Web application development

(Introduction to Basic React)

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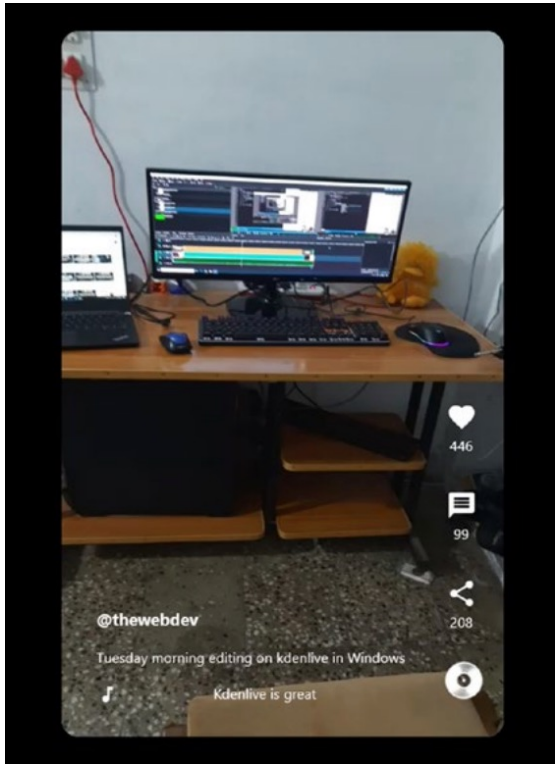
S3T
Smart Software System Team


“We love what we do and we do what our clients love & work with great clients all over the world to create thoughtful and purposeful websites.”
— ProWeb365

Basic React – Exercise 1 – Create reels app



Basic React – Exercise 1 – Create reels app - FE

```jsx
import React, { useState, useEffect } from 'react'
import './App.css';
import Video from './components/Video';
import axios from './components/axios';

function App() {
  const [videos, setVideos] = useState([])

  useEffect(() => {
    async function fetchData() {
      const res = await axios.get("/v2/posts")
      setVideos(res.data)
      return res
    }
    fetchData()
  }, [])

  return (
    <div className="app">
      <div className="app__videos">
        {videos.map(({ url, channel, description, song, likes, shares, messages }) => (
          <Video
            key={url}
            url={url}
            channel={channel}
            description={description}
            song={song}
            likes={likes}
            shares={shares}
            messages={messages}
          />
        ))}
      </div>
    </div>
  );
}
export default App;
```

```css
html{
    scroll-snap-type: y mandatory;
}

.app{
    height: 100vh;
    background-color: black;
    display: grid;
    place-items: center;
}

.app__videos{
    position:relative;
    height: 800px;
    border-radius: 20px;
    overflow: scroll;
    width: 80%;
    max-width: 500px;
    scroll-snap-type: y mandatory;
}

.app__videos::-webkit-scrollbar{
    display: none;
}

.app__videos{
    -ms-overflow-style: none;
    scrollbar-width: none;
}
```

Basic React – Exercise 1 – Create reels app - FE

```jsx
import React, { useRef, useState } from 'react'
import './Video.css'
import VideoFooter from './VideoFooter'
import VideoSidebar from './VideoSidebar'

const Video = ({ url, channel, description, song, likes, shares, messages }) => {
    const [playing, setPlaying] = useState(false)
    const videoRef = useRef(null)
    const handleVideoPress = () => {
        if(playing){
            videoRef.current.pause()
            setPlaying(false)
        } else {
            videoRef.current.play()
            setPlaying(true)
        }
    }

    return (
        <div className="video">
            <video
                src={url}
                className="video__player"
                loop
                ref={videoRef}
                onClick={handleVideoPress}
            >
            </video>
            <VideoFooter channel={channel} description={description} song={song} />
            <VideoSidebar likes={likes} shares={shares} messages={messages} />
        </div>
    )
}

export default Video
```

```css
.video{
    position: relative;
    background-color: white;
    width: 100%;
    height:100%;
    scroll-snap-align: start;
}

.video__player{
    object-fit: fill;
    width: 100%;
    height: 100%;
}
```

Basic React – Exercise 1 – Create reels app - FE

```jsx
import React from 'react'
import './VideoFooter.css'
import MusicNoteIcon from '@material-ui/icons/MusicNote'
import Ticker from 'react-ticker'

const VideoFooter = ({ channel, description, song }) => {
    return (
        <div className="videoFooter">
            <div className="videoFooter__text">
                <h3>@{channel}</h3>
                <p>{description}</p>
                <div className="videoFooter__ticker">
                    <MusicNoteIcon className="videoFooter__icon" />
                    <Ticker mode="smooth">
                        {({ index }) => (
                            <>
                                <p>{song}</p>
                            </>
                        )}
                    </Ticker>
                </div>
            </div>
            <img className="videoFooter__record" src="your-video-icon" alt="video footer" />
        </div>
    )
}

export default VideoFooter
```

```css
.videoFooter{
    position: relative;
    color: white;
    bottom: 150px;
    margin-left: 40px;
    display: flex;
}

.videoFooter__text{
    flex: 1;
}

.videoFooter__text > h3{
    padding-bottom: 20px;
}

.videoFooter__text > p{
    padding-bottom: 20px;
}

.videoFooter__icon{
    position: absolute;
}

.videoFooter__ticker > .ticker{
    height: fit-content;
    margin-left: 30px;
    width: 60%;
}

.videoFooter__record{
    animation: spinTheRecord infinite 5s linear;
    height: 50px;
    filter: invert(1);
    position: absolute;
    bottom: 0;
    right: 20px;
}
```

