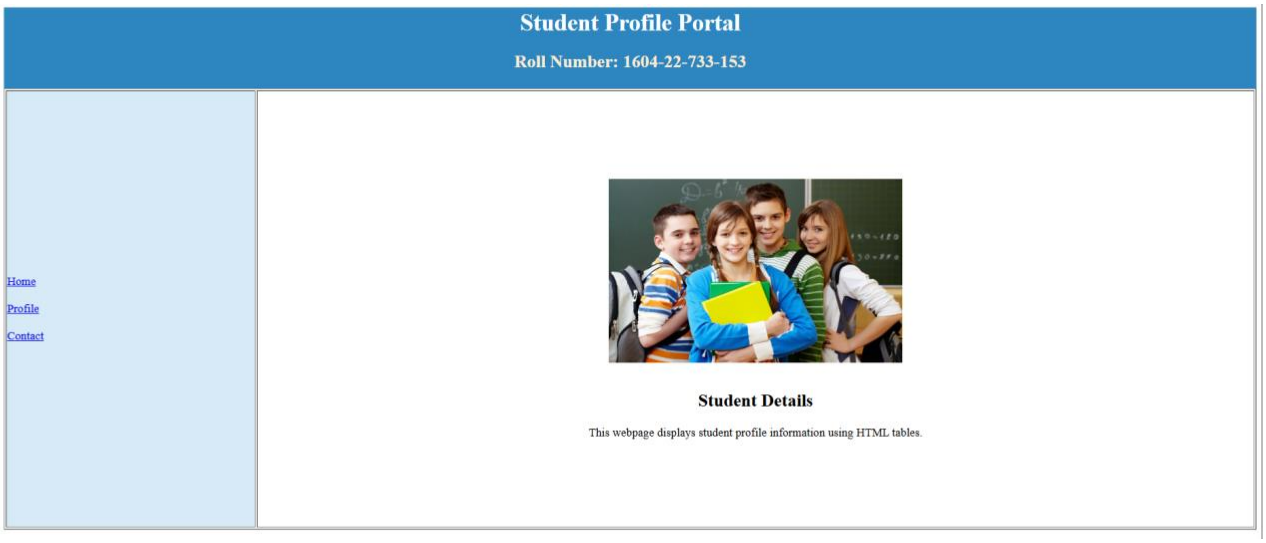
Program-1: Develop a static website using HTML Tables

```
<html>
  <head>
    <title>Student Profile</title>
  </head>
  <body>
    <table width="100%" bgcolor="#2E86C1">
      <tr>
        <td>
          <center>
            <h1 style="color: white">Student Profile Portal</h1>
            <h2 style="color: #fdebd0">Roll Number: 1604-22-733-153</h2>
          </center>
        </td>
      </tr>
    </table>

    <table width="100%" height="600" border="1">
      <tr>
        <td width="20%" bgcolor="#D6EAF8">
          <a href="#">Home</a><br /><br />
          <a href="#">Profile</a><br /><br />
          <a href="#">Contact</a>
        </td>

        <td width="80%">
          <center>
            <img
              src="https://www.nasca.edu.in/learning-centre/wp-content/uploads/2019/10/students-
future-1024x683.jpg"
              width="400"
              height="250"
            /><br /><br />
            <h2>Student Details</h2>
            <p>
              This webpage displays student profile information using HTML
              tables.
            </p>
          </center>
        </td>
      </tr>
    </table>
  </body>
</html>
```

Output:



Student Profile Portal

Roll Number: 1604-22-733-153

Home

Profile

Contact

Student Details

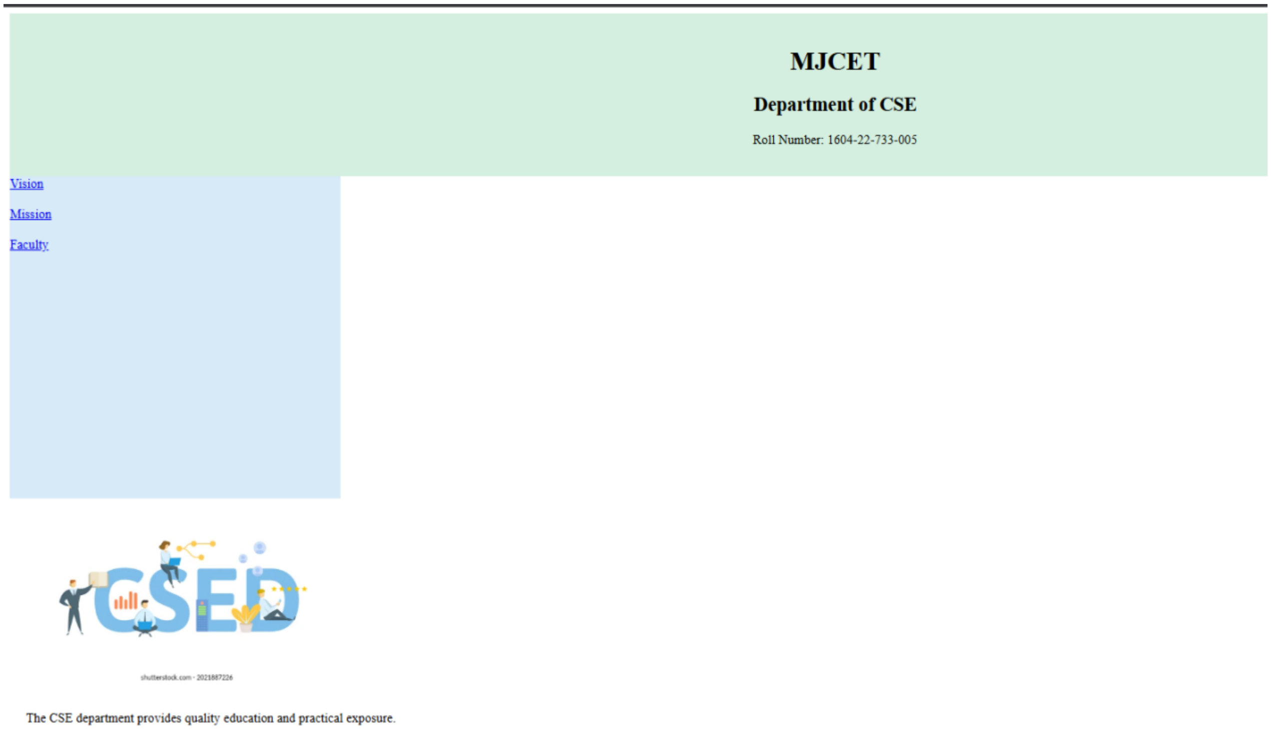
This webpage displays student profile information using HTML tables.

