Name - Yash Lakhtariya
Enrollment number - 21162101012
Branch - CBA   Batch - 51

Microservices Practical 6

Scenario : To Implement the file system and its operation with NodeJS: “A-1” grocery shop owner wants to manage shop items using the asynchronous coding technique of node and want to perform the following task:

Practical 6.1: Reading data from CSV

Practical 6.2: Adding data to CSV

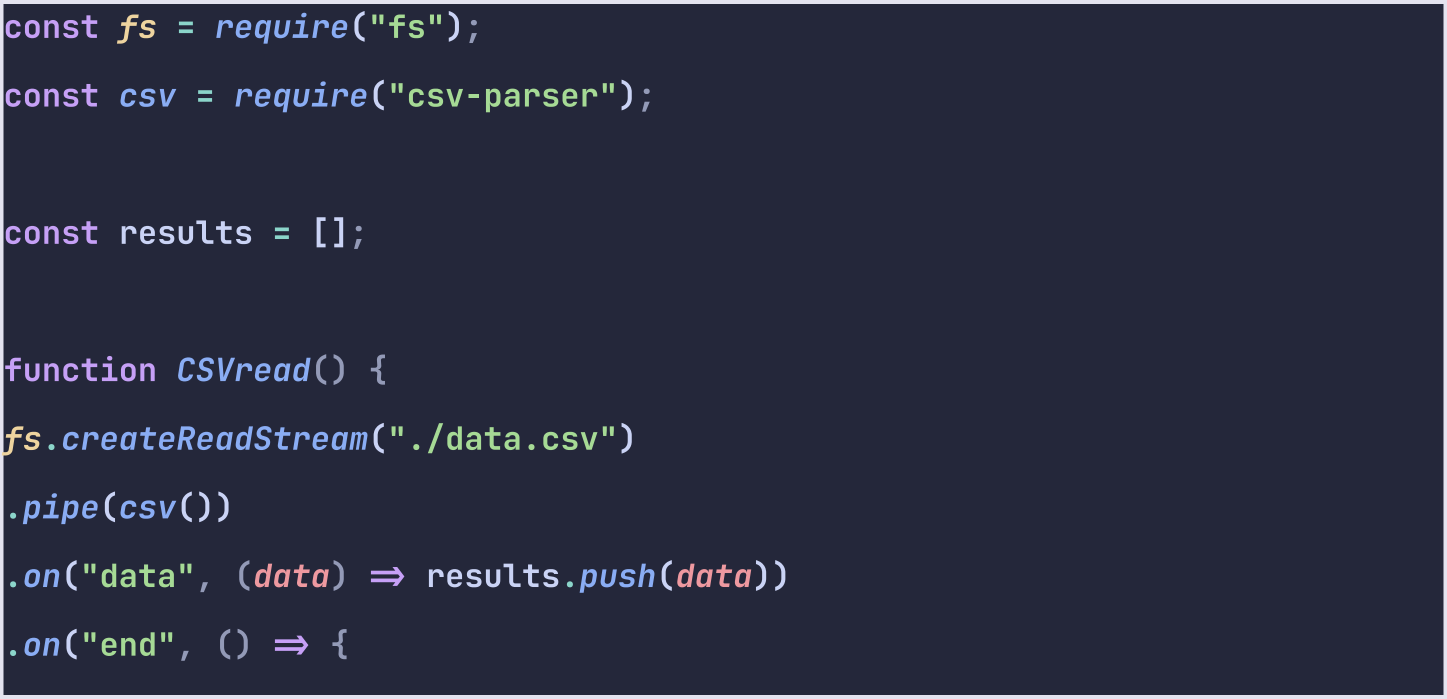
Practical 6.3: Deleting data from CSV

Practical 6.4: Renaming CSV

Practical 6.5: Create an application to manage the students' grade sheet using a CSV file. Columns include Student name, Quiz_Marks, Mid-term_Marks, Assignment_Marks, final_exam_marks, Total_marks

Code :

1. **Practical 6.1: Reading data from CSV**



```
const fs = require("fs");
const csv = require("csv-parser");


const results = [];


function CSVread() {
fs.createReadStream("./data.csv")
.pipe(csv())
.on("data", (data) => results.push(data))
.on("end", () => {
```

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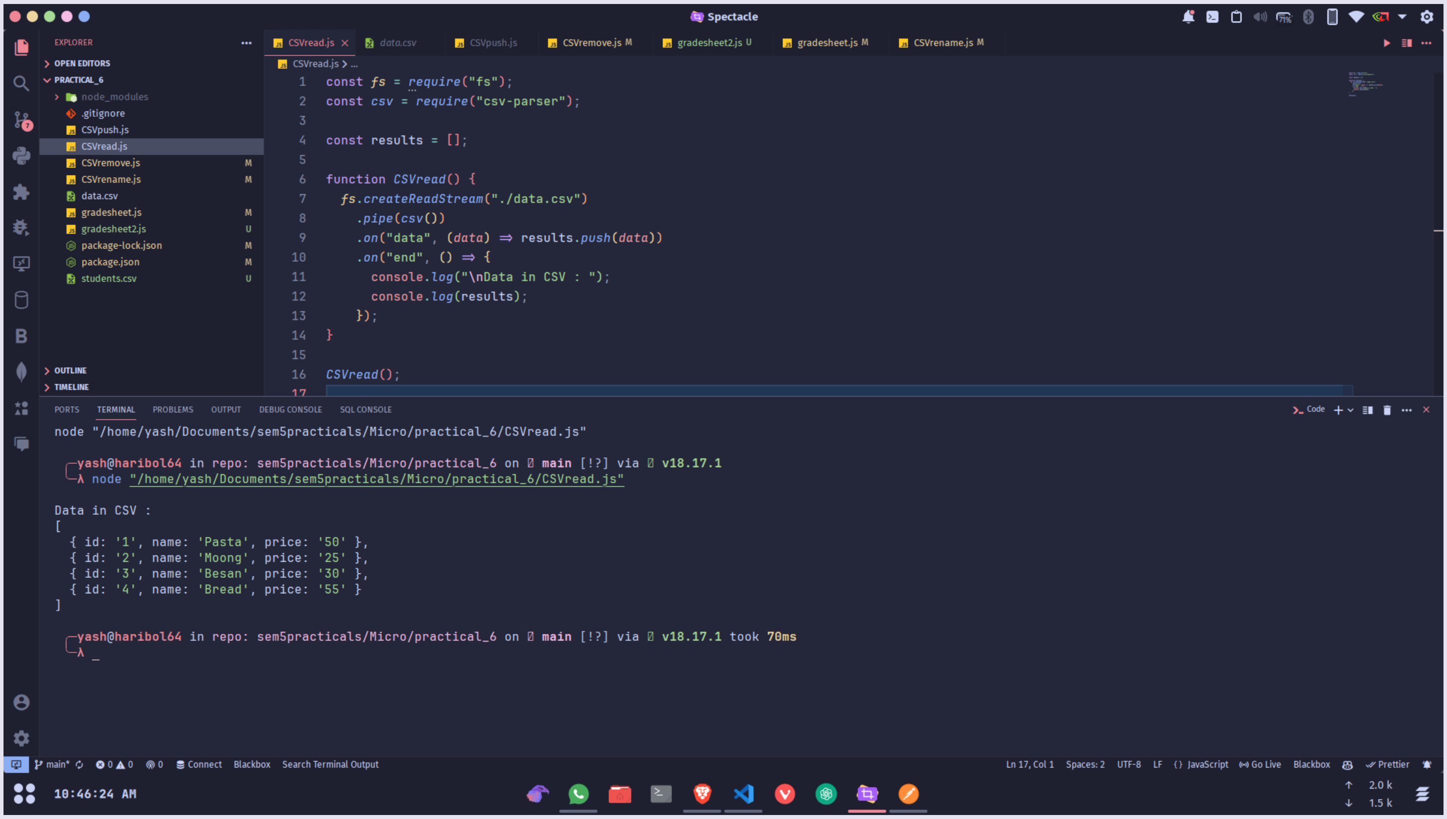
```
console.log("\nData in CSV : ");

console.log(results);

});

}



CSVread();
```

