**Application frameworks**

**Lab session 3 – React JS**

**Objective:** Teach main features of React JS

1. Create a node project.

npm init

1. Install webpack and babel related dependencies.

npm install parcel-bundler --save-dev

1. Install React JS dependencies.

npm install react react-dom prop-types --save-dev

1. Create index.html file.

<!DOCTYPE **html**>

<**html lang="en"**>

<**head**>

<**meta charset="UTF-8"**>

<**title**>React JS</**title**>

</**head**>

<**body**>

<**div id="app"**></**div**>

<**script src="main.jsx"**></**script**>

</**body**>

</**html**>

1. Create main application container file as AppContainer.jsx

**'use strict'**;

**import** React, {*Component*} **from 'react'**;

**export default class** AppContainer **extends** *Component* {

constructor(props) {

**super**(props);

}

render() {

**return** <**div**>

<**h2**>Hello World</**h2**>

</**div**>;

}

}

1. Add new JSX file (main.jsx) as the entry point for the React application.

**'use strict'**;

**import** React **from 'react'**;

**import** {render} **from 'react-dom'**;

**import** AppContainer **from './AppContainer.jsx'**;

render(<**AppContainer**/>, ***document***.getElementById(**'app'**));

1. Add start script into the scripts block in package.json file.

**"start"**: **"parcel index.html"**

1. Run the application.

npm start

1. Create a file called User.jsx to display information belong to a single user in a table row.

**'use strict'**;

**import** React **from 'react'**;

**const** *User* = props => {

**const** {user} = props;

**return** <**tr**>

<**td**>{user.**id**}</**td**>

<**td**>{user.**name**}</**td**>

</**tr**>

};

**export default** *User*;

1. Create a file called Users.jsx to handle displaying user list. Use the previously created User component in Users component.

**'use strict'**;

**import** React, {*Component*} **from 'react'**;

**import** PropTypes **from 'prop-types'**;

**import** *User* **from './User.jsx'**;

**export default class** Users **extends** *Component* {

**static get** *propTypes*() {

**return** {

**users**: PropTypes.*array*

}

}

constructor(props) {

**super**(props);

}

render() {

**const** {users} = **this**.**props**;

**return** <**div**>

<**table**>

<**thead**>

<**tr**>

<**th**>ID</**th**>

<**th**>Name</**th**>

</**tr**>

</**thead**>

<**tbody**>

{

users.map(user => {

**return** <**User key=**{user.**id**} **user=**{user}/>

})

}

</**tbody**>

</**table**>

</**div**>;

}

}

1. Add Users component to AppContainer component.

**'use strict'**;

**import** React, {*Component*} **from 'react'**;

**import** Users **from './Users'**;

**export default class** AppContainer **extends** *Component* {

constructor(props) {

**super**(props);

**this**.**state** = {

**users**: [{

**id**: ***Date***.now(),

**name**: **'John'**

}]

}

}

render() {

**return** <**div**>

<**h2**>Users App</**h2**>

<**Users users=**{**this**.**state**.**users**}/>

</**div**>;

}

}

1. Create another component AddUser to add new users.

**'use strict'**;

**import** React, {*Component*} **from 'react'**;

**import** PropTypes **from "prop-types"**;

**export default class** AddUser **extends** *Component* {

**static get** *propTypes*() {

**return** {

**addUser**: PropTypes.*func*

}

}

constructor(props) {

**super**(props);

}

onNameChange(event) {

event.preventDefault();

event.stopPropagation();

**this**.**name** = event.**target**.**value**;

}

onSubmit(event) {

event.preventDefault();

event.stopPropagation();

**if** (**this**.**name**) {

**this**.**props**.**addUser**({**name**: **this**.**name**});

**this**.**name** = **''**;

}

}

render() {

**return** <**div**>

<**form onSubmit=**{event => **this**.onSubmit(event)}>

<**label**>Name:</**label**>

<**input type="text" onChange=**{event => **this**.onNameChange(event)}/>

<**button type="submit"**>Add</**button**>

</**form**>

</**div**>;

}

}

1. Update AppContainer component to cater user adding.

**'use strict'**;

**import** React, {*Component*} **from 'react'**;

**import** AddUser **from './AddUser'**;

**import** Users **from './Users'**;

**export default class** AppContainer **extends** *Component* {

constructor(props) {

**super**(props);

**this**.**state** = {

**users**: [{

**id**: ***Date***.now(),

**name**: **'John'**

}]

}

}

addUser(user) {

**this**.setState(state=> ({

**users**: **state**.**users**.concat({**id**: ***Date***.now(), **name**: user.**name**})

}))

}

render() {

**return** <**div**>

<**h2**>Users App</**h2**>

<**AddUser addUser=**{user => **this**.addUser(user)}/>

<**Users users=**{**this**.**state**.**users**}/>

</**div**>;

}

}

1. Run the application can check the output.

npm start