```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Lab Program 1</title>
</head>
<body>
<div id="time">00:00:000</div>
<button id="startBtn">Start</button>
<button id="stopBtn">Stop</button>
<button id="resetBtn">Reset</button>

<script type="module">
  // State, Display, and Formatting
  let [timer, startT, elapsed] = [null, 0, 0];
  const tD = document.getElementById("time");

  const fT = (ms) => {
    const m = String(Math.floor(ms / 60000)).padStart(2, "0");
    const s = String(Math.floor((ms % 60000) / 1000)).padStart(2, "0");
    const z = String(ms % 1000).padStart(3, "0");
    return `${m}:${s}:${z}`;
  };

  const update = () => {
    elapsed = Date.now() - startT;
    tD.textContent = fT(elapsed);
  };

  const stop = () => { clearInterval(timer); timer = null; };

  // Event Listeners (inline functions)
  document.getElementById("startBtn").onclick = () => {
    if (timer) return;
    startT = Date.now() - elapsed;
    timer = setInterval(update, 10);
  };

  document.getElementById("stopBtn").onclick = stop;

  document.getElementById("resetBtn").onclick = () => {
    stop();
    elapsed = 0;
    tD.textContent = "00:00:000";
  };
```

```
</script>
</body>
</html>
```

Lab 2

```
<!DOCTYPE html>
<html lang="en">
<head>
<title>Lab Program 1</title>
</head>
<body>
<div>
<input type="text" id="d" disabled>
<div>
<button onclick="p('C')">C</button>
<button onclick="p('/')">/</button>
<button onclick="p('*')">*</button>
<button onclick="p('-')">-</button><br>
<button onclick="p('7')">7</button>
<button onclick="p('8')">8</button>
<button onclick="p('9')">9</button>
<button onclick="p('+')">+</button><br>
<button onclick="p('4')">4</button>
<button onclick="p('5')">5</button>
<button onclick="p('6')">6</button>
<button onclick="p('=')">=</button><br>
<button onclick="p('1')">1</button>
<button onclick="p('2')">2</button>
<button onclick="p('3')">3</button>
<button onclick="p('0')">0</button><br>
</div>
</div>
```

```
<script>
  const d = document.getElementById("d");
  d.value = '';

  window.p = v => {
    if (v === "C") {
      d.value = '';
    } else if (v === "=") {
      try {
        d.value = eval(d.value);
      } catch {
        d.value = "Error";
      }
    } else {
      d.value += v;
    }
  };
</script>
</body>
</html>
```

Lab 3

```
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>Read JSON</title>
<style>
.card {
    border: 1px solid #888;
    padding: 10px;
    margin: 8px 0;
    width: 220px;
    background: #f2f2f2;
    border-radius: 5px;
}
</style>
</head>
```

```
<body>

<h2>Read JSON Data</h2>

<button onclick="loadFromVariable()">Load from Variable</button>
<button onclick="loadFromFile()">Load from File</button>

<div id="output"></div>

<script>
// Local JSON data
const jsonData = [
   { "name": "A Khan", "age": 44, "city": "Ranchi" },
   { "name": "Praveen", "age": 21, "city": "Mangalore" },
   { "name": "Zainab", "age": 20, "city": "Pune" }
];

// Display function
function displayData(data) {
   let out = document.getElementById("output");
   out.innerHTML = "";
   data.forEach(i => {
      out.innerHTML += `
      <div class="card">
         <b>${i.name}</b><br>
         Age: ${i.age}<br>
         City: ${i.city}
      </div>`;
   });
}

// Load from variable
function loadFromVariable() {
   displayData(jsonData);
}

// Load from file
function loadFromFile() {
   fetch("data.json")
   .then(r => r.json())
   .then(d => displayData(d));
}
</script>
```

```
</body>
</html>
```

Lab 5

```
import React from 'react';

// S is the shortened StudentProfileCard component
const S = ({ name: n, avatar: a, major: m, bio: b, tags: t, socials: s, onAction: oA }) => (
  <div>
    <img src={a} alt={n} /><h2>{n}</h2><p>{m}</p><p>{b}</p>
    <div>{t.map((tag, i) => <span key={i}>{tag}</span>)}</div>
    <div>{s.map((social, i) => <a key={i} href={social.url}>{social.icon}</a>)}</div>
    <button onClick={() => oA("Contact")}>Contact</button>
  </div>
);

const App = () => {
  // hA = handleAction
  const hA = a => console.log(`User clicked: ${a}`);

  // s = socials
  const s = [{ url: "https://twitter.com/janedoe", icon: <img src="" alt="Twitter" /> }];

  return (
    <S name="Jane Doe"

avatar="https://images.unsplash.com/photo-1524504388940-b1c1722653e1?auto=format&fit=cr
op&w=256&q=80"
      major="CS"
      bio="Passionate about ML, open-source, and programming."
      tags={["AI", "Open Source", "Speaker"]}
      socials={s}
      onAction={hA}
    />
  );
};

export default App;
```

