1.Create a git repository and clone it for changes and publish the changes using git bash.

```
-Open GitHub website and create a new repository.
```

- -Name and create the repository.
- -Copy the GitHub link
- -Open Github in the local computer and clone the repository using 'git clone' \$git clone "<git repository link>"
- -Search and open the file in the computer
- -cd <filename>
- -open a notepad file and enter any html code. Later save and close the file.
- -Next all the html file to the repository using the 'git add'
 - -\$ git add.
- -Commit the changes written in the code
 - -\$ git commit -m "first commit"
- -Push all the commands using 'git push'
 - -\$ git push

2.Create a realtime database in firebase for the student management system and explore the features of Firebase Real Time Database.

Index.html

```
Phone: <input type = "number" id = "phone" class = "input"
onclick="insert()">Insert</button>
            <button class = "btn btn-primary"</pre>
onclick="read()">Read</button>
onclick="update()">Update</button>
onclick="Delete()">Delete</button>
src="https://www.qstatic.com/firebasejs/8.4.1/firebase-app.js"></script>
src="https://www.qstatic.com/firebasejs/8.4.1/firebase-database.js"></scri</pre>
        var firebaseConfig = {
          apiKey: "AIzaSyDUi-HbawhVVsPBM1gUcWLrEcG4uDwpFrU",
          authDomain: "we-exam.firebaseapp.com",
          projectId: "we-exam",
          storageBucket: "we-exam.appspot.com",
          messagingSenderId: "477124477779",
          appId: "1:477124477779:web:46ae7ce1e4f70807ee17a6"
        firebase.initializeApp(firebaseConfig);
```

firebaseOperations.js

```
var Name, email, phone;
var database = firebase.database().ref('users');
function getData() {
   Name = document.getElementById("name").value;
   email = document.getElementById("email").value;
```

```
phone = document.getElementById("phone").value
function read() {
   var phone = document.getElementById("phone").value;
console.log("Read");
database.child(phone).on('value',(snapshot) => {
   obj = snapshot.val()
       var s=`Name: ${obj['Name']}\n Email: ${obj['Email']}\n Phone:
${obj['Phone']} `;
       alert(s)
});
function insert(){
   getData();
   console.log("Insert");
   database.child(phone).set({Name,email,phone,})
function update(){
   getData();
   console.log("Update");
   database.child(phone).set({Name,email,phone,})
function Delete() {
   var phone = document.getElementById("phone").value;
   console.log("Delete");
   database.child(phone).set(null);
```

Styles.css

```
body {
  background: lightgrey;
}
```

```
.container2 {
  width: 400px;
  background-color: cadetblue;
  position: absolute;
  left: 40%;
  top: 30%;
  padding: 50px;
  border-bottom: 2px solid grey;
  justify-content: center;
}
.input {
  box-sizing: border-box;
  background: inherit;
  border-top: hidden;
  border-left: hidden;
  border-right: hidden;
  outline: none;
  color: red;
  font-weight: bold;
  font-size: inherit;
}
```

3.Develop an express web application that can interact with a service to perform CRUD operations on student data. (Use Postman)

Index.js

```
const express = require('express');
const users = require('./users');
const fs = require('fs');

const app = express();

app.use(express.json());
app.listen(1111, () => console.log("Server listening"));
```

```
app.get('/api/users', (req, res) => {
})
app.get('/api/users/:id', (req, res) => {
    const user = users.find((user) => user.userId ===
parseInt(req.params.id));
       res.status(404).send(`No user exists with the given user id:
${req.params.id}`);
       res.send(user);
})
app.post('/api/users', (req, res) => {
    console.log(req.body);
   users.push(req.body);
    res.send(`User with name ${req.body.name} added succesfully`);
    fun(users);
})
app.put('/api/users/:id', (req, res) => {
    let user = users.find((user) => user.userId ===
parseInt(req.params.id));
    if (!user)
       res.status(404).send(`No user exists with the given user id:
${req.params.id}`)
        const index = users.indexOf(user);
        user = req.body;
       users.splice(index, 1, user);
        res.send(`User with name ${req.body.name} updated successfully`);
       fun(users);
app.delete('/api/users/:id', (req, res) => {
    const user = users.find((user) => user.userId ===
parseInt(req.params.id));
```

```
if (!user)
    res.status(404).send(`No user exists with the given user id :

${req.params.id}`);
else {
    const index = users.indexOf(user);
    users.splice(index, 1);
    fun(users);
    res.send(user);
}

})

const fun = (users) => {
    var s = JSON.stringify(users, null, 2);
    s = "const users = " + s + '\nmodule.exports = users;';
    fs.writeFile('users.js', s, () => {
        console.log('Written successfully');
    });
}
```