Screenshot :



```
const fs = require("fs");
const csv = require("csv-parser");

const results = [];

function CSVread() {
  fs.createReadStream("./data.csv")
    .pipe(csv())
    .on("data", (data) ⇒ results.push(data))
    .on("end", () ⇒ {
      console.log("\nData in CSV : ");
      console.log(results);
    });
}

CSVread();
```

```
node "/home/yash/Documents/sem5practicals/Micro/practical_6/CSVread.js"

  ┌yash@haribol64 in repo: sem5practicals/Micro/practical_6 on □ main [!?] via □ v18.17.1
  └λ node "/home/yash/Documents/sem5practicals/Micro/practical_6/CSVread.js"

Data in CSV :
[
  { id: '1', name: 'Pasta', price: '50' },
  { id: '2', name: 'Moong', price: '25' },
  { id: '3', name: 'Besan', price: '30' },
  { id: '4', name: 'Bread', price: '55' }
]

  ┌yash@haribol64 in repo: sem5practicals/Micro/practical_6 on □ main [!?] via □ v18.17.1 took 70ms
  └λ _
```

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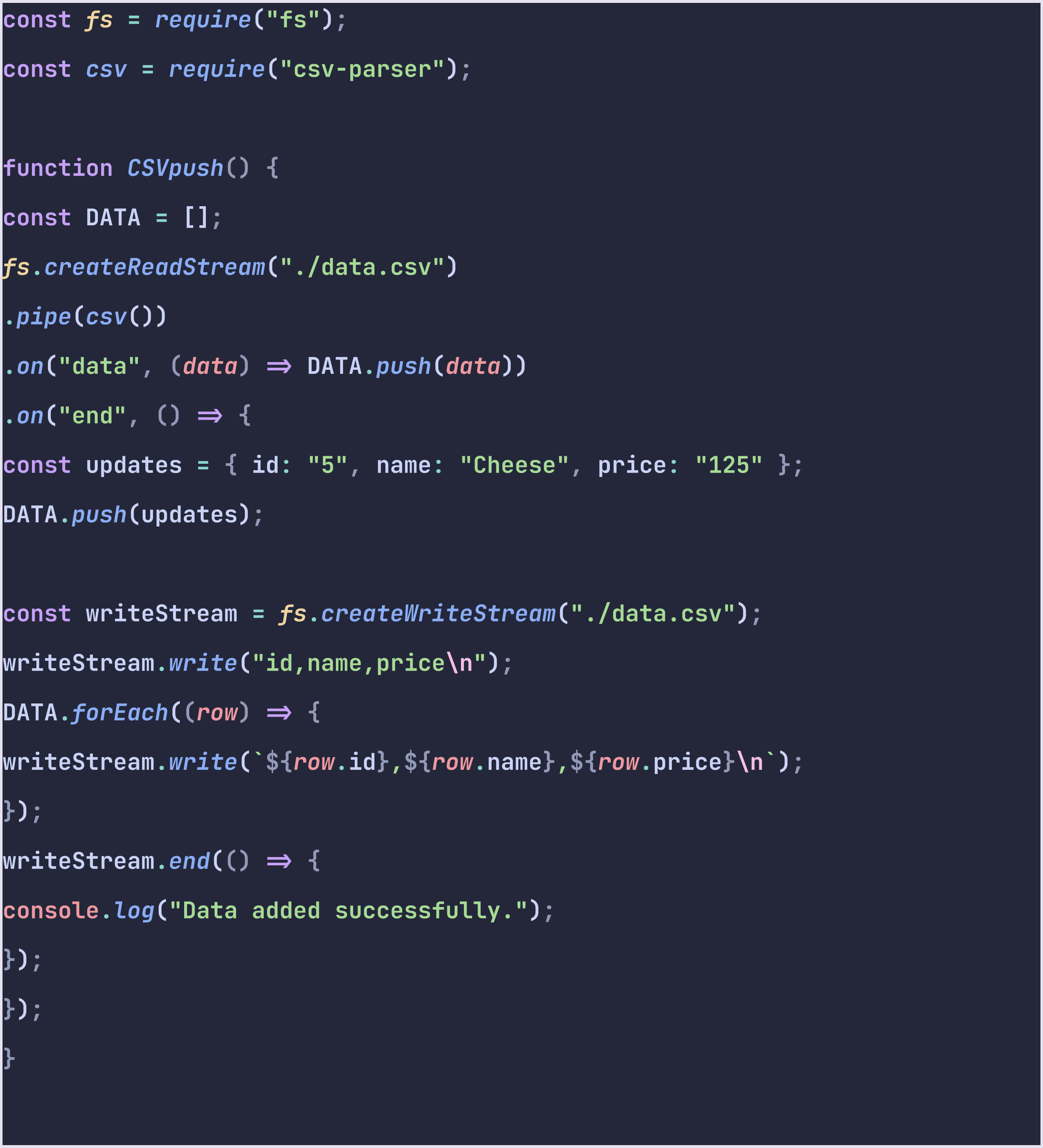
2. Practical 6.2: Adding data to CSV



```javascript
const fs = require("fs");
const csv = require("csv-parser");

function CSVpush() {
const DATA = [];
fs.createReadStream("./data.csv")
.pipe(csv())
.on("data", (data) => DATA.push(data))
.on("end", () => {
const updates = { id: "5", name: "Cheese", price: "125" };
DATA.push(updates);

const writeStream = fs.createWriteStream("./data.csv");
writeStream.write("id,name,price\n");
DATA.forEach((row) => {
writeStream.write(`${row.id},${row.name},${row.price}\n`);
});
writeStream.end(() => {
console.log("Data added successfully.");
});
});
}
```

