EXPERIMENT NO.3

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Semester: 3rd
Date of Performance: 05/08/24
Subject: Back End Technologies
Subject Code:23CAH 705

- **Aim/Overview of the practical:**
- Apply the knowledge and skills acquired to develop and deploy back-end applications, using tools such as Node.js
- **Task to be done:**
  To store the data from our previous experiment (employee salary program) in a file and then use that file in another program, we can follow these steps:
1. **Store Data in a TXT File**: Ensure that our main program writes the data to a JSON file (employees.txt).
2. **Read Data from TXT File in Another Program**: Create a new Node.js program that reads the data from the JSON file and performs some operations on it.

- **Concept used:**
  Node.js, HTML, CSS, Javascript, TXT file

- **Steps/Commands involved to perform practical:**

1. employee.js

```
var http = require('http');
var fs = require('fs');
var path = require('path');
var querystring = require('querystring');

// Load employees from text file
const loadEmployees = () => {
  try {
    const data = fs.readFileSync('employees.txt', 'utf8');
```

```
    return data ? data.trim().split('\n').map(line => {
      const [id, name, email, phone, salary] = line.split(',');
      return { id: parseInt(id), name, email, phone, salary:
parseFloat(salary) };
    }) : [];
  } catch (error) {
    console.error('Error reading employees.txt:', error);
    return [];
  }
};

// Save employees to text file
const saveEmployees = (employees) => {
  try {
    const data = employees.map(emp =>
`${emp.id},${emp.name},${emp.email},${emp.phone},${emp.salary}`).join('
\n');
    fs.writeFileSync('employees.txt', data, 'utf8');
  } catch (error) {
    console.error('Error writing employees.txt:', error);
  }
};

// Generate HTML content for employee table
const generateEmployeeTable = (employees) => {
  let tableContent = '<table
border="1"><tr><th>ID</th><th>Name</th><th>Email</th><th>Phone</th><th>
Salary</th><th>Action</th></tr>';
  employees.forEach(emp => {
    tableContent += `
      <tr>
        <form method="POST" action="/update" style="display:inline;">
          <td>${emp.id}<input type="hidden" name="id"
value="${emp.id}"></td>
          <td><input type="text" name="name" value="${emp.name}"
required></td>
          <td><input type="email" name="email" value="${emp.email}"
required></td>
          <td><input type="text" name="phone" value="${emp.phone}"
required></td>
          <td><input type="number" name="salary" value="${emp.salary}"
required></td>
          <td>
            <button type="submit">Update</button>
          </td>
```

```
        </form>
        <form method="POST" action="/delete" style="display:inline;">
          <td>
            <input type="hidden" name="id" value="${emp.id}">
            <button type="submit">Delete</button>
          </td>
        </form>
      </tr>`;
  });
  tableContent += '</table>';
  return tableContent;
};

http.createServer(function(req, res) {
    if (req.method === 'GET') {
        if (req.url === '/') {
            res.writeHead(200, {'Content-Type': 'text/html'});
            res.end(`
                <html>
                    <head>
                        <title>Employee Portal</title>
                    </head>
                    <body>
                        <h1>Welcome to Employee Portal!</h1>
                        <button
onclick="redirectToEmployeeTable()">Employee Salary Table</button>
                        <button onclick="redirectToAddEmployee()">Add
New Employee</button>
                        <script>
                            function redirectToEmployeeTable() {
                                window.location.href = '/employee';
                            }
                            function redirectToAddEmployee() {
                                window.location.href = '/add_employee';
                            }
                        </script>
                    </body>
                </html>
            `);
        } else if (req.url === '/employee') {
            const employees = loadEmployees();
            const employeeTable = generateEmployeeTable(employees);

            res.writeHead(200, {'Content-Type': 'text/html'});
            res.end(`
```

```
                <html>
                    <head>
                        <title>Employee Salary Table</title>
                    </head>
                    <body>
                        <h1>Employee Salary Table</h1>
                        ${employeeTable}
                        <button onclick="redirectToAddEmployee()">Add
New Employee</button>
                        <script>
                            function redirectToAddEmployee() {
                                window.location.href = '/add_employee';
                            }
                        </script>
                    </body>
                </html>
            `);
        } else if (req.url === '/add_employee') {
            fs.readFile(path.join(__dirname, 'add_employee.html'),
function(err, data) {
                if (err) {
                    res.writeHead(404, {'Content-Type': 'text/html'});
                    res.end('404 Not Found');
                } else {
                    res.writeHead(200, {'Content-Type': 'text/html'});
                    res.end(data);
                }
            });
        } else {
            res.writeHead(404, {'Content-Type': 'text/html'});
            res.end('<h1>404 Not Found</h1>');
        }
    } else if (req.method === 'POST') {
        let body = '';
        req.on('data', chunk => {
            body += chunk.toString();
        });
        req.on('end', () => {
            const parsedBody = querystring.parse(body);

            if (req.url === '/update') {
                const id = parseInt(parsedBody.id);
                const name = parsedBody.name;
                const email = parsedBody.email;
                const phone = parsedBody.phone;
```

```
                const salary = parseFloat(parsedBody.salary);
                const employees = loadEmployees();

                const employee = employees.find(emp => emp.id === id);
                if (employee) {
                    employee.name = name;
                    employee.email = email;
                    employee.phone = phone;
                    employee.salary = salary;
                    saveEmployees(employees);
                    res.writeHead(302, { 'Location': '/employee' });
                    res.end();
                } else {
                    res.writeHead(404, {'Content-Type': 'text/html'});
                    res.end('<h1>Employee not found</h1>');
                }
            } else if (req.url === '/delete') {
                const id = parseInt(parsedBody.id);
                let employees = loadEmployees();

                employees = employees.filter(emp => emp.id !== id);
                saveEmployees(employees);
                res.writeHead(302, { 'Location': '/employee' });
                res.end();
            } else if (req.url === '/add') {
                const name = parsedBody.name;
                const email = parsedBody.email;
                const phone = parsedBody.phone;
                const salary = parseFloat(parsedBody.salary);
                const employees = loadEmployees();

                const newId = employees.length ?
Math.max(...employees.map(emp => emp.id)) + 1 : 1;
                employees.push({ id: newId, name, email, phone, salary
});
                saveEmployees(employees);
                res.writeHead(302, { 'Location': '/employee' });
                res.end();
            } else {
                res.writeHead(404, {'Content-Type': 'text/html'});
                res.end('<h1>404 Not Found</h1>');
            }
        });
    } else {
        res.writeHead(404, {'Content-Type': 'text/html'});
```

```
        res.end('<h1>404 Not Found</h1>');
    }
}).listen(3032);

console.log('Server running at http://127.0.0.1:3032/');
2.
```