Program-2: Develop a static website using DIV and CSS

```
<html>
<head>
<title>Department Overview</title>

<style>
.header {
background-color:#D4EFDF;
text-align:center;
padding:20px;
}
.left {
width:20%;
float:left;
background-color:#D6EAF8;
height:400px;
}
.right {
width:80%;
float:left;
padding:20px;
}
</style>

<link rel="stylesheet" href="styles.css">
</head>

<body>

<div class="header">
<h1>MJCET</h1>
<h2>Department of CSE</h2>
<p>Roll Number: 1604-22-733-005</p>
</div>

<div class="left">
<a href="#">Vision</a><br><br>
<a href="#">Mission</a><br><br>
<a href="#">Faculty</a>
</div>

<div class="right">
<img src="https://www.shutterstock.com/image-vector/csed-collection-statute-expiration-date-260nw-2021887226.jpg" width="400"><br><br>
<p>
The CSE department provides quality education and practical exposure.
```

```
</p>
</div>

</body>
</html>
```

Output:



MJCET

Department of CSE

Roll Number: 1604-22-733-005

Vision

Mission

Faculty

shutterstock.com · 2021887226

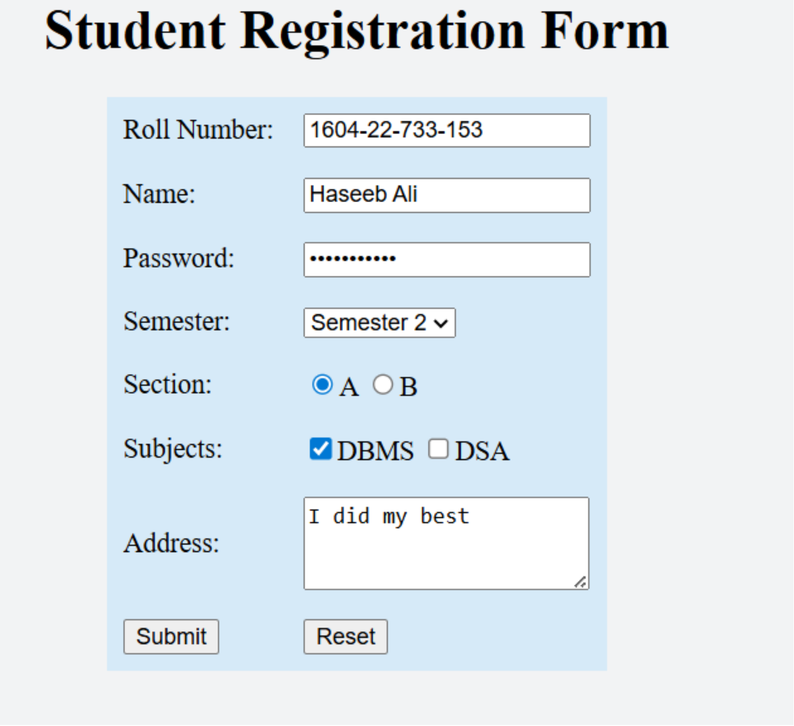
The CSE department provides quality education and practical exposure.

Program-3: Develop a registration page using HTML forms

```
<html>
<head>
<title>Student Registration</title>
</head>

<body bgcolor="#F2F3F4">

<h1 align="center">Student Registration Form</h1>

<form>
<table align="center" cellpadding="8" bgcolor="#D6EAF8">

<tr>
<td>Roll Number:</td>
<td><input type="text"></td>
</tr>

<tr>
<td>Name:</td>
<td><input type="text"></td>
</tr>

<tr>
<td>Password:</td>
<td><input type="password"></td>
</tr>

<tr>
<td>Semester:</td>
<td>
<select>
<option>Semester 1</option>
<option>Semester 2</option>
<option>Semester 3</option>
</select>
</td>
</tr>

<tr>
<td>Section:</td>
<td>
<input type="radio" name="sec">A
```

```
<input type="radio" name="sec">B
</td>
</tr>

<tr>
<td>Subjects:</td>
<td>
<input type="checkbox">DBMS
<input type="checkbox">DSA
</td>
</tr>

<tr>
<td>Address:</td>
<td><textarea rows="3" cols="20"></textarea></td>
</tr>

<tr>
<td><input type="submit"></td>
<td><input type="reset"></td>
</tr>

</table>
</form>

</body>
</html>
```

Output:



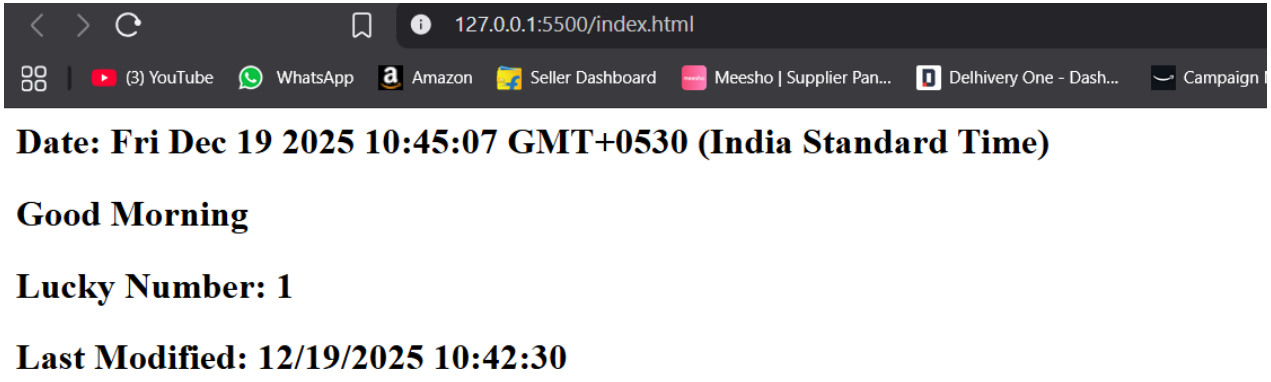
Student Registration Form

Roll Number:	1604-22-733-153
Name:	Haseeb Ali
Password:	•••••••••••
Semester:	Semester 2
Section:	● A ○ B
Subjects:	☑ DBMS □ DSA
Address:	I did my best
Submit	Reset

