EX.NO:3

DATE:

STUDENT REGISTRATIONS SYSTEM USING NODE.JS, EXPRESS, AND MONGODB (ATLAS)

AIM:

To create a web application that allows users to Add, Update, and Delete student details using an HTML form, storing the data in MongoDB Atlas.

PROCEDURE:

STEP 1: Start the process and create a main folder (LAB-3).

STEP 2: Inside Ex3, create a subfolder named views to hold frontend EJS templates (e.g., form.ejs).

STEP 3: Create the MongoDB Atlas cluster and connect it using a connection URI inside server.js via Mongoose.

STEP 4: Set up the Express server, configure middleware, and connect Mongoose to MongoDB Atlas.

STEP 5: Create a Mongoose schema and model for storing student details (name, email, age).

STEP 6: Design a form using EJS to add and display all student data (form.ejs).

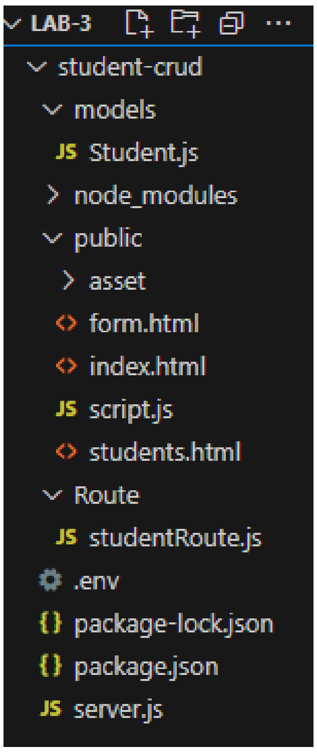
STEP 7: Define routes in server.js to handle adding, updating, and deleting students.

STEP 8: Apply logic in form.ejs to loop through student data and attach update/delete functionality.

STEP 9: Run the server using node server.js and open http://localhost:3000 to test.

STEP 10: Once working, verify database entries in MongoDB Atlas and stop the server using Ctrl + C.

DESIGN :



```
LAB-3
  student-crud
    models
      Student.js
    node_modules
    public
      asset
      form.html
      index.html
      script.js
      students.html
    Route
      studentRoute.js
    .env
    package-lock.json
    package.json
    server.js
```

1. STUDENT CRUD/

• Root directory of the project.

2. iews/ folder

• Contains EJS template (form.ejs) to dynamically display and interact with student data.

• Used to render student form and list using Express.

3. public/ folder

• Contains style.css file to style the student form and list layout.

• Enhances visual design and user experience.

4. app.js

• Main Node.js server script.

• Handles database connection, CRUD operations, and EJS rendering.

• Connects to MongoDB Atlas using Mongoose.

CODING:

Form.html:

```
<!DOCTYPE html>
<html>
<head>
  <title>Student Form</title>
  <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css">
</head>
<body class="container py-5">
  <h1 class="mb-4">Register Student</h1>
  <form action="/students" method="POST" class="mb-3">
    <div class="mb-3">
      <input name="name" class="form-control" placeholder="Name" required>
    </div>
    <div class="mb-3">
      <input name="email" type="email" class="form-control" placeholder="Email" required>
    </div>
    <div class="mb-3">
      <input name="course" class="form-control" placeholder="Course" required>
    </div>
    <div class="mb-3">
      <input name="age" type="number" class="form-control" placeholder="Age" required>
    </div>
    <button type="submit" class="btn btn-primary">Register</button>
  </form>
  <a href="/students.html" class="btn btn-secondary">View All Students</a>
</body>
</html>
```