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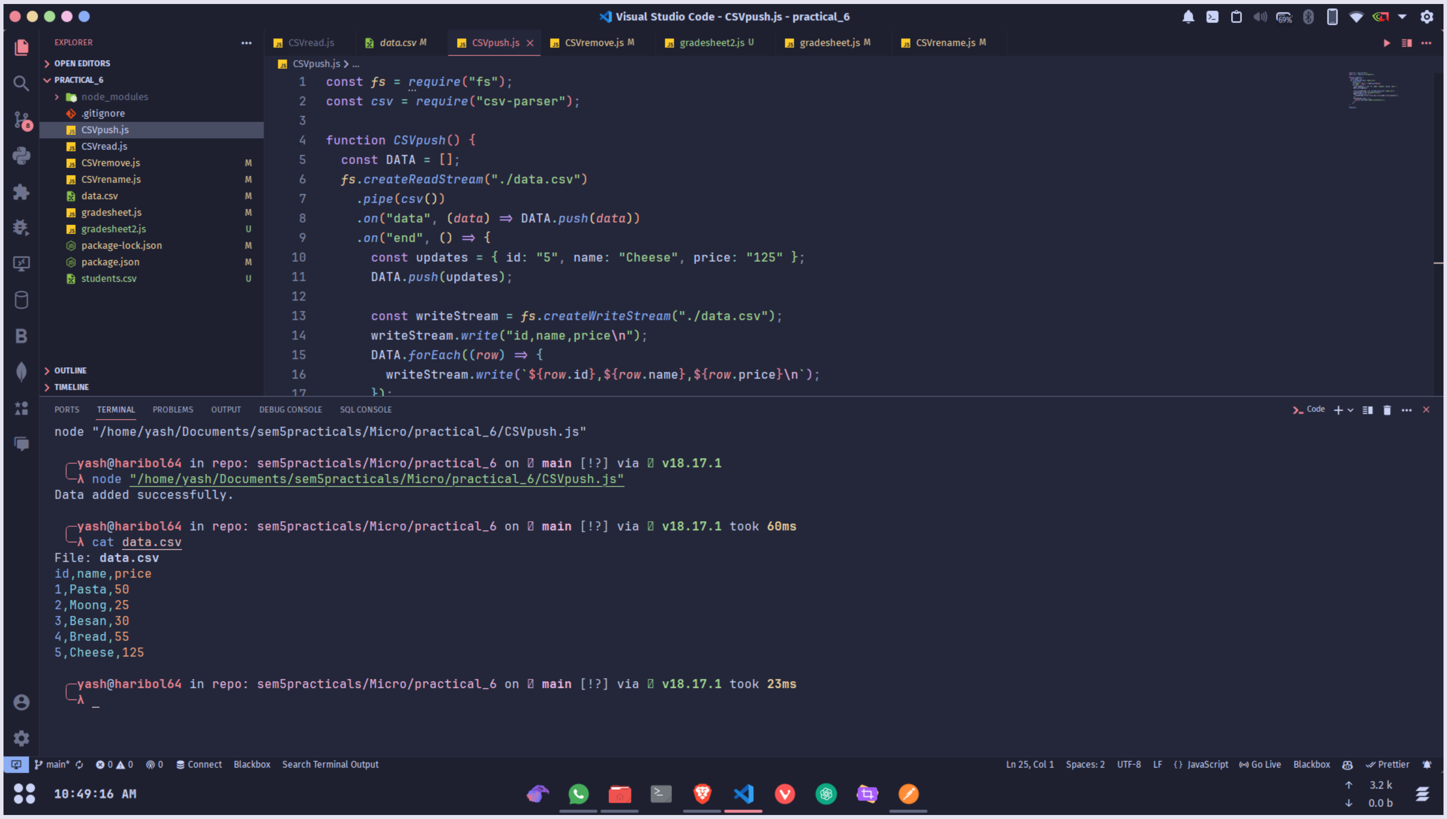
Microservices Practical 6

```
CSVpush();
```

Screenshot :



Visual Studio Code - CSVpush.js - practical_6

```
const fs = require("fs");
const csv = require("csv-parser");

function CSVpush() {
  const DATA = [];
  fs.createReadStream("./data.csv")
    .pipe(csv())
    .on("data", (data) => DATA.push(data))
    .on("end", () => {
      const updates = { id: "5", name: "Cheese", price: "125" };
      DATA.push(updates);

      const writeStream = fs.createWriteStream("./data.csv");
      writeStream.write("id,name,price\n");
      DATA.forEach((row) => {
        writeStream.write(`${row.id},${row.name},${row.price}\n`);
      });
```

```
node "/home/yash/Documents/sem5practicals/Micro/practical_6/CSVpush.js"

 ┌─yash@haribol64 in repo: sem5practicals/Micro/practical_6 on  main [!?] via  v18.17.1
 └─λ node "/home/yash/Documents/sem5practicals/Micro/practical_6/CSVpush.js"
Data added successfully.

 ┌─yash@haribol64 in repo: sem5practicals/Micro/practical_6 on  main [!?] via  v18.17.1 took 60ms
 └─λ cat data.csv
File: data.csv
id,name,price
1,Pasta,50
2,Moong,25
3,Besan,30
4,Bread,55
5,Cheese,125

 ┌─yash@haribol64 in repo: sem5practicals/Micro/practical_6 on  main [!?] via  v18.17.1 took 23ms
 └─λ _
```

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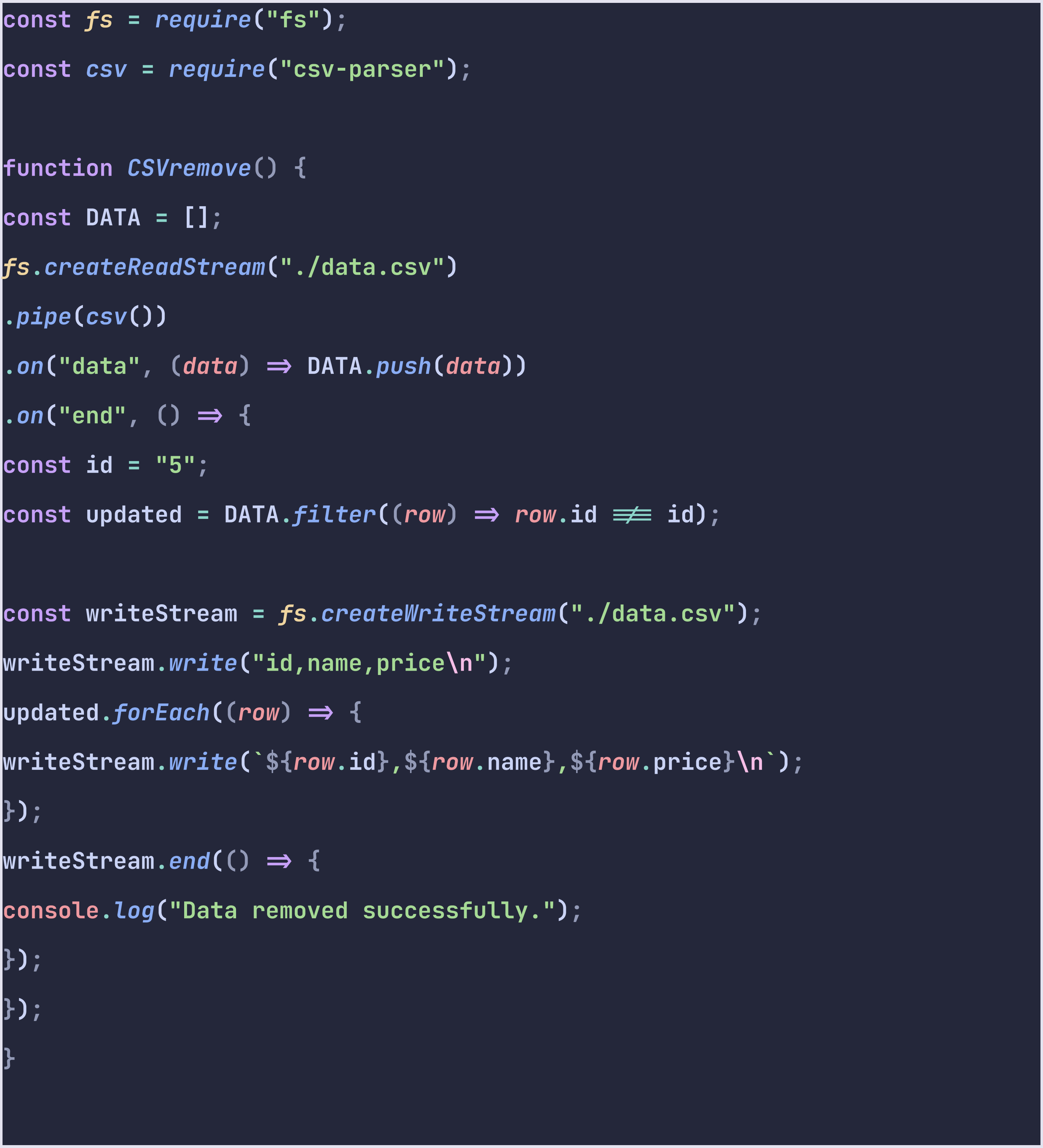
3. Practical 6.3: Deleting data from CSV