Basic React – Exercise 1 – Create reels app - FE

```jsx
import React, { useState } from 'react'
import './VideoSidebar.css'
import FavoriteIcon from '@material-ui/icons/Favorite'
import FavoriteBorderIcon from '@material-ui/icons/FavoriteBorder'
import MessageIcon from '@material-ui/icons/Message'
import ShareIcon from '@material-ui/icons/Share'

const VideoSidebar = ({ likes, shares, messages }) => {
    const [liked, setLiked] = useState(false)

    return (
        <div className="videoSidebar">
            <div className="videoSidebar__button">
                { liked ? <FavoriteIcon fontSize="large" onClick={e => setLiked(false)} /> : <FavoriteBorderIcon fontSize="large" onClick={e => setLiked(true)} /> }
                <p>{liked ? +likes + 1 : likes}</p>
            </div>
            <div className="videoSidebar__button">
                <MessageIcon fontSize="large" />
                <p>{messages}</p>
            </div>
            <div className="videoSidebar__button">
                <ShareIcon fontSize="large" />
                <p>{shares}</p>
            </div>
        </div>
    )
}

export default VideoSidebar
```

```css
.videoSidebar{
    position: absolute;
    top: 50%;
    right: 10px;
    color: white;
}

.videoSidebar__button{
    padding: 20px;
    text-align: center;
}
```

Basic React – Exercise 1 – Create reels app - FE

```
import axios from 'axios'

const instance = axios.create({
    baseURL: "your-backend-heroku-url"
})

export default instance
```

Basic React – Exercise 1 – Create reels app - BE

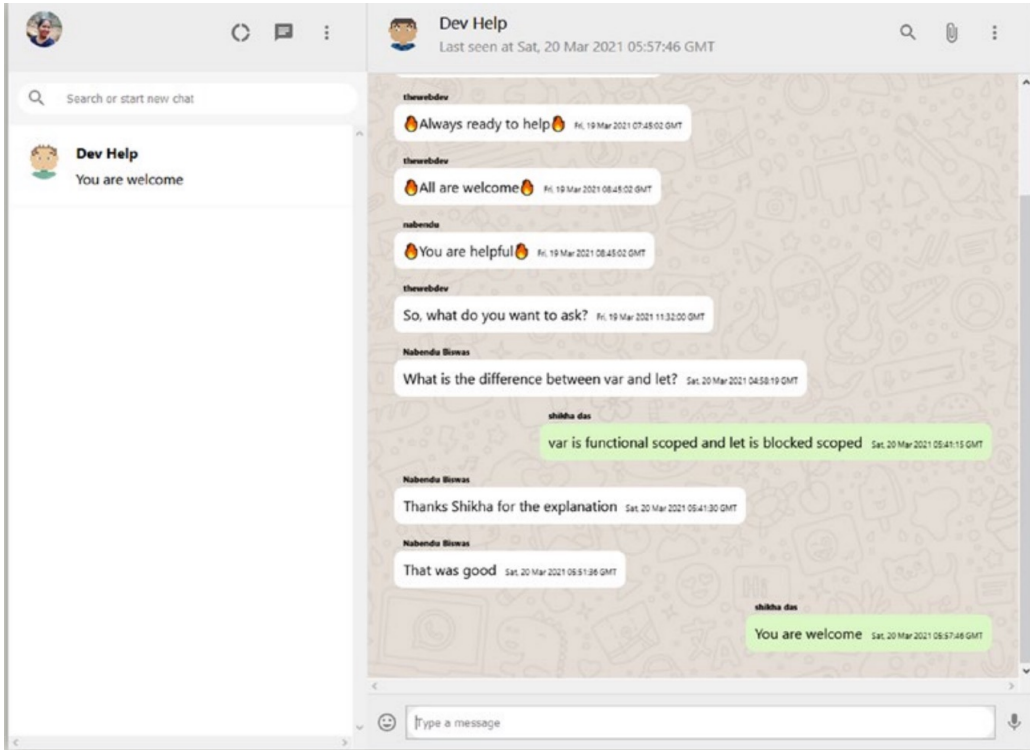
```
import mongoose from 'mongoose'

const shortVideoSchema = mongoose.Schema({
    url: String,
    channel: String,
    description: String,
    song: String,
    likes: String,
    shares: String,
    messages: String
})

export default mongoose.model('shortVideos', shortVideoSchema)
```

Basic React – Exercise 1 – Create reels app - BE

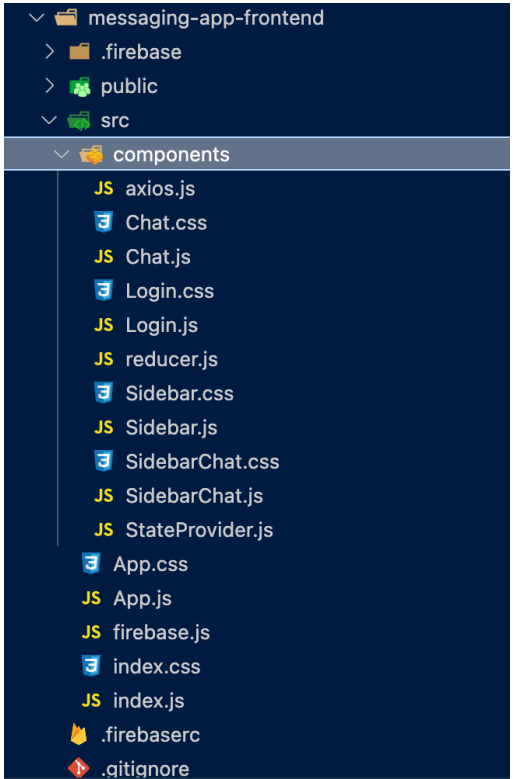
```
import express from 'express'
import mongoose from 'mongoose'
import Cors from 'cors'
import Videos from './dbModel.js'
//App Config
const app = express()
const port = process.env.PORT || 9000
const connection_url = 'your-mongodb-api-url'

//Middleware
app.use(express.json())
app.use(Cors())

//DB Config
mongoose.connect(connection_url, {
    useNewUrlParser: true,
    useCreateIndex: true,
    useUnifiedTopology: true
})

//API Endpoints
app.get("/", (req, res) => res.status(200).send("He so lo , ho so ly ly"))

app.post('/v2/posts', (req, res) => {
    const dbVideos = req.body
    Videos.create(dbVideos, (err, data) => {
        if(err)
            res.status(500).send(err)
        else
            res.status(201).send(data)
    })
})
```

```
app.get('/v2/posts', (req, res) => {
    Videos.find((err, data) => {
        if(err) {
            res.status(500).send(err)
        } else {
            res.status(200).send(data)
        }
    })
})
//Listener
app.listen(port, () => console.log(`Listening on localhost: ${por
```