Program-4: Develop a dynamic web page using JavaScript

```
<html>
  <head>
    <title>Dynamic Page</title>
  </head>

  <body>
    <h2 id="date"></h2>
    <h2 id="greet"></h2>
    <h2 id="lucky"></h2>
    <h2 id="last"></h2>

    <script>
      var d = new Date();
      document.getElementById("date").innerHTML = "Date: " + d;

      if (d.getHours() < 12)
        document.getElementById("greet").innerHTML = "Good Morning";
      else document.getElementById("greet").innerHTML = "Good Afternoon";

      var n = Math.floor(Math.random() * 10);
      document.getElementById("lucky").innerHTML = "Lucky Number: " + n;

      document.getElementById("last").innerHTML =
        "Last Modified: " + document.lastModified;
    </script>
  </body>
</html>
```

Output:

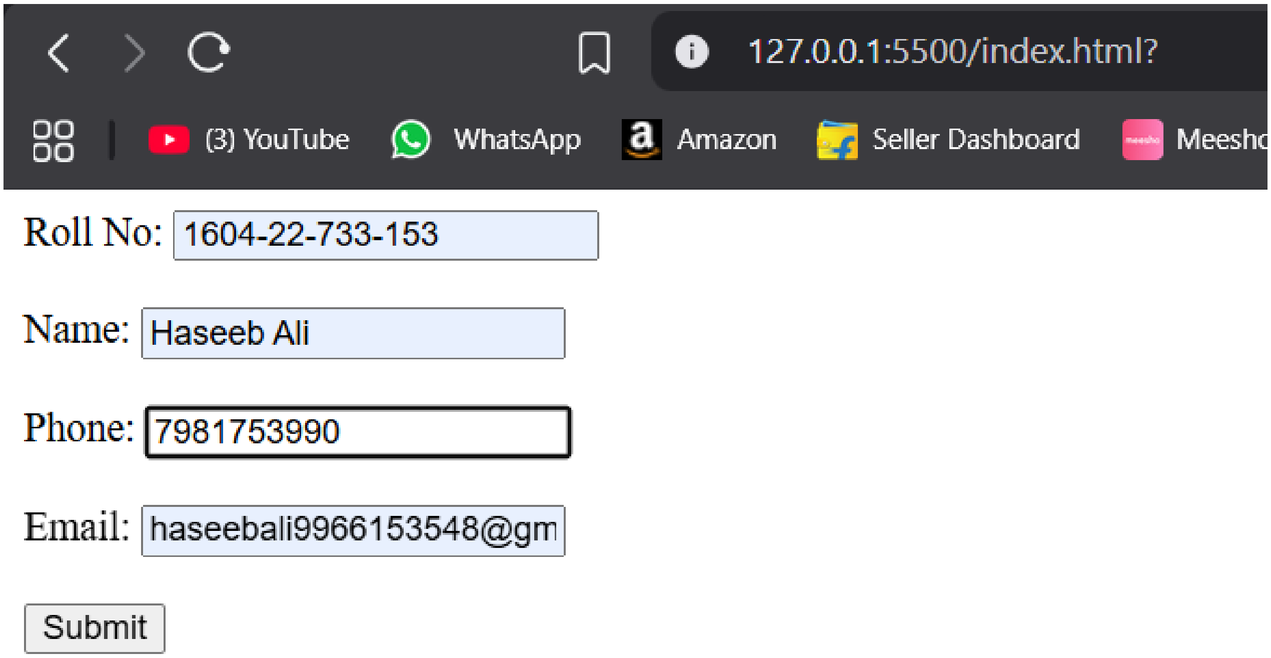


```
Date: Fri Dec 19 2025 10:45:07 GMT+0530 (India Standard Time)

Good Morning

Lucky Number: 1

Last Modified: 12/19/2025 10:42:30
```

Program-5 JavaScript Program to Validate Registration Form

```
<html>
  <head>
    <title>Form Validation</title>

    <script>
      function validate() {
        var roll = document.getElementById("roll").value;
        if (roll == "") {
          alert("Roll Number cannot be empty");
          return false;
        }
        if (roll.search(/[0-9]{4}-[0-9]{2}-[0-9]{3}-[0-9]{3}$/) != 0) {
          alert("Invalid Roll Number");
          return false;
        }

        var name = document.getElementById("name").value;
        if (name == "" || name.search(/[A-Z a-z]*$/) != 0) {
          alert("Invalid Name");
          return false;
        }

        var ph = document.getElementById("phone").value;
        if (ph.search(/[0-9]{10}$/) != 0) {
          alert("Invalid Phone Number");
          return false;
        }

        var email = document.getElementById("email").value;
        if (email.search(/[A-Z a-z 0-9._]*@[A-Z a-z]*\.[A-Z a-z]*$/) != 0) {
          alert("Invalid Email");
          return false;
        }

        return true;
      }
    </script>
  </head>

  <body>
    <form onsubmit="return validate();">
      Roll No: <input type="text" id="roll" /><br /><br />
      Name: <input type="text" id="name" /><br /><br />
      Phone: <input type="text" id="phone" /><br /><br />
      Email: <input type="text" id="email" /><br /><br />
      <input type="submit" />
    </form>
  </body>
</html>
```

Output:



Roll No: 1604-22-733-153

Name: Haseeb Ali

Phone: 7981753990

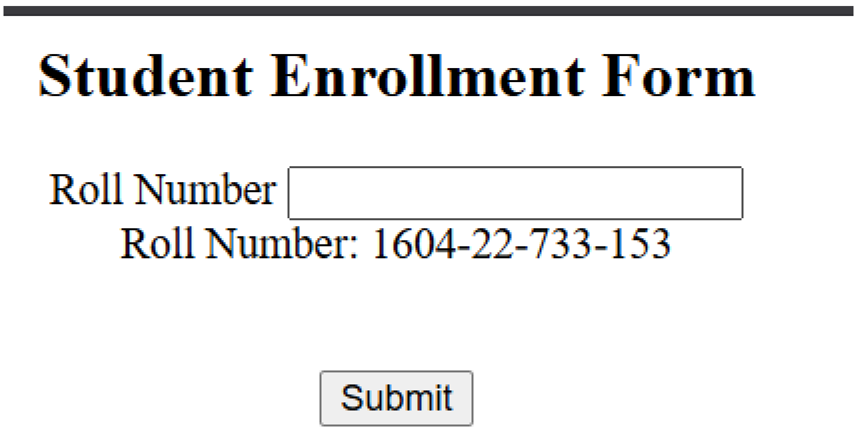
Email: haseebali9966153548@gm

Submit

Program-6: Create a dynamic web page using JavaScript event handling and DOM manipulation.

```
<html>
  <head>
    <title>Event Handling</title>

    <script>
      function showMessage() {
        alert("Page Loaded Successfully");
      }

      function validate() {
        var rn = document.getElementById("roll");
        if (rn.value == "") {
          document.getElementById("lbl").style.color = "red";
        } else {
          document.getElementById("lbl").style.color = "black";
        }
      }

      function mouseOver() {
        document.getElementById("msg").innerHTML =
          "Roll Number: 1604-22-733-153";
      }

      function mouseOut() {
        document.getElementById("msg").innerHTML = "";
      }
    </script>
  </head>

  <body onload="showMessage()">
    <center>
      <h2>Student Enrollment Form</h2>

      <form onsubmit="validate()">
        <label id="lbl">Roll Number</label>
        <input
          type="text"
          id="roll"
          onmouseover="mouseOver()"
          onmouseout="mouseOut()"
        />
        <div id="msg"></div>
        <br /><br />

        <input type="submit" />
      </form>
    </center>
  </body>
</html>
```

Output:



Student Enrollment Form

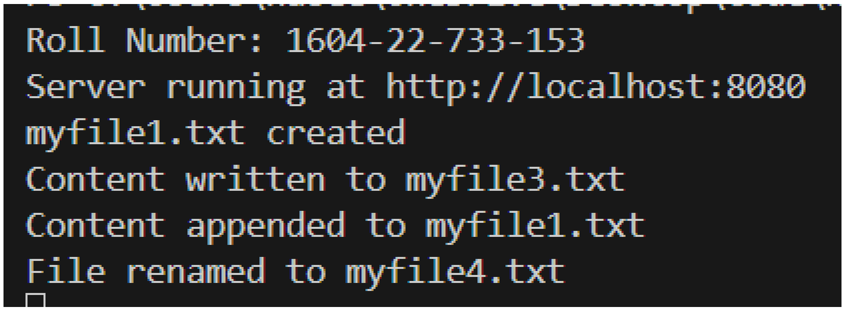
Roll Number

Roll Number: 1604-22-733-153

Program-7: Demonstrate working of built-in node.js modules and file system

```
import http from "http";
import os from "os";
import fs from "fs";
import { promisify } from "util";

const open = promisify(fs.open);
const writeFile = promisify(fs.writeFile);
const appendFile = promisify(fs.appendFile);
const rename = promisify(fs.rename);
const readFile = promisify(fs.readFile);

const server = http.createServer(async (req, res) => {
  res.writeHead(200, { "Content-Type": "text/html" });

  // Display system information
  res.write("Welcome to Web Technologies Lab<br>");
  res.write("Current Date: " + Date() + "<br>");
  res.write("Operating Platform: " + os.platform() + "<br>");
  res.write("System Architecture: " + os.arch() + "<br>");
  res.write("Host Name: " + os.hostname() + "<br>");
  res.write("Operating System Type: " + os.type() + "<br>");

  try {
    const text = await readFile("content.txt", "utf8");
    res.write("<br><b>File Content:</b><br>" + text);
  } catch (err) {
    res.write("<br><b>File Content:</b><br>Could not read content.txt");
  }

  res.end();
});


server.listen(8080, () => {
  console.log("Server running at http://localhost:8080");
});

(async () => {
  try {
    await open("myfile1.txt", "w");
    console.log("myfile1.txt created");
  } catch (err) {
    console.error("Error creating myfile1.txt:", err);
  }
  try {
    await writeFile("myfile3.txt", "Hello Lab");
    console.log("Content written to myfile3.txt");
  } catch (err) {
    console.error("Error writing to myfile3.txt:", err);
  }

  try {
    await appendFile("myfile1.txt", " Hello Web");
    console.log("Content appended to myfile1.txt");
  } catch (err) {
    console.error("Error appending to myfile1.txt:", err);
  }

  try {
    await rename("myfile3.txt", "myfile4.txt");
    console.log("File renamed to myfile4.txt");
  } catch (err) {
    console.error("Error renaming myfile3.txt:", err);
  }
})();

console.log("Roll Number: 1604-22-733-153");
```

Output:

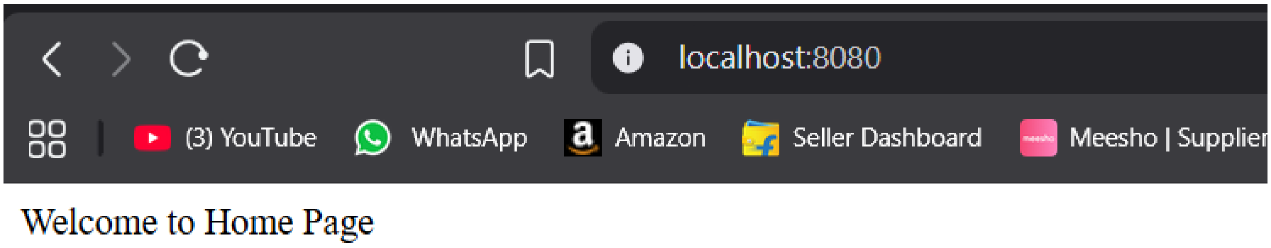


```
Roll Number: 1604-22-733-153
Server running at http://localhost:8080
myfile1.txt created
Content written to myfile3.txt
Content appended to myfile1.txt
File renamed to myfile4.txt
```