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

const csv = require("csv-parser");


function CSVremove() {

const DATA = [];

fs.createReadStream("./data.csv")

.pipe(csv())

.on("data", (data) => DATA.push(data))

.on("end", () => {

const id = "5";

const updated = DATA.filter((row) => row.id !== id);


const writeStream = fs.createWriteStream("./data.csv");

writeStream.write("id,name,price\n");

updated.forEach((row) => {

writeStream.write(`${row.id},${row.name},${row.price}\n`);

});

writeStream.end(() => {

console.log("Data removed successfully.");

});

});

}
```

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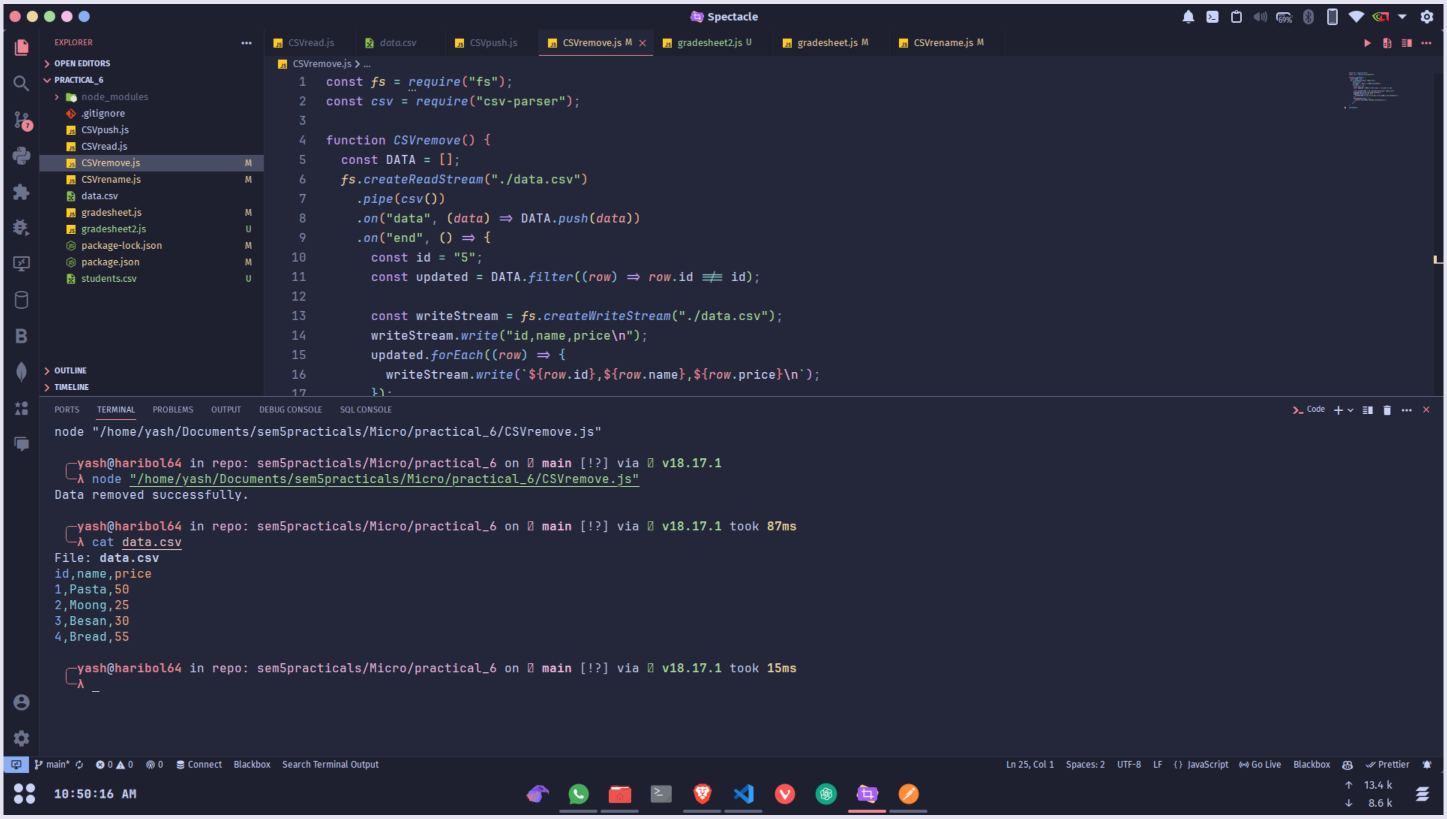
```
CSVremove();
```

Screenshot :



```
const fs = require("fs");
const csv = require("csv-parser");

function CSVremove() {
  const DATA = [];
  fs.createReadStream("./data.csv")
    .pipe(csv())
    .on("data", (data) => DATA.push(data))
    .on("end", () => {
      const id = "5";
      const updated = DATA.filter((row) => row.id !== id);

      const writeStream = fs.createWriteStream("./data.csv");
      writeStream.write("id,name,price\n");
      updated.forEach((row) => {
        writeStream.write(`${row.id},${row.name},${row.price}\n`);
      });
```

```
node "/home/yash/Documents/sem5practicals/Micro/practical_6/CSVremove.js"

 ┌yash@haribol64 in repo: sem5practicals/Micro/practical_6 on  main [!?] via  v18.17.1
 └λ node "/home/yash/Documents/sem5practicals/Micro/practical_6/CSVremove.js"
Data removed successfully.