Basic React – Exercise 2 – Create messaging app

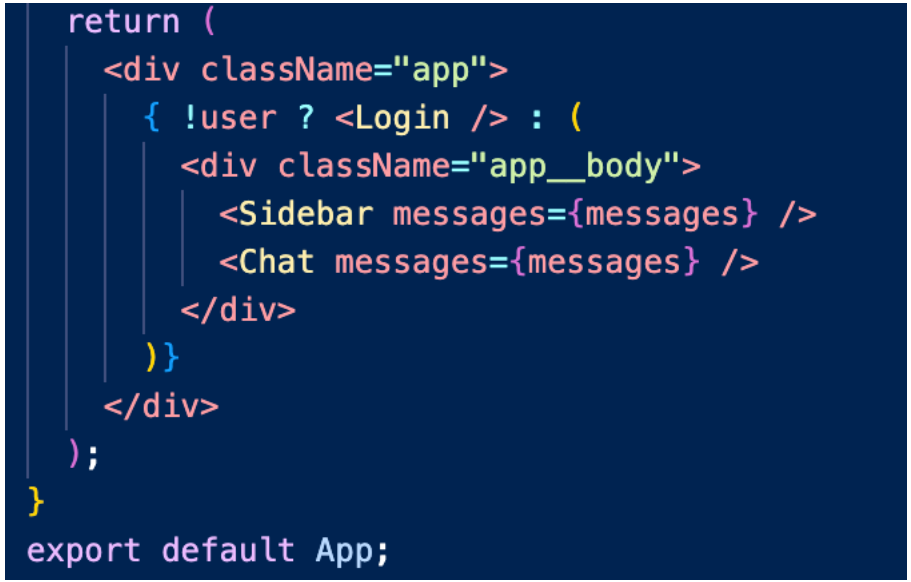


Basic React – Exercise 2 – Create messaging app - Structure



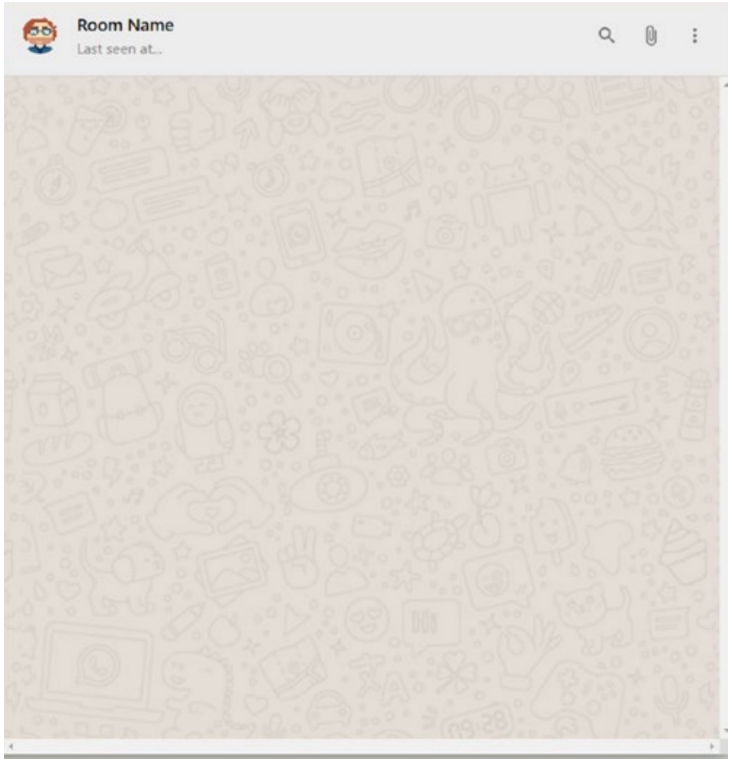
Basic React – Exercise 2 – Create messaging app - FE

```
import React, { useEffect, useState } from 'react'
import './App.css';
import Chat from './components/Chat';
import Sidebar from './components/Sidebar';
import Pusher from 'pusher-js'
import axios from './components/axios'
import Login from './components/Login';
import { useStateValue } from './components/StateProvider';

function App() {
  const [messages, setMessages] = useState([])
  const [{ user }, dispatch] = useStateValue()

  useEffect(() => {
    axios.get("/messages/sync").then(res => {
      setMessages(res.data)
    })
  }, [])

  useEffect(() => {
    const pusher = new Pusher('9e297c1b3f7413a26cce', {
      cluster: 'ap2'
    });

    const channel = pusher.subscribe('messages');
    channel.bind('inserted', (data) => {
      setMessages([...messages, data])
    });

    return () => {
      channel.unbind_all()
      channel.unsubscribe()
    }
  }, [messages])

  console.log(messages)
```