Users.js

```
{
    "userId": 4,
    "name": "Prasuna",
    "age": 20,
    "contact": 8569456328
},
{
    "userId": 5,
    "name": "Chotu",
    "age": 19,
    "contact": 8934587329
},
    {
     "userId": 7,
     "name": "Yelchu",
     "age": 69
}
module.exports = users;
```

4.For the above application create authorized end points using JWT (JSON Web Token).

Index.js

```
const express = require('express');
const users = require('./users');
const fs = require('fs');
const jwt = require("jsonwebtoken");
const app = express();

app.use(verifyToken);
app.use(express.json());
app.listen(1111, () => console.log("Server listening"));

app.get('/api/users',(req, res) => {
    res.send(users);
})
```

```
app.get('/api/users/:id', (req, res) => {
  const user = users.find((user) => user.userId === parseInt(req.params.id));
  if (!user)
     res.status(404).send('No user exists with the given user id: ${req.params.id}');
  else
     res.send(user);
})
app.post('/api/users', (req, res) => {
  console.log(req.body);
  users.push(req.body);
  res.send(`User with name ${req.body.name} added succesfully`);
  fun(users);
})
app.put('/api/users/:id', (req, res) => {
  let user = users.find((user) => user.userId === parseInt(req.params.id));
  if (!user)
     res.status(404).send('No user exists with the given user id: ${req.params.id}')
     const index = users.indexOf(user);
     user = req.body;
     users.splice(index, 1, user);
     res.send(`User with name ${req.body.name} updated successfully`);
     fun(users);
  }
})
app.delete('/api/users/:id', (req, res) => {
  const user = users.find((user) => user.userId === parseInt(req.params.id));
  if (!user)
     res.status(404).send('No user exists with the given user id: ${req.params.id}');
  else {
     const index = users.indexOf(user);
     users.splice(index, 1);
     fun(users);
     res.send(user);
  }
})
const fun = (users) => {
  var s = JSON.stringify(users, null, 2);
  s = "const users = " + s + \nmodule.exports = users;";
```

```
fs.writeFile('users.js', s, () => {
     console.log('Written successfully');
  });
}
function verifyToken(req, res, next) {
  if(req.url == '/api/login')
  {
     next();
     return;
  }
  const bearerHeader = req.headers["authorization"];
  if (typeof bearerHeader !== "undefined") {
     const bearerToken = bearerHeader.split(" ")[1];
     req.token = bearerToken;
     next();
  } else {
     res.sendStatus(403);
  }
}
app.get("/api/login", (req, res) => {
  const user = {
     id: 1,
     username: "pranay",
     email: "pranay@gmail.com"
  jwt.sign({ user}, "secretkey", (err, token) => {
     res.json({token});
  });
});
```

Users.js

```
"name": "Nikhil Chandra",
    "age": 20,
    "contact": 8394568236
},
{
    "userId": 3,
    "name": "Ritin",
    "age": 21,
    "contact": 862145638
},
{
    "userId": 4,
    "name": "Prasuna",
    "age": 20,
    "contact": 8569456328
},
{
    "userId": 5,
    "name": "Chotu",
    "age": 19,
    "contact": 8934587329
}
}
Immodule.exports = users;
```

5.Create an angular application for the student management system. Include necessary pages.

Index.html

```
<body>
    <app-root></app-root>
</body>
</html>
```

App.component.css

```
.container{
   width: fit-content;
   background-color: yellow;
   padding: 50px;
   margin: 0 auto;
.input{
   border-top: hidden;
   border-right: hidden;
   outline: none;
   color: red;
   font-weight: bold;
   font-size: inherit;
button{
   padding: 5px;
   margin: 10px;
```

App.component.html

```
<div class="container">
Name: <input type="text" [(ngModel)]="name"><br><br>
Email: <input type = "email" [(ngModel)]="email"><br><br>
```