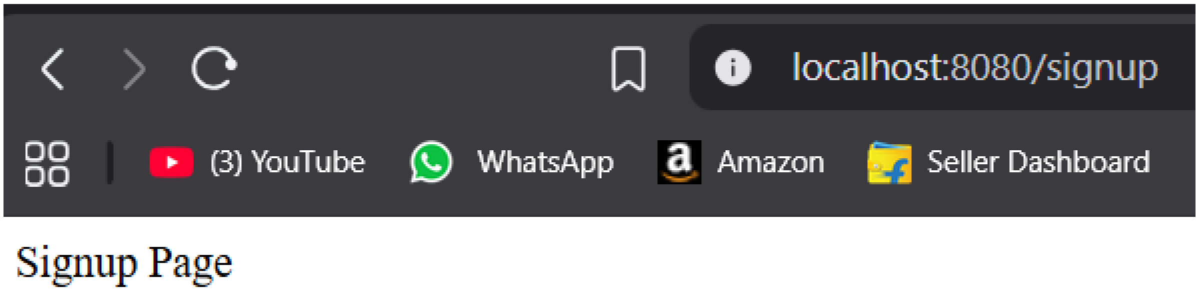
Program 8: Demonstrate routes and parameter handling in Express.js index.js

```
var express = require("express");
var app = express();

app.get("/", function(req, res) {
res.send("Welcome to Home Page");
});

app.get("/signup", function(req, res) {
res.send("Signup Page");
});

app.get("/login", function(req, res) {
res.send("Login Page");
});

app.get("/display/:name/:pwd", function(req, res) {
res.send("Username: " + req.params.name +
"<br>Password: " + req.params.pwd);
});

app.listen(8080, function() {
console.log("Server Running");
});
```

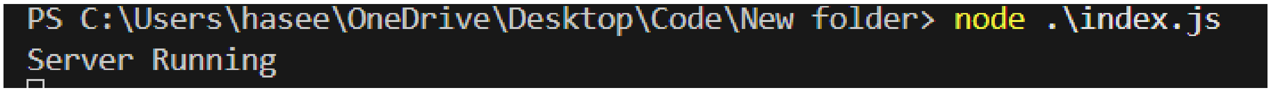
Output:



Welcome to Home Page



Signup Page



```
PS C:\Users\hasee\OneDrive\Desktop\Code\New folder> node .\index.js
Server Running
```

Program-9: Write a program to implement MVC architecture

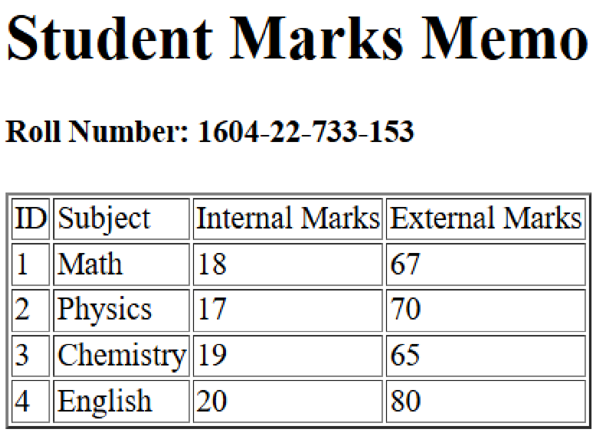
Index.js

```
var express = require("express");
var app = express();

app.use(function(req, res, next) {
  res.header("Access-Control-Allow-Origin", "*");
  res.header("Access-Control-Allow-Methods",
"GET,PUT,POST,DELETE,OPTIONS");
  res.header("Access-Control-Allow-Headers", "Origin, X-
Requested-With, Content-Type, Accept");
  next();
});

app.get("/", function(req, res) {
res.send("Welcome to Home Page");
});
app.get("/marks", function(req, res) {
  const marksData = [
    { id: 1, subject: "Math", imarks: 18, emarks: 67 },
    { id: 2, subject: "Physics", imarks: 17, emarks: 70 },
    { id: 3, subject: "Chemistry", imarks: 19, emarks: 65 },
    { id: 4, subject: "English", imarks: 20, emarks: 80 }
  ];
  res.json(marksData);
});

app.listen(8080, function() {
console.log("Server Running");
});
```

index.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Marks Memo</title>
    <script>
        document.addEventListener("DOMContentLoaded", function() {
            fetch('http://localhost:8080/marks')
                .then(response => response.json())
                .then(data => {
                    console.log(data )
                    const tableBody = document.getElementById('marks-body');
                    data.forEach(d => {
                        const row = document.createElement('tr');
                        row.innerHTML =
`<td>${d.id}</td><td>${d.subject}</td><td>${d.imarks}</td><td>${d.emarks}</td>`;
                        tableBody.appendChild(row);
                    });
                })
                .catch(err => {
                    document.getElementById('error').textContent = 'Failed to load marks data.';
                });
        });
    </script>
</head>
<body>

<h1>Student Marks Memo</h1>
<h4>Roll Number: 1604-22-733-153</h4>
<div id="error" style="color:red;"></div>
<table border="2">
    <tr>
        <td>ID</td>
        <td>Subject</td>
        <td>Internal Marks</td>
        <td>External Marks</td>
    </tr>
    <tbody id="marks-body">
    </tbody>
</table>