Student.html

```
<!DOCTYPE html>
<html>
<head>
  <title>Student List</title>
  <link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css">
</head>
<body class="container py-5">
  <h1 class="mb-4">All Students</h1>
  <table class="table table-bordered">
    <thead class="table-dark">
    <tr>
            <th>Name</th>
            <th>Email</th>
            <th>Course</th>
            <th>Age</th>
            <th>Actions</th>
            </tr>
    </thead>
    <tbody id="studentTable"></tbody> </table>
  <h2 class="mt-5">Update Student</h2>
  <form id="updateForm" class="mb-3">
    <input type="hidden" id="updateId">
    <div class="mb-2"><input class="form-control" id="updateName" placeholder="Name"
required></div>
    <div class="mb-2"><input class="form-control" id="updateEmail" placeholder="Email"
required></div>
    <div class="mb-2"><input class="form-control" id="updateCourse" placeholder="Course"
required></div>
    <div class="mb-2"><input class="form-control" id="updateAge" placeholder="Age"
required></div>
    <button class="btn btn-success">Update</button>
  </form>
  <a href="/form.html" class="btn btn-secondary">Back to Registration</a>
  <script src="script.js"></script>
</body>
</html>
```

Script.js

```
fetch('/students')

  .then(res => res.json())

  .then(data => {

    const table = document.getElementById('studentTable');

    data.forEach(s => {

      const row = document.createElement('tr');

      row.innerHTML = `

        <td>${s.name}</td>

        <td>${s.email}</td>

        <td>${s.course}</td>

        <td>${s.age}</td>

        <td>
```

```
          <button onclick="edit('${s._id}', '${s.name}', '${s.email}', '${s.course}',
${s.age})">Edit</button>

          <button onclick="remove('${s._id}')">Delete</button>

        </td>`;

      table.appendChild(row);

    });

 });

function edit(id, name, email, course, age) {

  document.getElementById('updateId').value = id;

  document.getElementById('updateName').value = name;

  document.getElementById('updateEmail').value = email;

  document.getElementById('updateCourse').value = course;

  document.getElementById('updateAge').value = age;

}

function remove(id) {

  fetch(`/students/${id}`, { method: 'DELETE' })

    .then(() => location.reload());

}

document.getElementById('updateForm').addEventListener('submit', e => {

  e.preventDefault();

  const id = document.getElementById('updateId').value;

  const updated = {

    name: document.getElementById('updateName').value,

    email: document.getElementById('updateEmail').value,

    course: document.getElementById('updateCourse').value,

    age: document.getElementById('updateAge').value

  };

  fetch(`/students/${id}`, {

    method: 'PUT',

    headers: { 'Content-Type': 'application/json' },

    body: JSON.stringify(updated)

  }).then(() => location.reload()); });
```

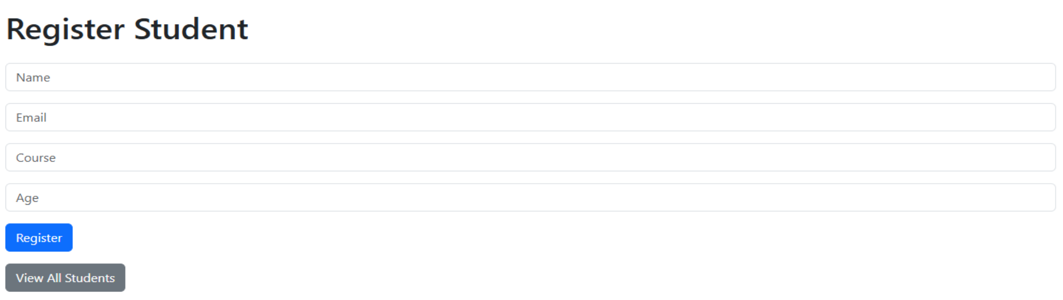
Server.js

```
const express = require('express');

const mongoose = require('mongoose');

const bodyParser = require('body-parser');

const path = require('path');

require('dotenv').config();

const app = express();

const PORT = 3000;

app.use(bodyParser.urlencoded({ extended: true }));

app.use(bodyParser.json());

app.use(express.static(path.join(__dirname, 'public')));

mongoose.connect(process.env.MONGO_URI, { useNewUrlParser: true, useUnifiedTopology:
true })

  .then(() => console.log('MongoDB Connected'))

  .catch(err => console.error(err));

const Student = require('./models/Student');

app.post('/students', async (req, res) => {

  try {

    const student = new Student(req.body);

    await student.save();

    res.redirect('/students.html');

  } catch (err) {

    res.status(400).send(err);

  }

});

app.get('/students', async (req, res) => {

  const students = await Student.find();

  res.json(students);
});

app.put('/students/:id', async (req, res) => {

  try {

    const updated = await Student.findByIdAndUpdate(req.params.id, req.body, { new: true });

    res.json(updated);

  } catch (err) {

    res.status(400).send(err);  }

});

app.delete('/students/:id', async (req, res) => {

  try {

    await Student.findByIdAndDelete(req.params.id);

    res.json({ message: 'Deleted' });

  } catch (err) {

    res.status(400).send(err);  }

});

app.get('/', (req, res) => {

  res.sendFile(path.join(__dirname, 'public', 'index.html'));

});

app.listen(PORT, () => {

  console.log(`Server running on http://localhost:${PORT}`);  });
```