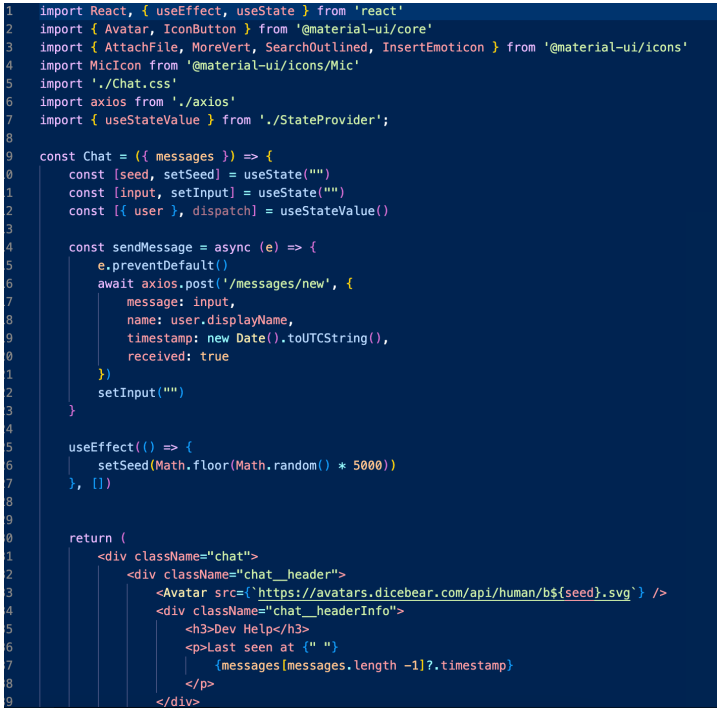


```
  return (
    <div className="app">
      { !user ? <Login /> : (
        <div className="app__body">
          <Sidebar messages={messages} />
          <Chat messages={messages} />
        </div>
      )}
    </div>
  );
}
export default App;
```

Basic React – Exercise 2 – Create messaging app - FE - Chat



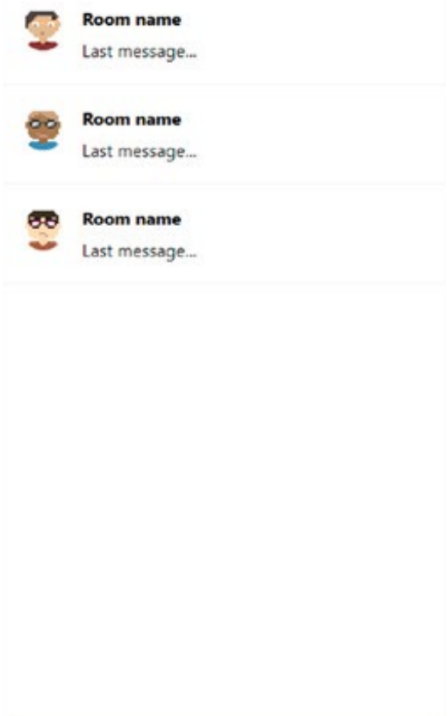
Basic React – Exercise 2 – Create messaging app – FE - Chat



```jsx
import React, { useEffect, useState } from 'react'
import { Avatar, IconButton } from '@material-ui/core'
import { AttachFile, MoreVert, SearchOutlined, InsertEmoticon } from '@material-ui/icons'
import MicIcon from '@material-ui/icons/Mic'
import './Chat.css'
import axios from './axios'
import { useStateValue } from './StateProvider';

const Chat = ({ messages }) => {
    const [seed, setSeed] = useState("")
    const [input, setInput] = useState("")
    const [{ user }, dispatch] = useStateValue()

    const sendMessage = async (e) => {
        e.preventDefault()
        await axios.post('/messages/new', {
            message: input,
            name: user.displayName,
            timestamp: new Date().toUTCString(),
            received: true
        })
        setInput("")
    }

    useEffect(() => {
        setSeed(Math.floor(Math.random() * 5000))
    }, [])


    return (
        <div className="chat">
            <div className="chat__header">
                <Avatar src={`https://avatars.dicebear.com/api/human/b${seed}.svg`} />
                <div className="chat__headerInfo">
                    <h3>Dev Help</h3>
                    <p>Last seen at {" "}
                        {messages[messages.length -1]?.timestamp}
                    </p>
                </div>
```

```jsx
                <div className="chat__headerRight">
                    <IconButton>
                        <SearchOutlined />
                    </IconButton>
                    <IconButton>
                        <AttachFile />
                    </IconButton>
                    <IconButton>
                        <MoreVert />
                    </IconButton>
                </div>
            </div>
            <div className="chat__body">
                {messages.map(message => (
                    <p className={`chat__message ${message.name === user.displayName && 'chat_
                        <span className="chat__name">{message.name}</span>
                            {message.message}
                        <span className="chat__timestamp">
                            {message.timestamp}
                        </span>
                    </p>
                ))}
            </div>
            <div className="chat__footer">
                <InsertEmoticon />
                <form>
                    <input
                        value={input}
                        onChange={e => setInput(e.target.value)}
                        placeholder="Type a message"
                        type="text"
                    />
                    <button onClick={sendMessage} type="submit">Send a message</button>
                </form>
                <MicIcon />
            </div>
        </div>
    )

xport default Chat
```