Lab 6

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

const App = () => {
  const [d, sD] = useState({ name: "", email: "", comments: "" });
  const [e, sE] = useState({});
  const [ok, sOk] = useState(false);

  const ch = (ev) => {
    const { name, value } = ev.target;
    sD({ ...d, [name]: value });
    sE({ ...e, [name]: "" });
  };

  const sub = (ev) => {
    ev.preventDefault();
    let x = {};
    if (!d.name) x.name = "Name required";
    if (!d.email) x.email = "Email required";
    else if (!/\S+@\S+\.\S+/.test(d.email)) x.email = "Invalid email";
    if (!d.comments) x.comments = "Comments required";

    if (Object.keys(x).length) sE(x);
    else {
      console.log("Submitted:", d);
      sOk(true);
      sD({ name: "", email: "", comments: "" });
    }
  };

  return (
    <div>
      <h1>Feedback</h1>
      {ok && <p style={{ color: "green" }}>Thanks!</p>}

      <form onSubmit={sub}>
        {/* Name */}
        <div>
          <label>Name</label>
          <input name="name" value={d.name} onChange={ch} />
          {e.name && <p style={{ color: "red" }}>{e.name}</p>}
        </div>
```

```
        {/* Email */}
        <div>
          <label>Email</label>
          <input name="email" value={d.email} onChange={ch} />
          {e.email && <p style={{ color: "red" }}>{e.email}</p>}
        </div>

        {/* Comments */}
        <div>
          <label>Comments</label>
          <textarea name="comments" value={d.comments} onChange={ch} />
          {e.comments && <p style={{ color: "red" }}>{e.comments}</p>}
        </div>

        <button>Submit</button>
      </form>
    </div>
  );
};

export default App;
```

Lab 7

```
import { createRoot } from 'react-dom/client';
import { BrowserRouter, Routes, Route, Link } from 'react-router-dom';

const Home = () => <h1>Home Page</h1>;
const About = () => <h1>About Page</h1>;
const Contact = () => <h1>Contact Page</h1>;

const App = () => (
  <BrowserRouter>
    <nav>
      <Link to="/">Home</Link> | <Link to="/about">About</Link> | <Link
to="/contact">Contact</Link>
    </nav>

    <Routes>
      <Route path="/" element={<Home/>}/>
      <Route path="/about" element={<About/>}/>
      <Route path="/contact" element={<Contact/>}/>
    </Routes>
  </BrowserRouter>
);

createRoot(document.getElementById("root")).render(<App/>);
```

Lab 8

```
const express = require("express");
const mysql = require("mysql2");
const app = express();

const db = mysql.createConnection({
  host: "localhost",
  user: "root",
  password: "",
  database: "MyDB"
});

db.connect(err => {
  if (err) return console.error("DB Error:", err);

  console.log("MySQL Connected");
```

```
  const sql = "INSERT INTO users (id, uname, email) VALUES (?,?,?)";
  db.query(sql, [125, "Avinash", "av@gmail.com"], err => {
    if (err) throw err;
    console.log("Record Saved");
  });
});

app.listen(3000, () => console.log("Server at http://localhost:3000"));
```

Lab 9

```
const express = require("express");
const mongoose = require("mongoose");
const app = express();
app.use(express.json());

mongoose.connect("mongodb://127.0.0.1:27017/studentDB")
  .then(()=>console.log("DB OK"))
  .catch(e=>console.log(e));

const Student = mongoose.model("Student", new mongoose.Schema({
  _id:Number, name:String, Program:String, Batch:String, Contact:Number
}));

app.get("/student", async (_,res)=>res.json(await Student.find()));

app.get("/student/:id", async (req,res)=>{
  const s = await Student.findById(req.params.id);
  s ? res.json(s) : res.status(404).json({msg:"Not found"});
});

app.listen(3000, ()=>console.log("Running 3000"));
```

Lab 14

```
const http = require("http");

const server = http.createServer((req, res) => {
```

```
  if (req.url === "/time") {
    res.end("Time: " + new Date().toLocaleString());
  } else {
    res.statusCode = 404;
    res.end("Use /time");
  }
});

server.listen(3000, () => console.log("Server on 3000"));
```