</body>
</html>
```

Output:



Student Marks Memo

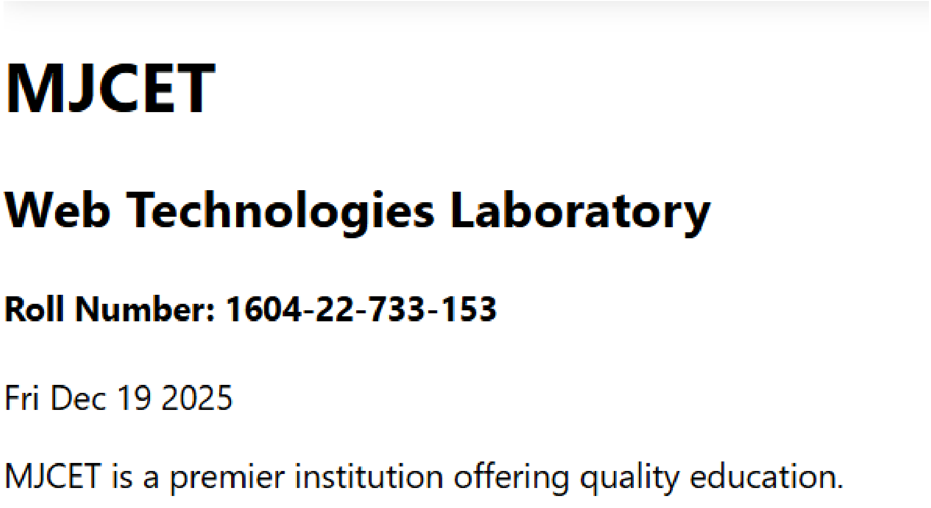
Roll Number: 1604-22-733-153

ID	Subject	Internal Marks	External Marks
1	Math	18	67
2	Physics	17	70
3	Chemistry	19	65
4	English	20	80

Program-10: Demonstrate rendering HTML and JSX using React.js

```
function WebTech() {
var title = "MJCET";
var d = new Date();

return (
<div>
<h1>{title}</h1>
<h2>Web Technologies Laboratory</h2>
<h4>Roll Number: 1604-22-733-153</h4>
<p>{d.toDateString()}</p>
<GetVision />
</div>
);
}

function GetVision() {
return (
<p>
MJCET is a premier institution offering quality education.
</p>
);
}

export default WebTech;
```

Output:



MJCET

Web Technologies Laboratory

Roll Number: 1604-22-733-153

Fri Dec 19 2025

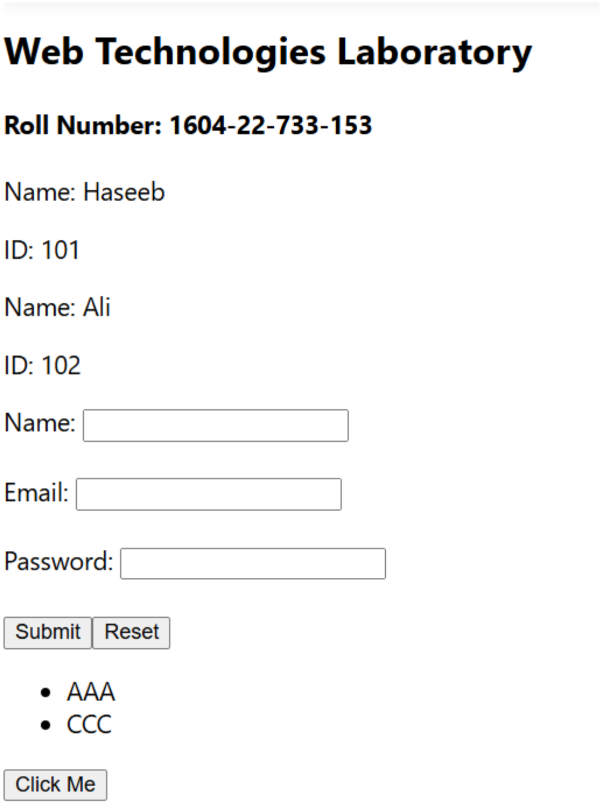
MJCET is a premier institution offering quality education.

Program-11: Demonstrate use of props, events, lists, forms using

```
function WebTech() {
  return (
    <div>
      <h2>Web Technologies Laboratory</h2>
      <h4>Roll Number: 1604-22-733-153</h4>

      <User name="Haseeb" uid={101} />
      <User name="Ali" uid={102} />

      <MyForm />
      <StudentList />
      <EventDemo />
    </div>
  );
}

function User(props) {
  return (
    <div>
      <p>Name: {props.name}</p>
      <p>ID: {props.uid}</p>
    </div>
  );
}

function MyForm() {
  return (
    <form>
      Name: <input type="text" /><br /><br />
      Email: <input type="text" /><br /><br />
      Password: <input type="password" /><br /><br />
      <input type="submit" />
      <input type="reset" />
    </form>
  );
}

function StudentList() {
  var students = ["AAA", "BBB", "CCC"];
  return (
    <ul>
      {students.map((s, i) => <li key={i}>{s}</li>)}
    </ul>
  );
}
```

```
function EventDemo() {
  function show() {
    alert("Button Clicked");
  }
  return <button onClick={show}>Click Me</button>;
}