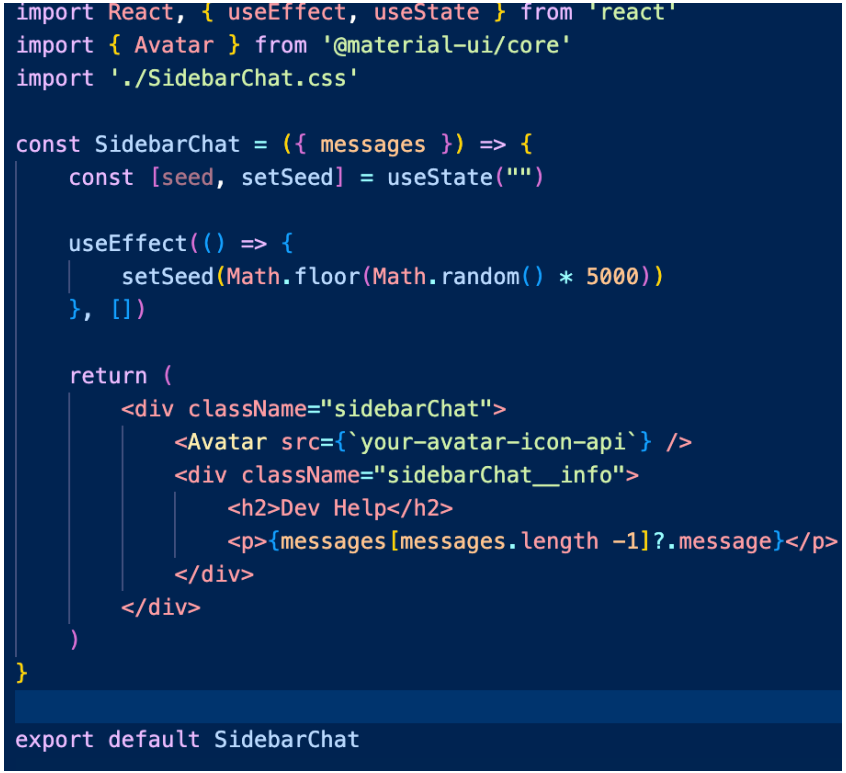
Basic React – Exercise 2 – Create messaging app – FE – Side bar



Basic React – Exercise 2 – Create messaging app – FE – Side bar

```
import React from 'react'
import './Sidebar.css'
import DonutLargeIcon from '@material-ui/icons/DonutLarge'
import ChatIcon from '@material-ui/icons/Chat'
import MoreVertIcon from '@material-ui/icons/MoreVert'
import { Avatar, IconButton } from '@material-ui/core'
import { SearchOutlined } from '@material-ui/icons'
import SidebarChat from './SidebarChat'
import { useStateValue } from './StateProvider';

const Sidebar = ({ messages }) => {
    const [{ user }, dispatch] = useStateValue()

    return (
        <div className="sidebar">
            <div className="sidebar__header">
                <Avatar src={user?.photoURL} />
                <div className="sidebar__headerRight">
                    <IconButton>
                        <DonutLargeIcon />
                    </IconButton>
                    <IconButton>
                        <ChatIcon />
                    </IconButton>
                    <IconButton>
                        <MoreVertIcon />
                    </IconButton>
                </div>
            </div>
            <div className="sidebar__search">
                <div className="sidebar__searchContainer">
                    <SearchOutlined />
                    <input placeholder="Search or start new chat" type="text" />
                </div>
            </div>
            <div className="sidebar__chats">
                <SidebarChat messages={messages} />
            </div>
        </div>
```

Basic React – Exercise 2 – Create messaging app – FE – Side bar chat



```
import React, { useEffect, useState } from 'react'
import { Avatar } from '@material-ui/core'
import './SidebarChat.css'

const SidebarChat = ({ messages }) => {
    const [seed, setSeed] = useState("")

    useEffect(() => {
        setSeed(Math.floor(Math.random() * 5000))
    }, [])

    return (
        <div className="sidebarChat">
            <Avatar src={`your-avatar-icon-api`} />
            <div className="sidebarChat__info">
                <h2>Dev Help</h2>
                <p>{messages[messages.length -1]?.message}</p>
            </div>
        </div>
    )
}

export default SidebarChat
```

Basic React – Exercise 2 – Create messaging app – FE – State context

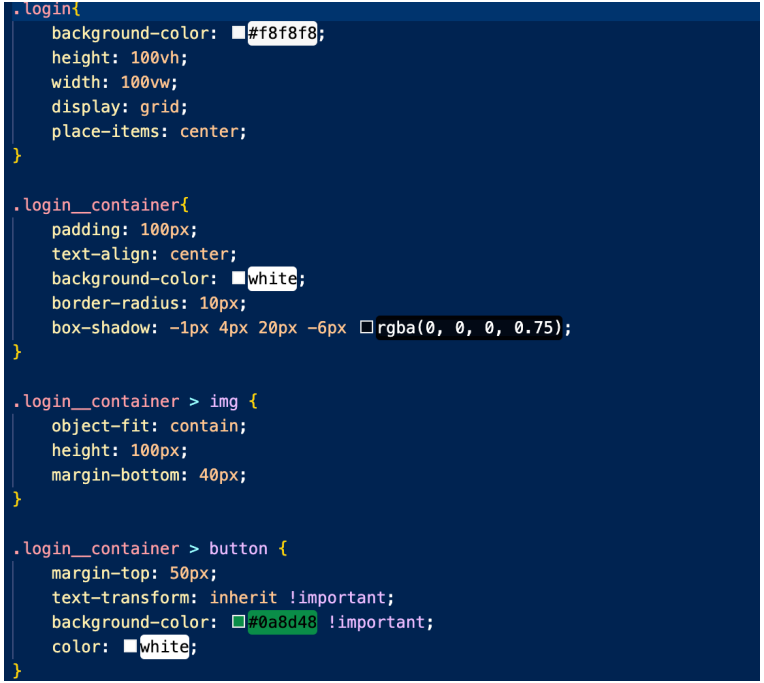
```
import React, { createContext, useContext, useReducer } from "react"

export const StateContext = createContext()

export const StateProvider = ({ reducer, initialState, children }) => (
    <StateContext.Provider value={useReducer(reducer, initialState)}>
        {children}
    </StateContext.Provider>
)

export const useStateValue = () => useContext(StateContext)
```