 ┌yash@haribol64 in repo: sem5practicals/Micro/practical_6 on  main [!?] via  v18.17.1 took 87ms
 └λ cat data.csv
File: data.csv
id,name,price
1,Pasta,50
2,Moong,25
3,Besan,30
4,Bread,55

 ┌yash@haribol64 in repo: sem5practicals/Micro/practical_6 on  main [!?] via  v18.17.1 took 15ms
 └λ _
```

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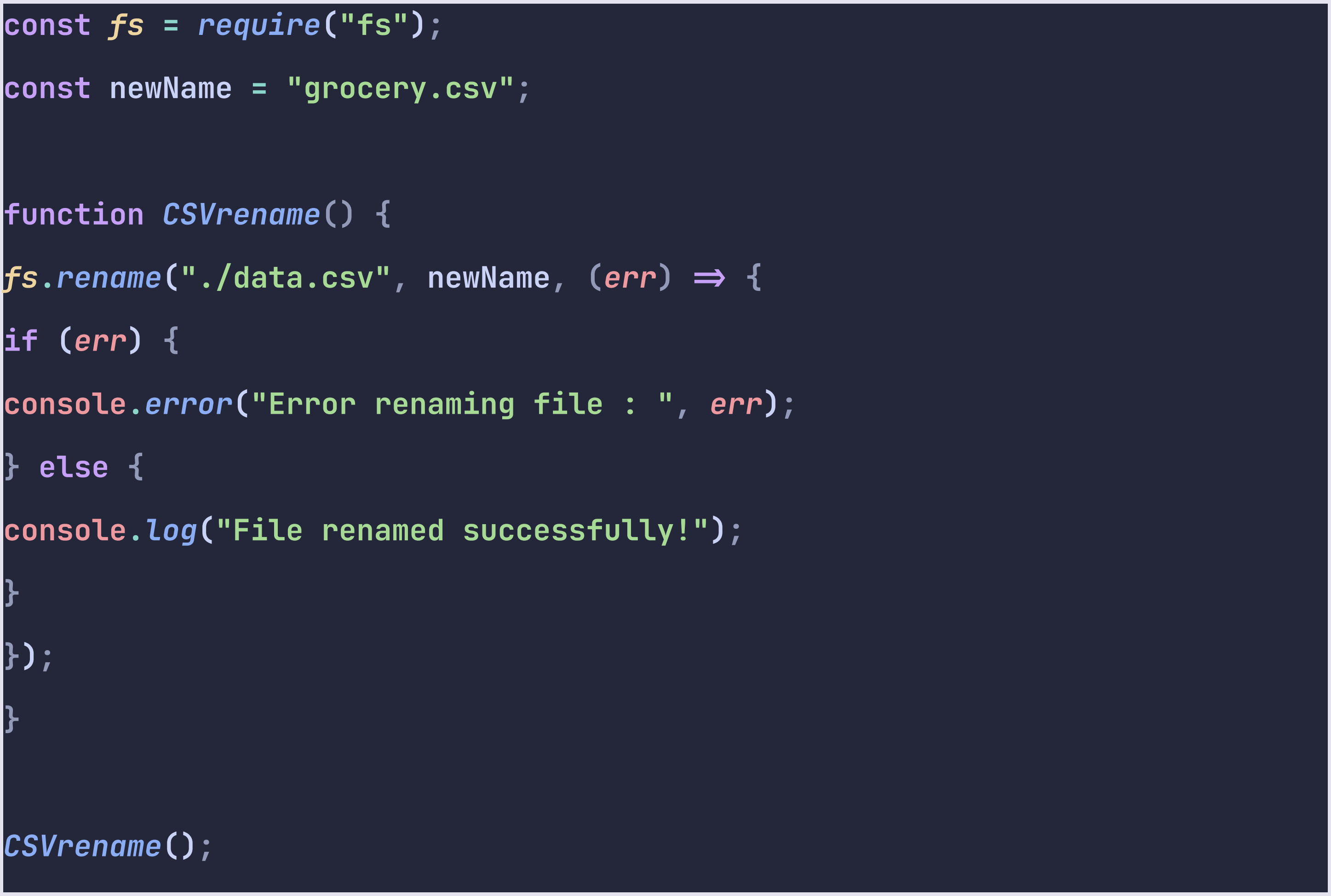
4. **Practical 6.4: Renaming CSV**



```
const fs = require("fs");
const newName = "grocery.csv";

function CSVrename() {
fs.rename("./data.csv", newName, (err) => {
if (err) {
console.error("Error renaming file : ", err);
} else {
console.log("File renamed successfully!");
}
});
}

CSVrename();
```

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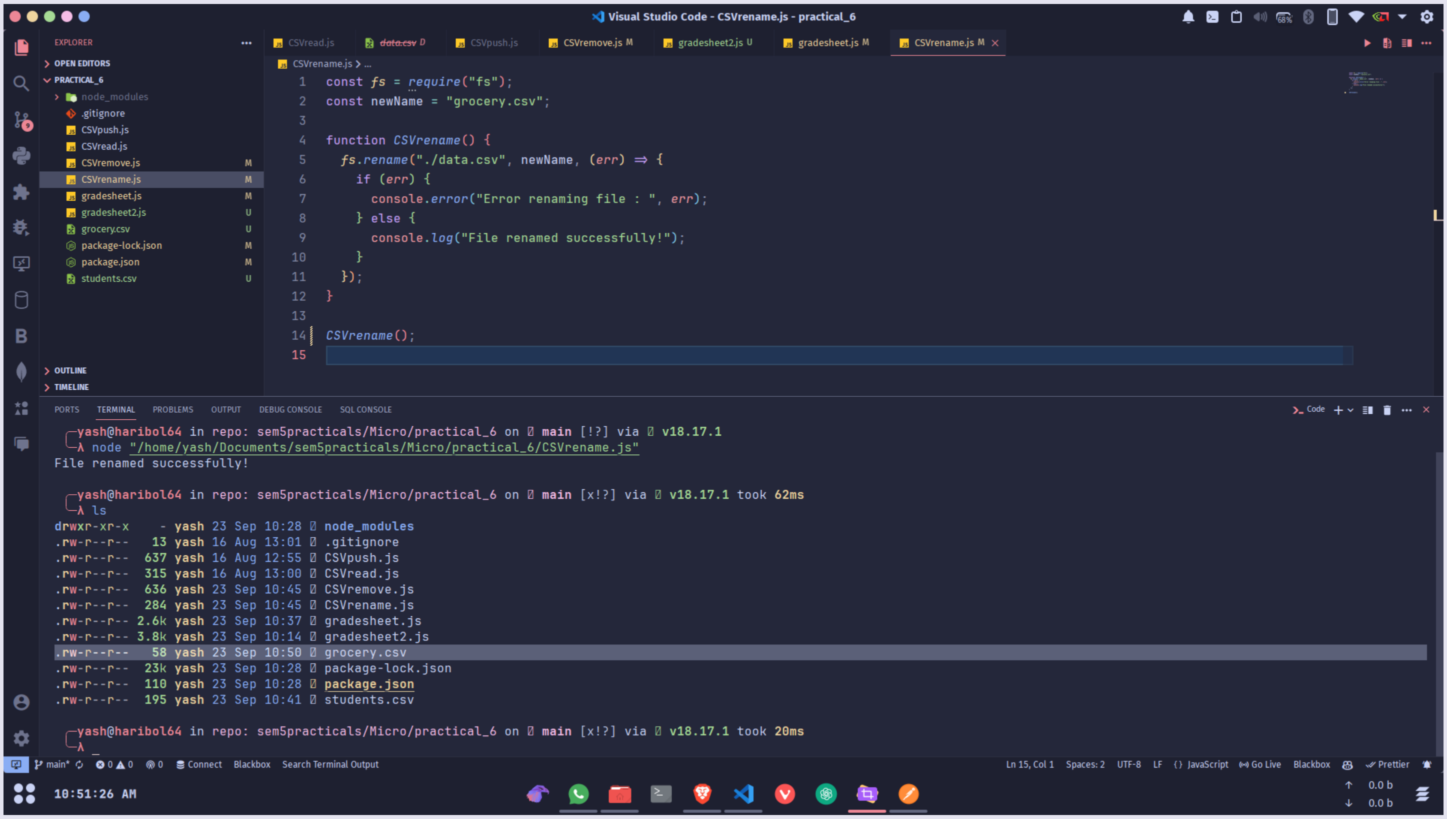
Screenshot :