export default WebTech;
```

Output:



Web Technologies Laboratory

Roll Number: 1604-22-733-153

Name: Haseeb

ID: 101

Name: Ali

ID: 102

Name:

Email:

Password:

- AAA
- CCC

Program-12: Create a Single Page Application (SPA) using REST Service.
WebTech.js

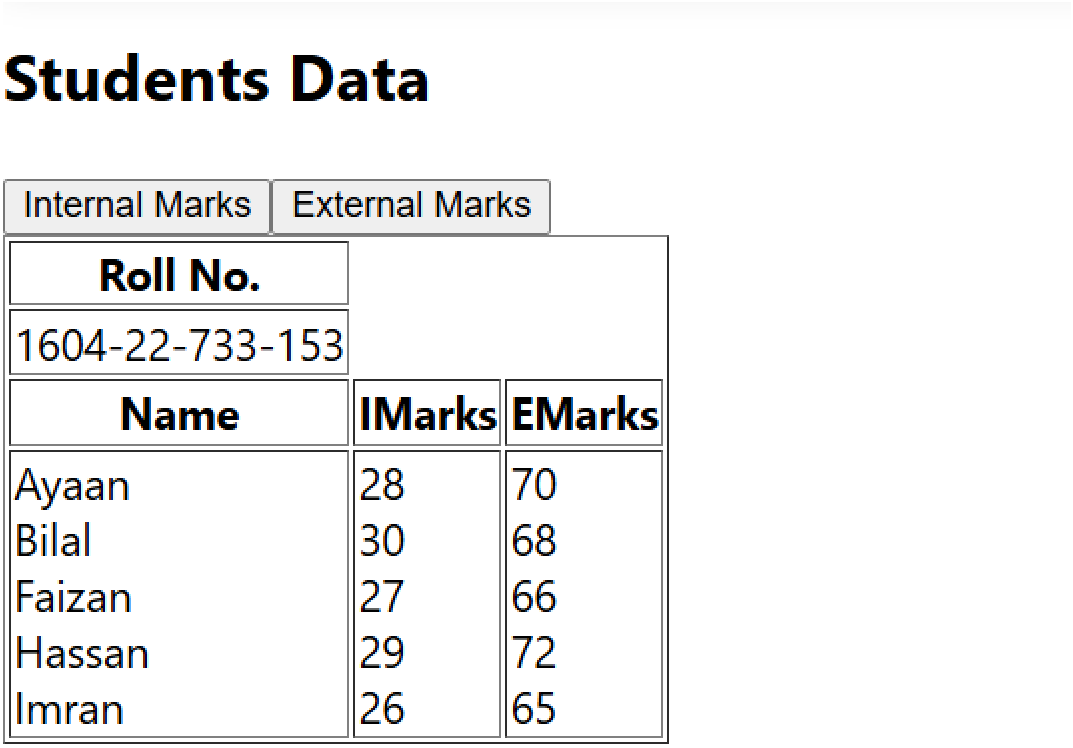
```
import { Component } from "react";

class WebTech extends Component {
  state = { students: [], imarks: [], emarks: [] };

  componentDidMount() {
    fetch("http://localhost:8080/students")
      .then(res => res.json())
      .then(data => this.setState({ students: data }));
  }

  loadIMarks = () => {
    fetch("http://localhost:8080/imarks")
      .then(res => res.json())
      .then(data => this.setState({ imarks: data }));
  };

  loadEMarks = () => {
    fetch("http://localhost:8080/emarks")
      .then(res => res.json())
      .then(data => this.setState({ emarks: data }));
  };

  render() {
    return (
      <div>
        <h2>Students Data</h2>
        <button onClick={this.loadIMarks}>Internal Marks</button>
        <button onClick={this.loadEMarks}>External Marks</button>

        <table border="1">
            <tr>
                <th>
                    Roll No.
                </th>
            </tr>
            <tr>
                <td>
                    1604-22-733-153
                </td>
            </tr>
          <tr>
            <th>Name</th>
            <th>IMarks</th>
            <th>EMarks</th>
          </tr>
          <tr>
            <td>{this.state.students.map(s => <div>{s.name}</div>)}</td>
            <td>{this.state.imarks.map(i => <div>{i.marks}</div>)}</td>
            <td>{this.state.emarks.map(e => <div>{e.marks}</div>)}</td>
          </tr>
        </table>
      </div>
    );
  }
}

export default WebTech;
```

Index.js

```
 var express = require("express");
var cors = require("cors");

var app = express();
app.use(cors());

var students = [
  { id: 101, name: "Ayaan" },
  { id: 102, name: "Bilal" },
  { id: 103, name: "Faizan" },
  { id: 104, name: "Hassan" },
  { id: 105, name: "Imran" }
];

var imarks = [
  { id: 101, marks: 28 },
  { id: 102, marks: 30 },
  { id: 103, marks: 27 },
  { id: 104, marks: 29 },
  { id: 105, marks: 26 }
];

var emarks = [
  { id: 101, marks: 70 },
  { id: 102, marks: 68 },
  { id: 103, marks: 66 },
  { id: 104, marks: 72 },
  { id: 105, marks: 65 }
];
```

```
app.get("/students", function (req, res) {
  res.json(students);
});

app.get("/imarks", function (req, res) {
  res.json(imarks);
});

app.get("/emarks", function (req, res) {
  res.json(emarks);
});


app.listen(8080, function () {
  console.log("REST Service running on port 8080");
});

<td>
{students.map(st=><div>{st.name}</div>)}
</td>
<td>
{imarks.map(im=><div>{im.marks}</div>)}
</td>
<td>
{emarks.map(em=><div>{em.marks}</div>)}
</td>
</tr>
</table>
</div>
);
}
}
export default App;
```

Output:



Students Data

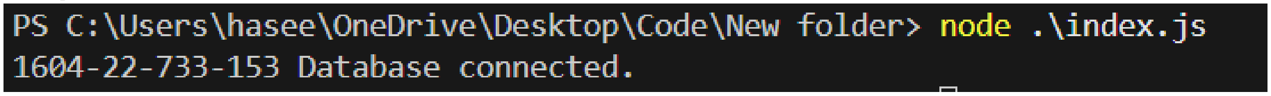
Roll No.
1604-22-733-153

Name	IMarks	EMarks
Ayaan	28	70
Bilal	30	68
Faizan	27	66
Hassan	29	72
Imran	26	65

Program-13: Write a Node.js program to create DB and Collections in MongoDB

```
import { MongoClient } from "mongodb";
const url = "mongodb://localhost:27017/haseeb";

MongoClient.connect(url)
  .then(client => {
    console.log("1604-22-733-153 Database connected.");
    // You can use client.db("mymongodb") for further operations
    client.close();
  })
  .catch(err => {
    console.error("Failed to connect to MongoDB:", err);
  });
```

Output:



```
PS C:\Users\hasee\OneDrive\Desktop\Code\New folder> node .\index.js
1604-22-733-153 Database connected.
```

Program-14: Write a react.js program to retrieve data from MongoDB

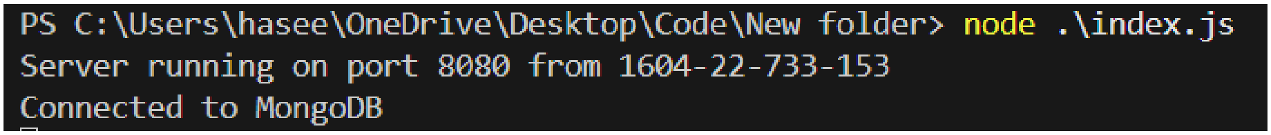
Index.js