Basic React – Exercise 2 – Create messaging app – FE – Reducer

```
export const initialState = { user: null }

export const actionTypes = {
    SET_USER: "SET_USER"
}

const reducer = (state, action) => {
    console.log(action)
    switch(action.type) {
        case actionTypes.SET_USER:
            return {
                ...state,
                user: action.user
            }
        default:
            return state
    }
}

export default reducer
```

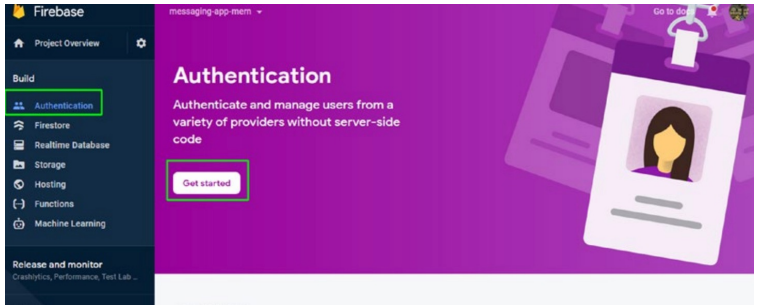
Basic React – Exercise 2 – Create messaging app – FE – Login

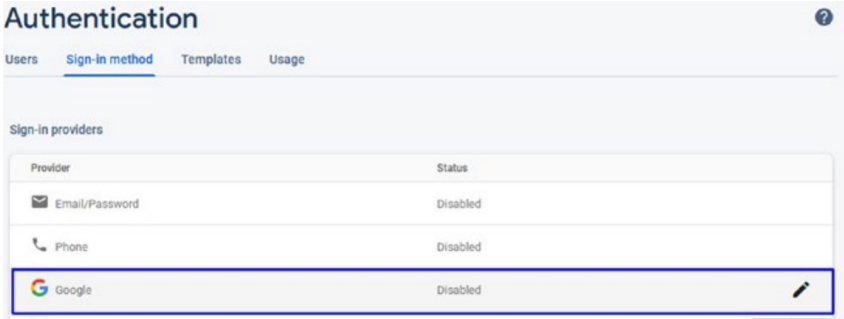
```jsx
import React from 'react'
import { Button } from '@material-ui/core'
import './Login.css'
import { auth, provider } from '../firebase'
import { actionTypes } from './reducer'
import { useStateValue } from './StateProvider'

const Login = () => {
    const [{}, dispatch] = useStateValue()

    const signIn = () => {
        auth.signInWithPopup(provider)
            .then(result => {
                dispatch({
                    type: actionTypes.SET_USER,
                    user: result.user
                })
            })
            .catch(error => alert(error.message))
    }

    return (
        <div className="login">
            <div className="login__container">
                <img src="logo512.png" alt="whatsapp" />
                <div className="login__text">
                    <h1>Sign in to Messaging App</h1>
                </div>
                <Button onClick={signIn}>Sign In with Google</Button>
            </div>
        </div>
    )
}

export default Login
```

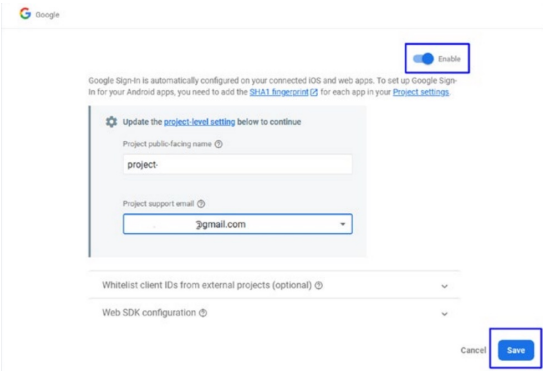


```css
.login{
    background-color: #f8f8f8;
    height: 100vh;
    width: 100vw;
    display: grid;
    place-items: center;
}

.login__container{
    padding: 100px;
    text-align: center;
    background-color: white;
    border-radius: 10px;
    box-shadow: -1px 4px 20px -6px rgba(0, 0, 0, 0.75);
}

.login__container > img {
    object-fit: contain;
    height: 100px;
    margin-bottom: 40px;
}

.login__container > button {
    margin-top: 50px;
    text-transform: inherit !important;
    background-color: #0a8d48 !important;
    color: white;
}
```

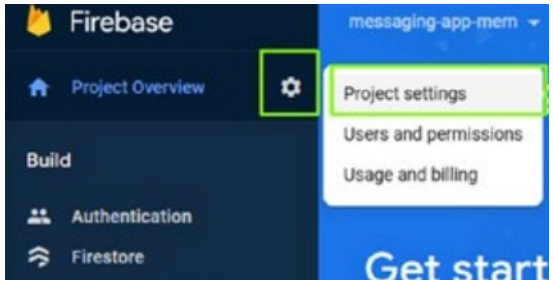
Basic React – Exercise 2 – Create messaging app – FE – Login– Add google authentication