App.component.ts

```
import { Component } from '@angular/core';
@Component({
 selector: 'app-root',
 templateUrl: './app.component.html',
 styleUrls: ['./app.component.css']
export class AppComponent {
 data: userData[]=[];
 email:string="";
 phone:string="";
 email1:string="";
 phone1:string="";
 clear() {
  insert(){
    this.clear();
    const user = this.data.find((user) => user.phone == this.phone);
    if(!user)
```

```
this.data.push({name:this.name,email:this.email,phone:this.phone});
  console.log(this.data);
read(){
  const user:any = this.data.find((user) => user.phone == this.phone);
  if(user){
    this.name1 = user.name;
   this.phone1 = user.phone;
    this.email1 = user.email;
update(){
 this.clear();
 const user:any = this.data.find((user) => user.phone == this.phone);
 if(user){
   const index = this.data.indexOf(user);
   this.js = {name:this.name,email:this.email,phone:this.phone};
   console.log(this.js);
   this.data.splice(index, 1, this.js);
  console.log(this.data);
delete() {
  this.clear();
  const user:any = this.data.find((user) => user.phone == this.phone);
  if(user){
   const index = this.data.indexOf(user);
   this.data.splice(index,1);
 console.log(this.data);
email:string="";
phone:string="";
```

6.Create a service in angular that fetches the weather information from openweathermap and the display the current and historical weather information using graphical representation using chart.js

App.component.html

App.component.ts

```
import { Component } from '@angular/core';
import { HttpClient } from '@angular/common/http';
@Component({
    selector: 'app-root',
    templateUrl: './app.component.html',
    styleUrls: ['./app.component.css']
})
export class AppComponent {
    title = 'weather';
    load = false;
    city:any;
    cityName:string = '';
    temp:any[] = [];
    day:any[] = [];
    constructor(private h:HttpClient){}
    loadData(){
```

```
this.h.get(`https://api.openweathermap.org/data/2.5/forecast?q=${this.city
Name}&appid=5aac677d8bdf1b1c517aa7041a47aab8&units=metric`).subscribe((res
)=>{
    this.load=true;
    this.city = res;
    for(var i=0;i<40;i+=8) {
        var num = this.city.list[i].main.temp;
        var date = this.city.list[i].dt_txt;
        var day = date.split(" ")[0];
        this.temp.push(num);
        this.day.push(day);
    }
})
}</pre>
```

App.module.ts

```
import { NgModule } from '@angular/core';
import { BrowserModule } from '@angular/platform-browser';
import { AppRoutingModule } from './app-routing.module';
import { AppComponent } from './app.component';
import { HttpClientModule } from '@angular/common/http'
import { FormsModule } from '@angular/forms';
@NgModule({
 declarations: [
   AppComponent
 imports: [
   BrowserModule,
   AppRoutingModule,
   HttpClientModule,
   FormsModule
 providers: [],
 bootstrap: [AppComponent]
```

```
})
export class AppModule { }
```

7.Develop an angular application that displays employees information and transform the data in the required form using pipes.

Custom.components.ts

```
import { Component, OnInit } from '@angular/core';
@Component({
 selector: 'app-custom',
 templateUrl: './custom.component.html',
 styleUrls: ['./custom.component.css']
})
export class CustomComponent implements OnInit {
 constructor() { }
 data:any=[
  {
   name:"Pranay",age:21,roll:"18B81A0589",gpa:8.72
  },
   name: "Chintu", age: 20, roll: "18B81A0389", gpa: 4.999
  },
   name:"Juniper",age:22,roll:"18B81A0485",gpa:6.15
 ngOnInit(): void {
```

Custom.component.html

```
<div class="container">
 <thead>
     Name
       Age
       Roll Number
       Branch
       GPA
       Pass/Fail
     </thead>
   {{i.name}}
       {{i.age}}
       {(i.roll}}
       {{i.roll|branch}}
       {{i.gpa}}
       {{i.gpa|pass}}
     </div>
Index.html
<!doctype html>
<html lang="en">
<head>
 <meta charset="utf-8">
 <title>Demo</title>
 <base href="/">
 <meta name="viewport" content="width=device-width, initial-scale=1">
 k rel="icon" type="image/x-icon" href="favicon.ico">
</head>
<body style="background-color: darkviolet;">
 <app-root></app-root>
</body>
```