```
import express from "express";
import cors from "cors";
import { MongoClient } from "mongodb";

const app = express();
app.use(cors());
app.use(express.json());

const url = "mongodb://localhost:27017/";
const dbName = "mymongodb";
let db;

async function connectDB() {
  try {
    const client = await MongoClient.connect(url);
    db = client.db(dbName);
    console.log("Connected to MongoDB");

    // Ensure collection exists and insert dummy data only if empty
    const collection = db.collection("student");
    const count = await collection.countDocuments();
    if (count === 0) {
      const dummyData = [
        { id: 101, name: "Haseeb", marks: 153 },
        { id: 102, name: "Bilal", marks: 78 },
        { id: 103, name: "Faizan", marks: 82 },
        { id: 104, name: "Hassan", marks: 90 },
      ];
      await collection.insertMany(dummyData);
      console.log("Dummy data inserted successfully");
    }
  } catch (err) {
    console.error("Failed to connect to MongoDB:", err);
  }
}

connectDB();

app.get("/retrieve", async (req, res) => {
  try {
    const result = await db.collection("student").find({}).toArray();
    res.json(result);
  } catch (err) {
    res.status(500).json({ error: "Failed to retrieve data" });
  }
});

app.listen(8080, () => {

  console.log("Server running on port 8080 from 1604-22-733-153");
});
```

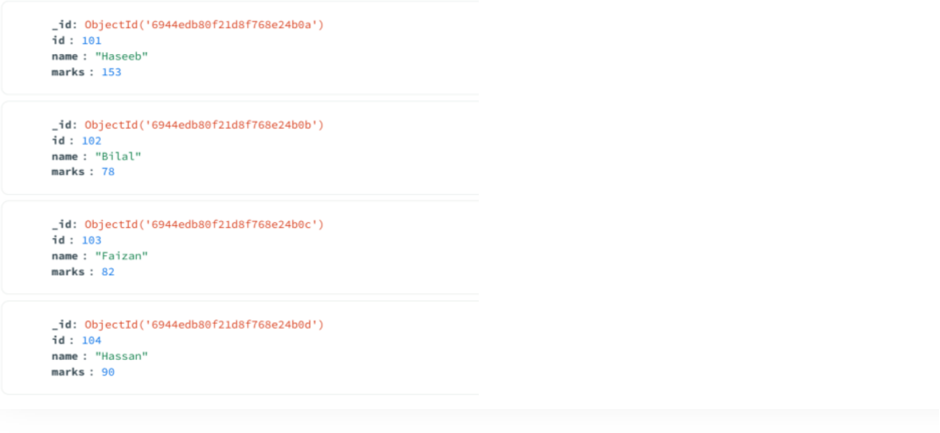
WebTech.js

```
import { Component } from "react";
class WebTech extends Component {
  state = { students: [] };

  componentDidMount() {
    fetch("http://localhost:8080/retrieve")
      .then(res => res.json())
      .then(data => this.setState({ students: data }));
  }

  render() {
    return (
      <div>
        <h2>Student Data from MongoDB</h2>

        <table border="1">
          <tr>
            <th>ID</th>
            <th>Name</th>
            <th>Marks</th>
          </tr>

          {this.state.students.map((s, i) => (
            <tr key={i}>
              <td>{s.id}</td>
              <td>{s.name}</td>
              <td>{s.marks}</td>
            </tr>
          ))}
        </table>
      </div>
    );
  }
}
export default WebTech;
```

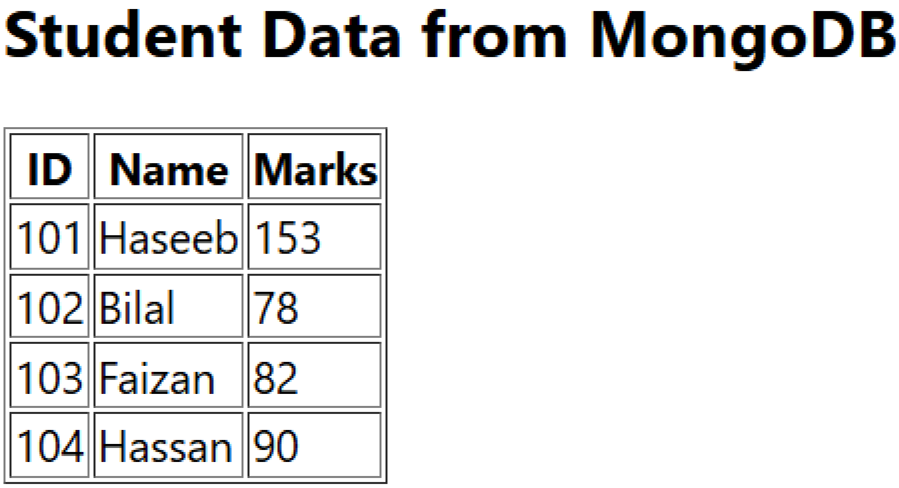
Output:



```
PS C:\Users\hasee\OneDrive\Desktop\Code\New folder> node .\index.js
Server running on port 8080 from 1604-22-733-153
Connected to MongoDB
```



```
_id: ObjectId('6944edb80f21d8f768e24b0a')
id : 101
name : "Haseeb"
marks : 153

_id: ObjectId('6944edb80f21d8f768e24b0b')
id : 102
name : "Bilal"
marks : 78

_id: ObjectId('6944edb80f21d8f768e24b0c')
id : 103
name : "Faizan"
marks : 82

_id: ObjectId('6944edb80f21d8f768e24b0d')
id : 104
name : "Hassan"
marks : 90
```



Student Data from MongoDB

ID	Name	Marks
101	Haseeb	153
102	Bilal	78
103	Faizan	82
104	Hassan	90