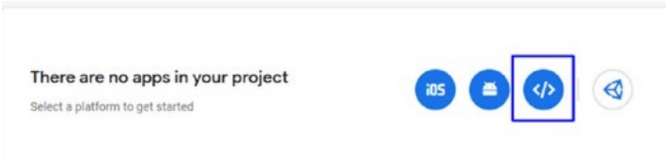


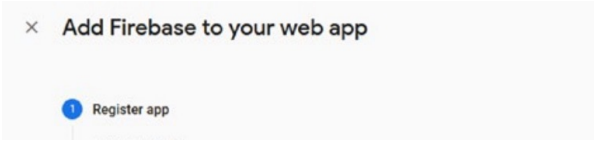


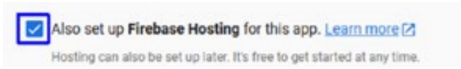


Basic React – Exercise 2 – Create messaging app – FE – Login– Add freebase to your project

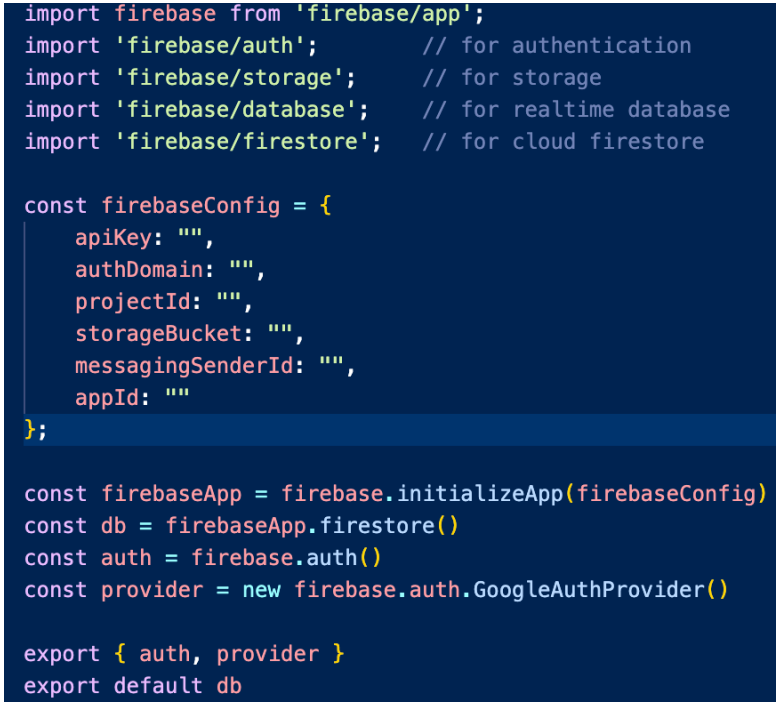






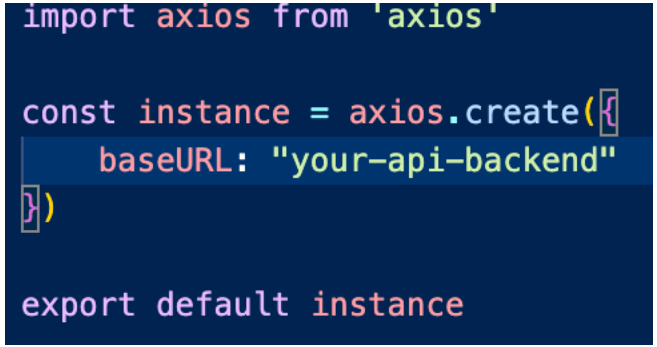


Basic React – Exercise 2 – Create messaging app – FE – Login– Add freebase to your project



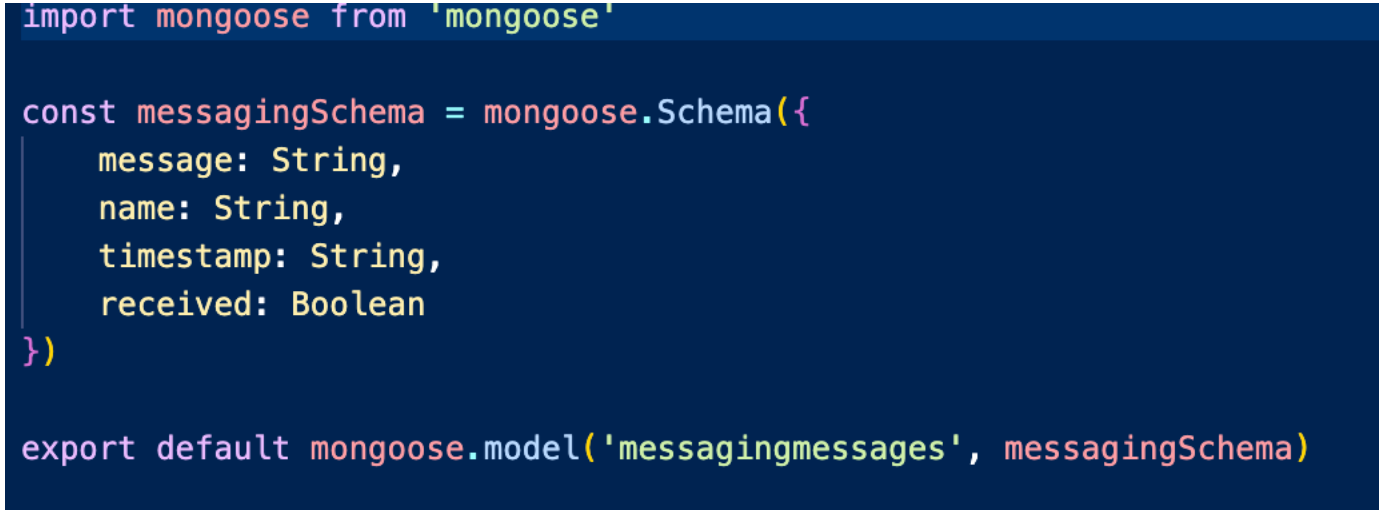
```
import firebase from 'firebase/app';
import 'firebase/auth';        // for authentication
import 'firebase/storage';     // for storage
import 'firebase/database';    // for realtime database
import 'firebase/firestore';   // for cloud firestore

const firebaseConfig = {
    apiKey: "",
    authDomain: "",
    projectId: "",
    storageBucket: "",
    messagingSenderId: "",
    appId: ""
};

const firebaseApp = firebase.initializeApp(firebaseConfig)
const db = firebaseApp.firestore()
const auth = firebase.auth()
const provider = new firebase.auth.GoogleAuthProvider()

export { auth, provider }
export default db
```