STUDENT.js

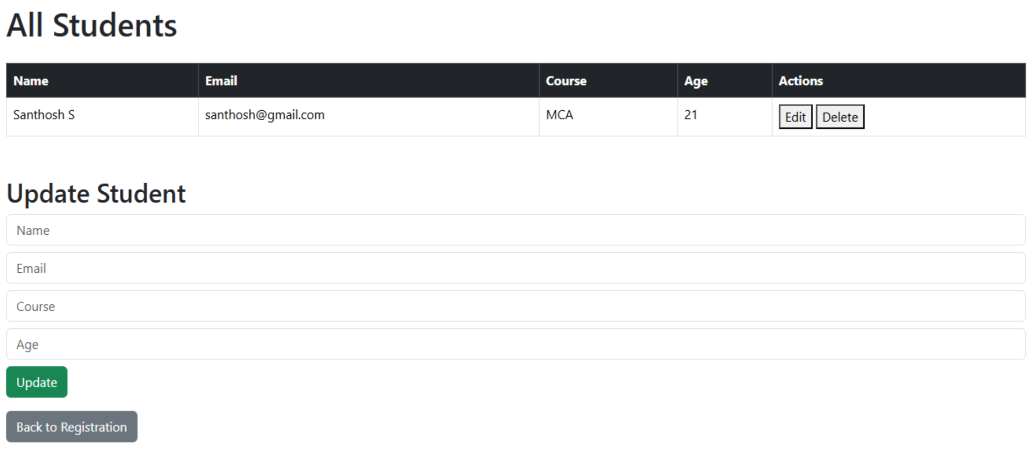
```
const mongoose = require('mongoose');
const studentSchema = new mongoose.Schema({
  name: String,
  email: String,
  course: String,
  age: Number
});
module.exports = mongoose.model('Student', studentSchema);
```

OUTPUT:



Register Student

Name
Email
Course
Age

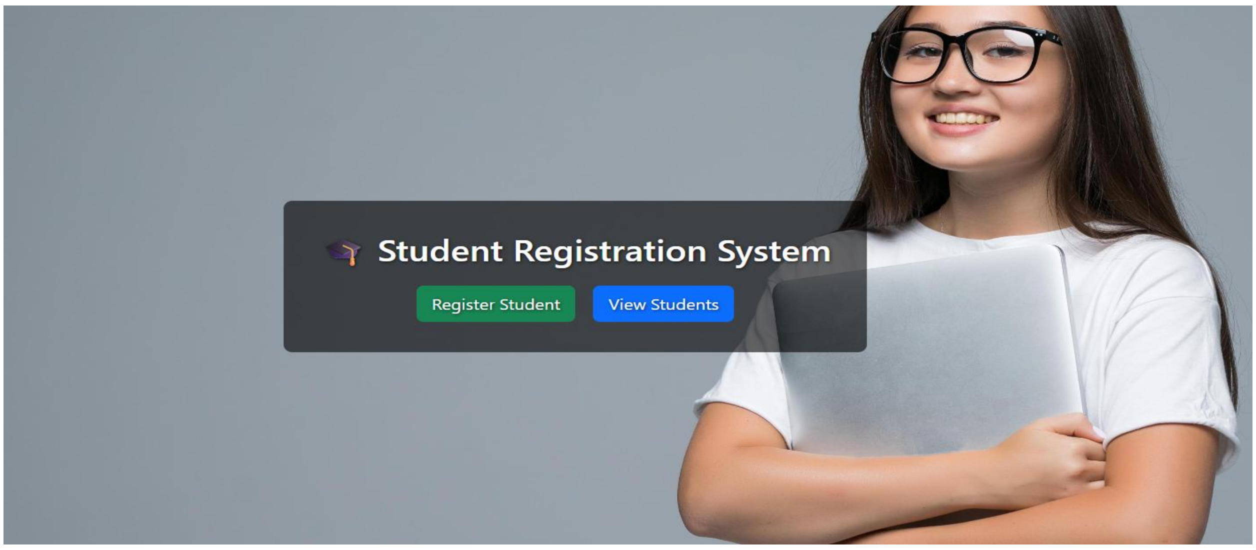


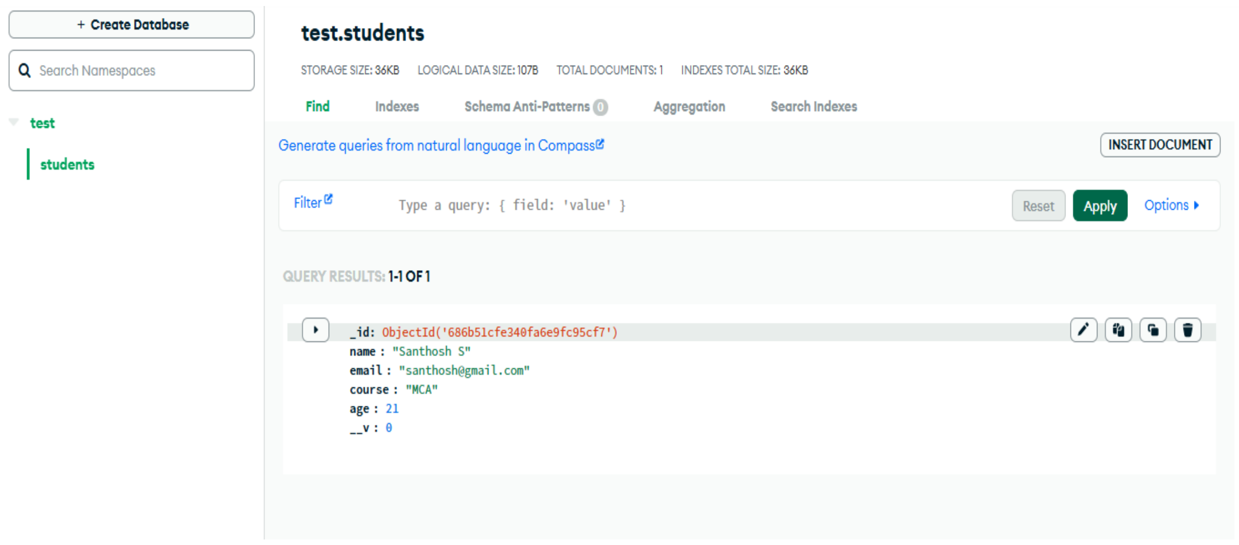
All Students

Name	Email	Course	Age	Actions
Santhosh S	santhosh@gmail.com	MCA	21	Edit Delete

Update Student

Name
Email
Course
Age





test.students

STORAGE SIZE: 36KB LOGICAL DATA SIZE: 107B TOTAL DOCUMENTS: 1 INDEXES TOTAL SIZE: 36KB

Generate queries from natural language in Compass

Type a query: { field: 'value' }

QUERY RESULTS: 1-1 OF 1

```
_id: ObjectId('686b51cfe340fa6e9fc95cf7')
name : "Santhosh S"
email : "santhosh@gmail.com"
course : "MCA"
age : 21
__v : 0
```

COE (30)	
OBSERVATION(10)	
RECORD (10)	
VIVA (10)	
TOTAL (60)	

RESULT:

Successfully performed all CRUD operations. Student records were created, updated, deleted, and retrieved from the MongoDB Atlas database using a Node.js + Express server.