</html>

Custom.components.css

```
@import url('https://fonts.googleapis.com/css2?family=Montserrat&display=swap');
th {
  /* border: 2px solid red; */
  border-collapse: collapse;
  color: rgb(61, 149, 226);
}
td,
th {
  padding: 10px;
table {
  margin: 50px auto;
  padding: 100px;
  font-family: 'Monteserrat', sans-serif;
  /* border: 5px solid goldenrod; */
  border-collapse: collapse;
  background-color: darkviolet;
}
td {
  padding-left: 20px;
  padding-right: 20px;
  color: aliceblue;
}
Branch.pipe.ts
import { Pipe, PipeTransform } from "@angular/core";
@Pipe({name:"branch"})
export class BranchPipe implements PipeTransform{
  transform(value: any) {
     if(value[7]=='5')
       return "CSE";
     else if(value[7]=='3')
       return 'MECH';
```

```
else if(value[7]=='4')
    return 'ECE';
    return "Invalid";
}

Pass.pipe.ts

import { Pipe, PipeTransform } from "@angular/core";

@Pipe({name:"pass"})
    export class PassPipe implements PipeTransform{

    transform(value: any) {
        if(value>5)
            return "Pass";
        return "Fail";
```

}

8.Develop a react application for the student management system. Include necessary pages.

```
app.js:-
import React, { Component } from 'react';
import { BrowserRouter as Router, Route } from "react-router-dom";
import Students from './components/DashBoard/StudentData/students';
import AddStudents from './components/DashBoard/StudentData/Addstudent';
import LogOut from './components/auth/LogOut';
import Details from './components/DashBoard/StudentData/Details';
import NavBar from './components/DashBoard/navbar/navBar';
import UserProfile from './components/auth/UserProfile';
class App extends Component {
 render() {
  return (
   <div>
    <Router>
    <div className="App">
      <NavBar/>
      <Route exact path="/students" component={Students} />
      <Route exact path="/Addstudent" component={AddStudents} />
      <Route exact path="/Addstudent/:id" component={AddStudents} />
      <Route exact path="/LogOut" component={LogOut} />
```

```
<Route exact path="/Details/:id" component={Details} />
      <Route exact path="/UserProfile" component={UserProfile} />
     </div>
   </Router>
   </div>
  );
}
export default App;
Addstudent.js:-
import React, { Component } from 'react';
import * as firebase from 'firebase';
import '../../config/fb';
import Input from '../../UICom/Input';
import Button from '../../UICom/Button';
class AddStudents extends Component {
  constructor() {
     super();
     this.state = {
       StudentName: "",
       StudentFName: "",
       StudentAge: ",
       StudentGender: ",
       editld: null,
       edit: false,
       User: {},
       studentPervData: null
     this.ref = firebase.database().ref();
  }
  componentDidMount(){
     console.log({AddStudents: "componentDidMount"})
     firebase.auth().onAuthStateChanged((user) => {
       if (user) {
          this.setState({User: user})
       } else {
          console.log({AddStudents: "current user null"})
       }
      });
```

```
this.getStudentsData()
  }
  onEdit = (StudentData, id) => {
     const Editstudent = StudentData.find((stu) =>{
       return stu.StudentID === id
     })
     if (Editstudent){
          this.setState({
          editld: id,
          edit: "Edit Student",
          StudentName: Editstudent.name,
          StudentFName: Editstudent.fname,
          StudentAge: Editstudent.age,
          StudentGender: Editstudent.gender,
        })
     }
  getStudentsData = () => {
     this.ref.child(`Student`).once("value", (snapshot) => {
       const data = snapshot.val();
       const TempArr = [];
       for (let key in data) {
          TempArr.push({ StudentID: key, name: data[key].name, fname: data[key].fname, age:
data[key].age, gender: data[key].gender });
       const EditID = this.props.match.params.id;
       if(EditID){
          this.onEdit(TempArr, EditID)
       }
    })
  onAdd = (event) => {
     event.preventDefault();
     const { StudentName, StudentFName, StudentAge, StudentGender, editId } = this.state;
     if (StudentName === " || StudentFName === " || StudentGender === " || StudentAge === ")
{
       return
     else if (editId !== null) {
       this.ref.child(`Student/${this.state.editId}`).update({ name: StudentName, fname:
StudentFName, age: StudentAge, gender: StudentGender });
     }
```

```
else {
       this.ref.child(`Student`).push({ name: StudentName, fname: StudentFName, age:
StudentAge, gender: StudentGender })
     this.setState({ StudentName: ",
     StudentFName: ", StudentAge: ", StudentGender: ",
     edit: false,
     editld: ", })
     setTimeout(()=> {
       this.props.history.push('/students');