```javascript
const fs = require("fs");
const newName = "grocery.csv";

function CSVrename() {
  fs.rename("./data.csv", newName, (err) ⇒ {
    if (err) {
      console.error("Error renaming file : ", err);
    } else {
      console.log("File renamed successfully!");
    }
  });
}

CSVrename();
```

```
┌─yash@haribol64 in repo: sem5practicals/Micro/practical_6 on □ main [!?] via □ v18.17.1
└─λ node "/home/yash/Documents/sem5practicals/Micro/practical_6/CSVrename.js"
File renamed successfully!

┌─yash@haribol64 in repo: sem5practicals/Micro/practical_6 on □ main [x!?] via □ v18.17.1 took 62ms
└─λ ls
drwxr-xr-x    - yash 23 Sep 10:28 □ node_modules
.rw-r--r--   13 yash 16 Aug 13:01 □ .gitignore
.rw-r--r--  637 yash 16 Aug 12:55 □ CSVpush.js
.rw-r--r--  315 yash 16 Aug 13:00 □ CSVread.js
.rw-r--r--  636 yash 23 Sep 10:45 □ CSVremove.js
.rw-r--r--  284 yash 23 Sep 10:45 □ CSVrename.js
.rw-r--r-- 2.6k yash 23 Sep 10:37 □ gradesheet.js
.rw-r--r-- 3.8k yash 23 Sep 10:14 □ gradesheet2.js
.rw-r--r--   58 yash 23 Sep 10:50 □ grocery.csv
.rw-r--r--  23k yash 23 Sep 10:28 □ package-lock.json
.rw-r--r--  110 yash 23 Sep 10:28 □ package.json
.rw-r--r--  195 yash 23 Sep 10:41 □ students.csv

┌─yash@haribol64 in repo: sem5practicals/Micro/practical_6 on □ main [x!?] via □ v18.17.1 took 20ms
└─λ _
```

5. **Practical 6.5: Create an application to manage the students' grade sheet using a CSV file. Columns include Student name, Quiz_Marks, Mid-term_Marks, Assignment_Marks, final_exam_marks, Total_marks**

```javascript
const express = require("express");

const fs = require("fs");

const csv = require("csv-parser");

const app = express();

const port = 4200;


app.use(express.json());
```

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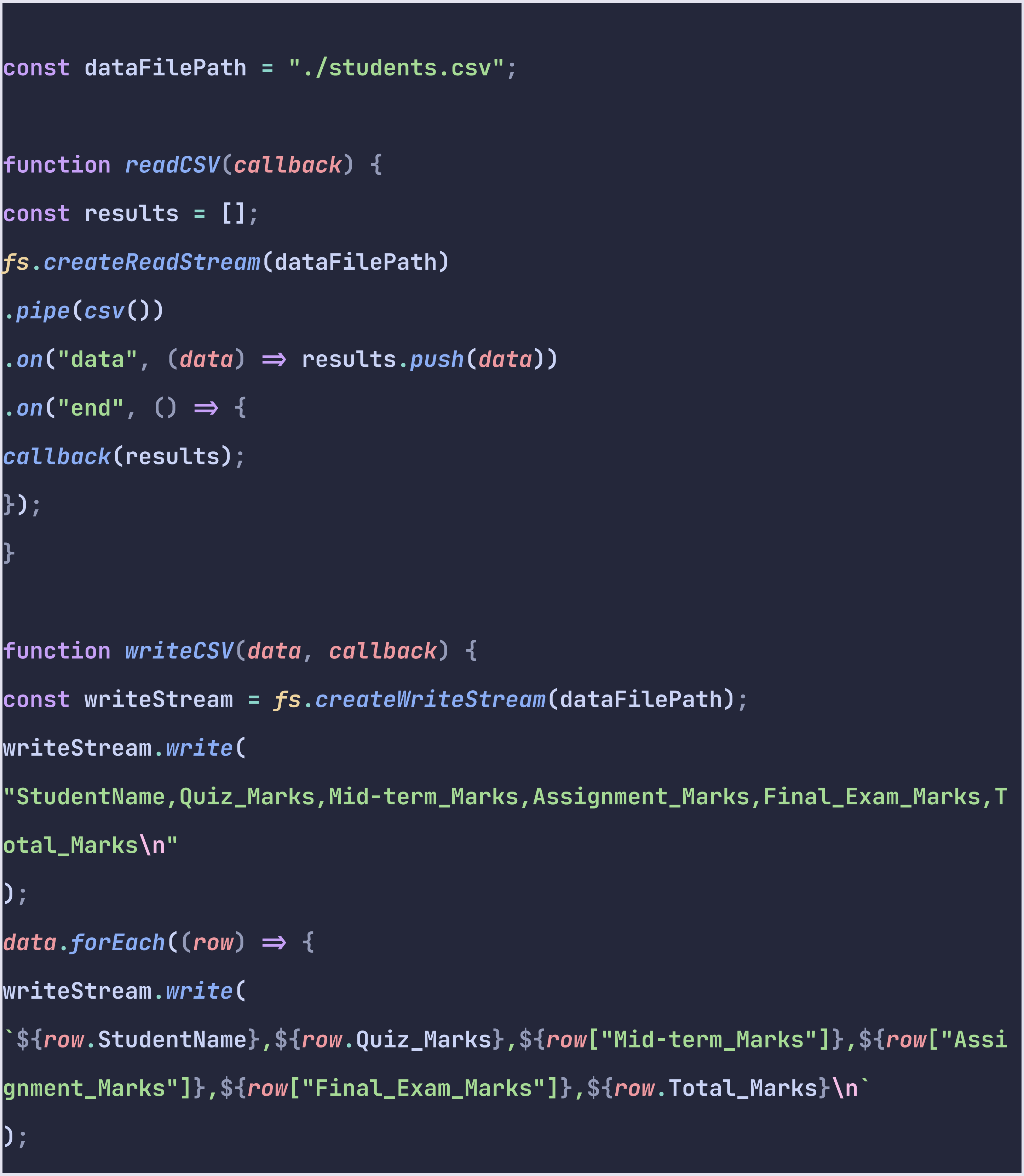

