, i) => (
                                    <div className='my-3'>
                                        <div className=' card'>
                                            <div className='card-header'>
```

```jsx
                                                <img src={e.p_img}
            className='card-img-top'></img>
                                            </div>
                                            <div className='card-body'>
                                                <div className='h2
            card-title'>{e.p_name}</div>

                                                <div className='h4
            card-subtitle text-muted'>{e.qty}</div>
                                            </div>
                                            <div className='card-footer'>
                                                <button onClick={() => {
            this.reduce(e) }} class="btn btn-outline-success btn-block
            btn-sm">Reduce</button>
                                            </div>
                                        </div>
                                    </div>
                                ))}
                            </div>
                        </div>
                    </div>
                </div>
            </div>
        )
    }
    login = (e) => {
        e.preventDefault()
        let obj = {
            uname: e.target.uname.value,
            upwd: e.target.upwd.value
        }
        axios.post(url + "/fetch/auth", obj)
            .then((posRes) => {
                console.log(posRes.data)
                if (posRes.data.auth == 'success') {
                    console.log('Object in auth :- ', obj)
                    this.setState({
                        ...this.state,
                        login: true,
                        user: obj.uname
                    })
                    console.log('State after login:- ', this.state)
                    window.sessionStorage.setItem('user', obj.uname)
                    this.fetchCart()
                }
            }, (errRes) => {
                console.log(errRes)
            })
    }
    addToCart = (item) => {
        let present = false
        let i
        for (i = 0; i < cart.length; i++) {
            if (item.p_id == cart[i].p_id) {
                present = true
                break
            }
```

```javascript
        }
        //if item is present in cart, update it
        if (present == true) {
            let myObj = cart[i]
            let id = myObj.id
            let obj = {
                "uname": this.state.user,
                "p_id": myObj.p_id,
                "qty": parseInt(myObj.qty) + 1,
            }
            axios.post(url + "/update/updateCart", obj)
                .then((posRes) => {
                    cart.forEach((e, i) => {
                        if (e.p_id == obj.p_id)
                            e.qty = obj.qty
                    })
                    console.log(posRes.statusText)
                    this.setState({
                        status: 'Update ' + posRes.statusText
                    })
                }, (errRes) => {
                    console.log(errRes)
                    this.setState({
                        status: errRes.message
                    })
                })
        }
        //if item is not present in cart, insert it
        else {
            let obj = {
                "uname": this.state.user,
                "p_name": item.p_name,
                "p_id": item.p_id,
                "qty": 1,
                "p_cost": item.p_cost,
                "p_img": item.p_img
            }
            axios.post(url + "/insert/cartInsert", obj)
                .then((posRes) => {
                    this.setState({
                        status: 'Record' + posRes.statusText
                    })
                    cart.push(obj)
                }, (errRes) => {
                    console.log(errRes)
                })
        }
        this.setState({
            total: this.calculateTotal()
        })
        console.log(cart)
    }
    reduce = (item) => {
        console.log('Item id:- ', item.id)
        if (item.qty == 1) {
            let obj = {
```

```javascript
                    "u_name": this.state.user,
                    "p_id": item.p_id
                }
                axios.post(url + "/delete/deleteCart", obj)
                    .then((posRes) => {
                        console.log(posRes)
                        let indx = cart.findIndex((e, i) => {
                            return e.p_id === item.p_id
                        })
                        cart.splice(indx, 1)
                        this.setState({
                            status: 'Delete ' + posRes.statusText
                        })
                    }, (errRes) => {
                        console.log(errRes)
                        this.setState({
                            status: errRes.message
                        })
                    })
            }
            else {
                let obj = {
                    "u_name": this.state.user,
                    "p_id": item.p_id,
                    "qty": parseInt(item.qty) - 1,
                }
                axios.post(url + "/update/updateCart", obj)
                    .then((posRes) => {
                        cart.forEach((e, i) => {
                            if (e.p_id == obj.p_id)
                                e.qty = obj.qty
                        })
                        console.log(posRes.statusText)
                        this.setState({
                            status: 'Update ' + posRes.statusText
                        })
                    }, (errRes) => {
                        console.log(errRes)
                        this.setState({
                            status: errRes.message
                        })
                    })
            }
            this.setState({
                total: this.calculateTotal()
            })
        }
    buyNow = () => { // Check this functionality ????
        alert('Thank u for business with us Total amount :- ' +
this.calculateTotal())
        for (let i = 0; i < cart.length; i++) {
            axios.delete(url + "/cart/" + cart[i].id) //==================>?
                .then((posRes) => {
                    console.log(posRes)
                    let indx = cart.findIndex((e, i) => {
                        return e.id === cart[i].id
```