    },1000)
  }
  componentWillUnmount(){
     console.log({AddStudents: "componentwillUnmount"})
  }
  whenChange = (event) => {
     const { name, value } = event.target;
     this.setState({ [name]: value })
  }
  render() {
    return (
       <div className="container">
          <div className="center teal darken-3 white-text">
            <h4>Add Student Form</h4>
          </div>
          <div className="teal lighten-5">
            <form onSubmit={this.onAdd}>
               <Input v={this.state.StudentName} oc={this.whenChange} t="text" f='name'</pre>
d='name' I='Name' n="StudentName" />
               <Input v={this.state.StudentFName} oc={this.whenChange} t="text" f='fname'</pre>
d='fname' I='Father Name' n="StudentFName" />
               <Input v={this.state.StudentAge} oc={this.whenChange} t="number" f='age'</pre>
d='age' I='Age' n="StudentAge" />
               <Input v={this.state.StudentGender} oc={this.whenChange} t="text" f='gender'</pre>
d='gender' I='Gender' n="StudentGender" />
               {this.state.edit ? (<Button cn="btn-small right" t={this.state.edit} />
              ):(
               <Button cn="btn-small right" t="Add Student" />)}
            </form>
          </div>
       </div>
  }
```

```
export default AddStudents;
navbar.js:-
import React,{Component} from 'react';
import {NavLink, Link, withRouter} from "react-router-dom";
import * as firebase from 'firebase';
import "../../config/fb";
import LogIn from '../../auth/LogIn';
import SignedInLinks from './SignedInLinks';
import Drawer from '@material-ui/core/Drawer';
import './navBar.css'
class NavBar extends Component{
  constructor() {
     super()
     this.state = {
      User: null,
      signIn: false,
      name: "",
      left: false,
      status: "",
     this.ref = firebase.database().ref()
   componentDidMount = () => {
     this.authListener();
   authListener = () => {
     firebase.auth().onAuthStateChanged((user) => {
      if (user) {
       console.log("Current User Signed In");
       this.setState({User: user})
       this.getStatus(user.uid)
      } else {
       this.setState({User: null})
       console.log("No Signed In user")
      }
    });
   getStatus = (uid) => {
     this.ref.child(`Status${uid}`).on("value", (snapshot)=> {
```

```
const s = snapshot.val()
      let tems = ""
      for(let key in s){
       tems += s[key].status
     }
    this.setState({status: tems})
    })
   }
   changeName = () => {
    const user = this.state.User
    const name = user.displayName;
    if(name){
      let char = name.slice(0,1);
       let index = null
       let a = [...name]
       for(let i = 0; i < a.length; i++){
        if(a[i] === " "){
         index += a.indexOf(" ");
         char += a[index+1]
         }
       }
       return char;
    }
    else{
      const email = user.email;
      let char = email.slice(0,1);
      return char;
    }
   toggleDrawer = (open) => () => {
    this.setState({
     left: open,
    });
   };
  render(){
  const sideList = (
  <div className="list_width">
   ul className="collection with-header">
   <NavLink to="/UserProfile"><h5 className="white-text">{this.state.User ?
(this.state.User.displayName? (this.state.User.displayName
    ): (this.state.User.email)
    ): (null)}</h5>
   </NavLink>
```

```
className="collection-item"><NavLink className="grey-text" exact</pre>
activeClassName="black-text" to="/students">Students</NavLink>
   {this.state.status === "teacher" ? (<NavLink
className="grey-text" exact activeClassName="black-text" to='/Addstudent'>Add
Students</NavLink>): (null)}
   className="collection-item"><NavLink className="grey-text" exact</pre>
activeClassName="black-text" to='/LogOut'>Log out</NavLink>
   </div>
  );
    return (
      <div>
      {this.state.User?(
    <nav className="nav-wrapper teal darken-4">
    <div className="container">
    <span onClick={this.toggleDrawer(true)} className="btn-small btn-floating transparent</pre>
hide-on-large-only">
    <i className="material-icons">menu</i>
    </span>
     
     
    &nbsp:
    <span className="flow-text teal darken-4 hide-on-large-only">Student Management
System</span>
    <Drawer open={this.state.left} onClose={this.toggleDrawer(false)}>
     <div onClick={this.toggleDrawer(false)}>
      {sideList}
     </div>
    </Drawer>
    <span className="brand-logo hide-on-med-and-down">Student Management
System</span>
    ul className="right hide-on-med-and-down">
    <Link to="/students">Students</Link>
    <SignedInLinks s={this.state.status} name={this.changeName()}/>
    </div>
    </nav>) : (<LogIn />)}
    </div>
    )
 }
export default withRouter(NavBar);
```