```
const dataFilePath = "./students.csv";

function readCSV(callback) {
const results = [];
fs.createReadStream(dataFilePath)
.pipe(csv())
.on("data", (data) => results.push(data))
.on("end", () => {
callback(results);
});
}

function writeCSV(data, callback) {
const writeStream = fs.createWriteStream(dataFilePath);
writeStream.write(
"StudentName,Quiz_Marks,Mid-term_Marks,Assignment_Marks,Final_Exam_Marks,Total_Marks\n"
);
data.forEach((row) => {
writeStream.write(
`${row.StudentName},${row.Quiz_Marks},${row["Mid-term_Marks"]},${row["Assignment_Marks"]},${row["Final_Exam_Marks"]},${row.Total_Marks}\n`
);
```

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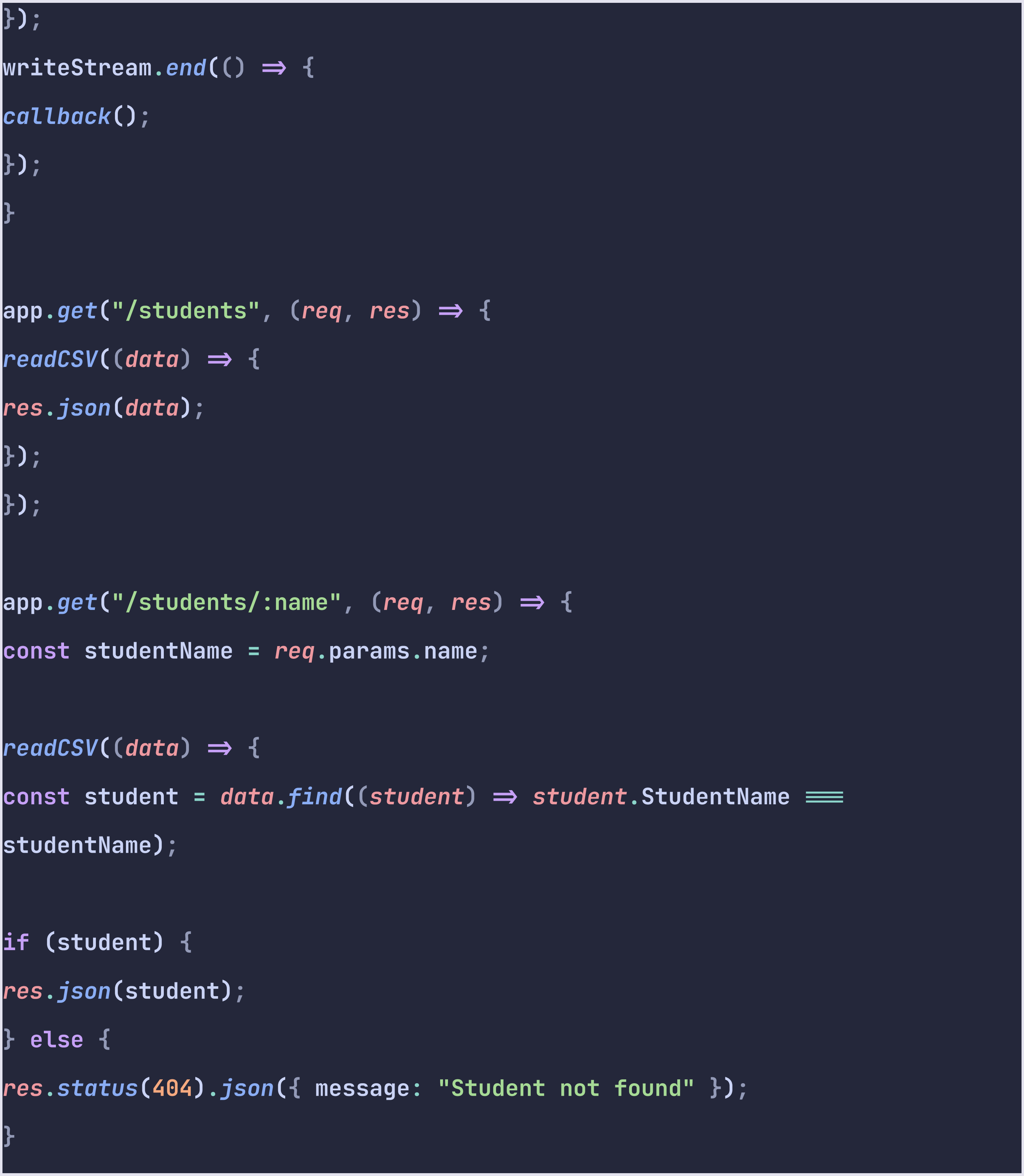


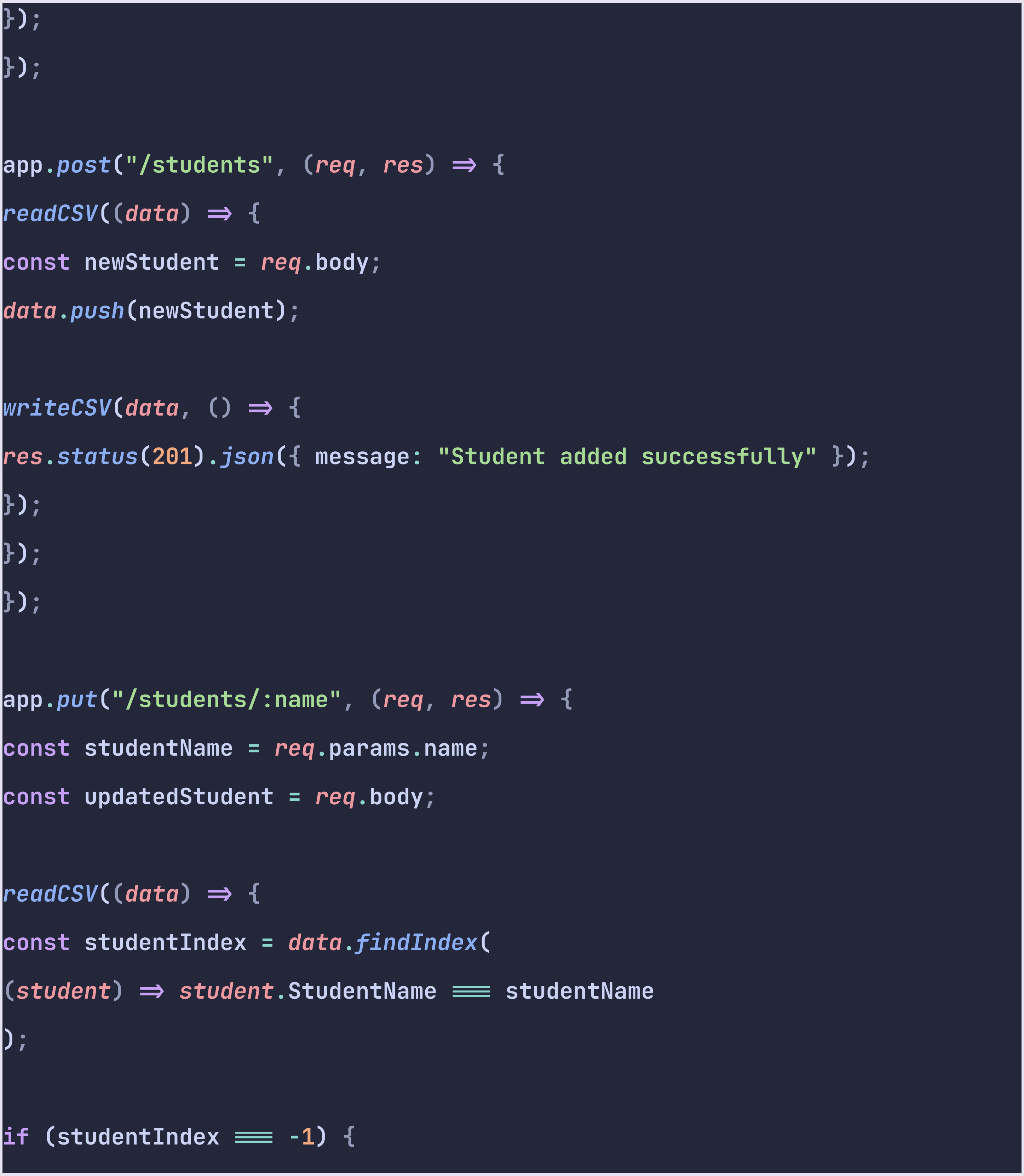
```
});
writeStream.end(() => {
callback();
});
}