```javascript
                })
                cart.splice(indx, 1)
                this.setState({
                    status: 'Delete ' + posRes.statusText
                })
            }, (errRes) => {
                console.log(errRes)
                this.setState({
                    status: errRes.message
                })
            })
        }
    }
    fetchCart = () => {
        axios.post(url + "/fetch/fetchCart", { "uname":
window.sessionStorage.getItem('user') }).then((posRes) => {
            this.setState({
                status: 'Loading'
            })
            cart = posRes.data
            console.log('Cart data:- ', cart)
            this.setState({
                status: '',
            })
        }, (errRes) => {
            console.log(errRes)
        })
        let total = 0
        for (let i = 0; i < cart.length; i++) {
            total += cart[i].p_cost * cart[i].qty
        }
        this.setState({
            total: total
        })
    }
    calculateTotal = () => {
        let total = 0
        cart.forEach((e, i) => {
            total += e.qty * e.p_cost
        })
        return total
    }
    logout = () => {
        this.setState({
            login: false,
            user: ''
        })
        window.sessionStorage.removeItem('user')
    }
}
```

Header.js
```javascript
import React from "react";
import './style.css'
let stl = ''
export default class Header extends React.Component {
```

```jsx
    constructor() {
        super()
        this.state = {
            user: window.sessionStorage.getItem('user'),
            wish: '',
        }
    }
    componentDidMount() {
        let date = ""
        date = new Date().getHours()
        //date = 17
        if (date < 12) {
            stl = 'mrng'
            this.setState({
                wish: 'Good Morning'
            })
        }
        else if (date < 16) {
            stl = 'aftr'
            this.setState({
                wish: 'Good Afternoon'
            })
        }
        else if (date < 20) {
            stl = 'eve'
            this.setState({
                wish: 'Good Evening'
            })
        }
    }
    render() {
        this.state = {
            ...this.state,
            user: window.sessionStorage.getItem('user')
        }
        return (
            <div>
                <h1 className={stl}>{this.state.wish} {this.state.user}</h1>
            </div>
        )
    }
}
```

style.css

```css
.img {
    width: 100px;
    height: 100px;
}

.card-img-top:hover {
    position: relative;
    transition: all 0.5s;
    transform-origin: center;
    transform: scale(1.05);
}
```

```css
.card-img-top {
    transition: all 0.5s;
}

.mrng {
    color: white;
    background: linear-gradient(to right, blue, yellow);
    padding: 20px;
    border-radius: 10px;
}

.aftr {
    color: red;
    background: linear-gradient(to right, yellow, orange);
    padding: 20px;
    border-radius: 10px;
}

.eve {
    color: blue;
    background: linear-gradient(to right, orange, gray);
    padding: 20px;
    border-radius: 10px;
}
```

Enhancement
Token Authentication

1. Backend
   a. On successful login generate token, store in user collection at particular user
   b. Implies update user collection
   c. Send auth and token to front end
2. Front end
   a. On successful login store token in browser storage
   b. For each cart request send user alongwith token
3. Backend
   a. Match received token with token in database
   b. It match success send cart data

After doing necessary updates, update git repository for backend, update render deploy front end on firebase

NOTE:- DO NOT DELETE THIS PROJECT DATABASE, BACKEND, FRONTEND FROM DEPLOYED RESOURCE

Uploading project for review
   1. Export data as json from mongodb compass
   2. Remove 'node_modules' folder from client as well as server
   3. Gather database json, client and server in ONE folder, give your name

4. Zip above folder and upload it