3. employees.txt

```
1,tamm Rose,tftyf@cghch,78894561230,50000
2,Dibya Das,divyadas2727@gmail.com,7896541230,55000
3,henry white,1234@asd,78894561230,98000
```

add-employee.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Add New Employee</title>
</head>
<body>
    <h1>Add New Employee</h1>
    <form method="POST" action="/add">
        <label for="name">Name:</label>
        <input type="text" id="name" name="name" required><br><br>
        <label for="email">Email:</label>
        <input type="email" id="email" name="email" required><br><br>
        <label for="phone">Phone:</label>
        <input type="text" id="phone" name="phone" required><br><br>
        <label for="salary">Salary:</label>
        <input type="number" id="salary" name="salary" required><br><br>
        <button type="submit">Add Employee</button>
    </form>
    <button onclick="goBack()">Go Back</button>
    <script>
        function goBack() {
            window.location.href = '/employee';
        }
    </script>
</body>
</html>
```

- **Output:**

Home page

Welcome to Employee Portal!

Employee Salary Table | Add New Employee

Adding new employee page

Add New Employee

Name: ivy

Email: rtd@ghm

Phone: 6549871530

Salary: 20000

Add Employee

Go Back

Employee Salary Table

ID	Name	Email	Phone	Salary	Action	
1	tamm Rose	tftyf@cghch	78894561230	50000	Update	Delete
2	Dibya Das	divyadas2727@gmail.com	7896541230	55000	Update	Delete
3	henry white	1234@asd	78894561230	98000	Update	Delete
4	ivy rose	rtd@ghm.com	6549871588	25000	Update	Delete

Add New Employee

Update record

Employee Salary Table

ID	Name	Email	Phone	Salary	Action	
1	tamm Rose	tftyf@cghch	78894561230	50000	Update	Delete
2	Dibya Das	divyadas2727@gmail.com	7896541230	55000	Update	Delete
3	henry white	1234@asd	78894561230	98000	Update	Delete
4	ivy	rtd@ghm	6549871530	20000	Update	Delete

Add New Employee

Delete record

Employee Salary Table

ID	Name	Email	Phone	Salary	Action	
1	tamm Rose	tftyf@cghch	78894561230	50000	Update	Delete
2	Dibya Das	divyadas2727@gmail.com	7896541230	55000	Update	Delete
3	henry white	1234@asd	78894561230	98000	Update	Delete

Add New Employee

- **Learning Outcome :-**

1. Learnt about the concept of Node.js
2. Learnt to create a clickable button that directs us to another url.
3. CRUD operations on employee table
4. Manipulation on TXT file.