Basic React – Exercise 2 – Create messaging app – FE – axios



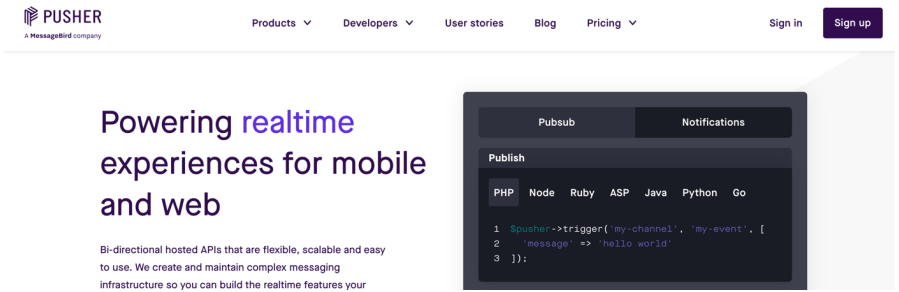
```
import axios from 'axios'

const instance = axios.create({
    baseURL: "your-api-backend"
})

export default instance
```

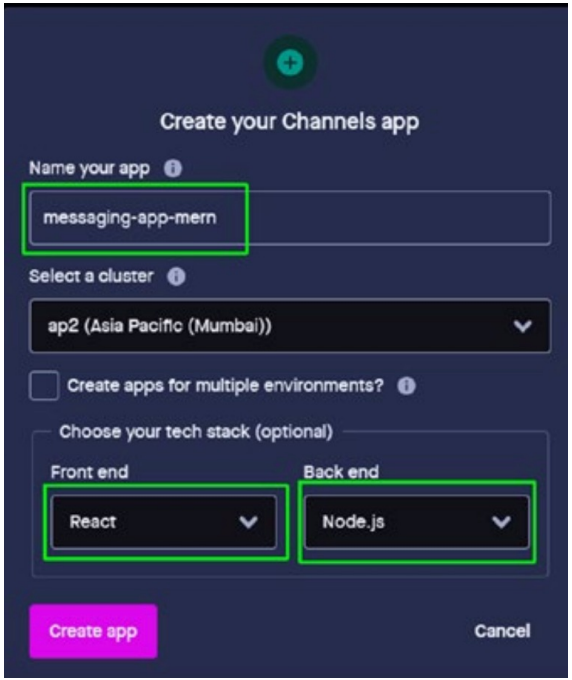
Basic React – Exercise 2 – Create messaging app – BE – DB



```
import mongoose from 'mongoose'

const messagingSchema = mongoose.Schema({
    message: String,
    name: String,
    timestamp: String,
    received: Boolean
})

export default mongoose.model('messagingmessages', messagingSchema)
```

Basic React – Exercise 2 – Create messaging app – BE – Create pusher – Real time DB





Basic React – Exercise 2 – Create messaging app – BE – Server

```
import express from 'express'
import mongoose from 'mongoose'
import Cors from 'cors'
import Messages from './dbMessages.js'
import Pusher from 'pusher'

//App Config
const app = express()
const port = process.env.PORT || 9000
const connection_url = 'your-mongodb'

const pusher = new Pusher({
    appId: "your-app-id",
    key: "your-key",
    secret: "your",
    cluster: "your",
    useTLS: true
});

//Middleware
app.use(express.json())
app.use(Cors())

//DB Config
mongoose.connect(connection_url, {
    useNewUrlParser: true,
    useCreateIndex: true,
    useUnifiedTopology: true
})

//API Endpoints
const db = mongoose.connection
db.once("open", () => {
    console.log("DB Connected")
    const msgCollection = db.collection("messagingmessages")
    const changeStream = msgCollection.watch()
```

```
    changeStream.on('change', change => {
        console.log(change)

        if(change.operationType === "insert") {
            const messageDetails = change.fullDocument
            pusher.trigger("messages", "inserted", {
                name: messageDetails.name,
                message: messageDetails.message,
                timestamp: messageDetails.timestamp,
                received: messageDetails.received
            })
        } else {
            console.log('Error trigerring Pusher')
        }
    })
})

app.get("/", (req, res) => res.status(200).send("Hello UIT guys"))

app.post('/messages/new', (req, res) => {
    const dbMessage = req.body
    Messages.create(dbMessage, (err, data) => {
        if(err)
            res.status(500).send(err)
        else
            res.status(201).send(data)
    })
})

app.get('/messages/sync', (req, res) => {
    Messages.find((err, data) => {
        if(err) {
            res.status(500).send(err)
        } else {
            res.status(200).send(data)
        }
    })
})

//Listener
app.listen(port, () => console.log(`Listening on localhost: ${port}`))
```

Q & A

Thank you for cooperating
Gét gô

“Coming together is a beginning;
Keeping together is progress;
Working together is success.”
- HENRY FORD