app.get("/students", (req, res) => {
readCSV((data) => {
res.json(data);
});
});

app.get("/students/:name", (req, res) => {
const studentName = req.params.name;

readCSV((data) => {
const student = data.find((student) => student.StudentName ===
studentName);

if (student) {
res.json(student);
} else {
res.status(404).json({ message: "Student not found" });
}
```



```
});
});

app.post("/students", (req, res) => {
readCSV((data) => {
const newStudent = req.body;
data.push(newStudent);

writeCSV(data, () => {
res.status(201).json({ message: "Student added successfully" });
});
});
});

app.put("/students/:name", (req, res) => {
const studentName = req.params.name;
const updatedStudent = req.body;

readCSV((data) => {
const studentIndex = data.findIndex(
(student) => student.StudentName === studentName
);

if (studentIndex === -1) {
```

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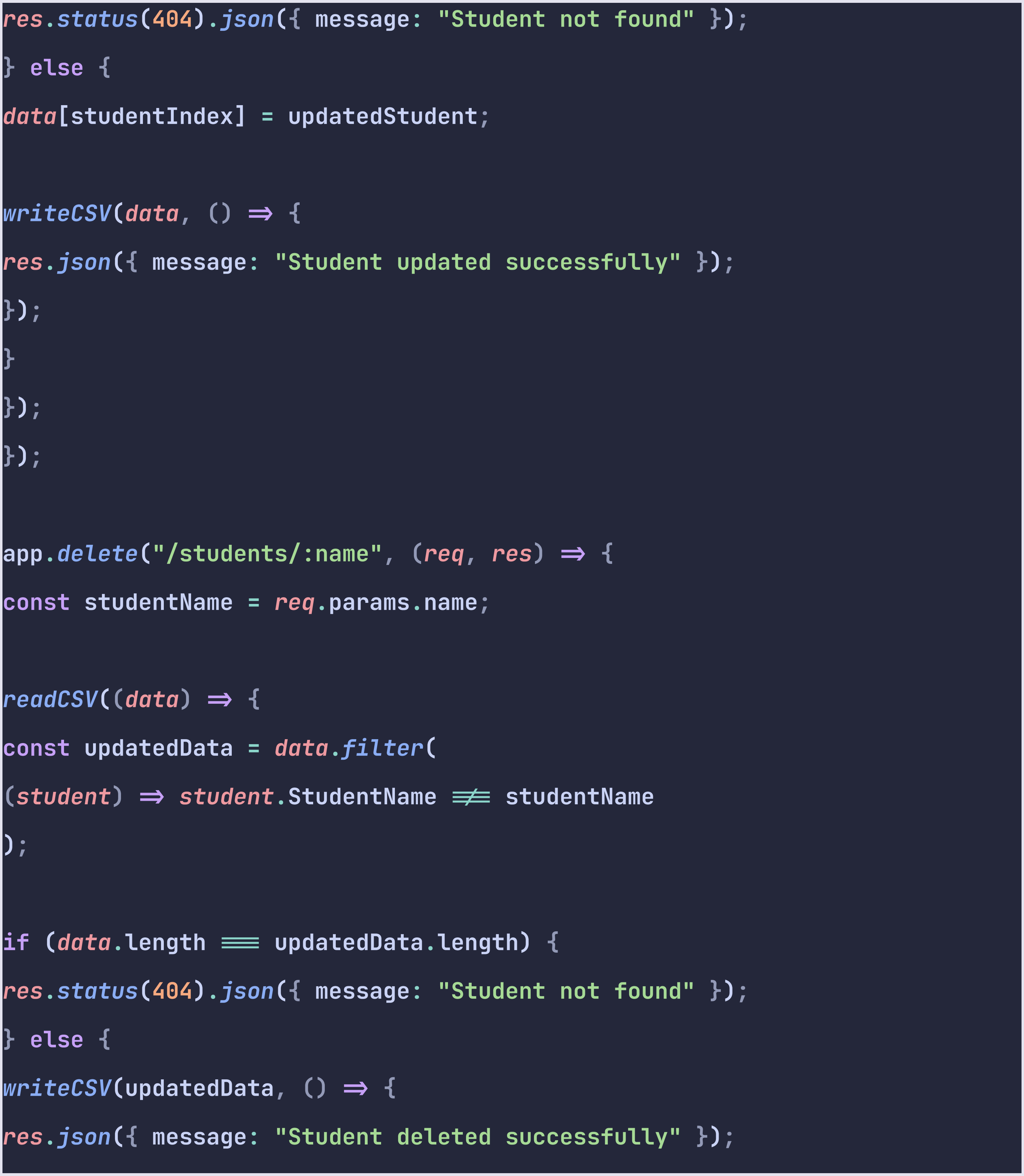

```
res.status(404).json({ message: "Student not found" });
} else {
data[studentIndex] = updatedStudent;

writeCSV(data, () => {
res.json({ message: "Student updated successfully" });
});
}
});
});

app.delete("/students/:name", (req, res) => {
const studentName = req.params.name;

readCSV((data) => {
const updatedData = data.filter(
(student) => student.StudentName !== studentName
);

if (data.length === updatedData.length) {
res.status(404).json({ message: "Student not found" });
} else {
writeCSV(updatedData, () => {
res.json({ message: "Student deleted successfully" });
```

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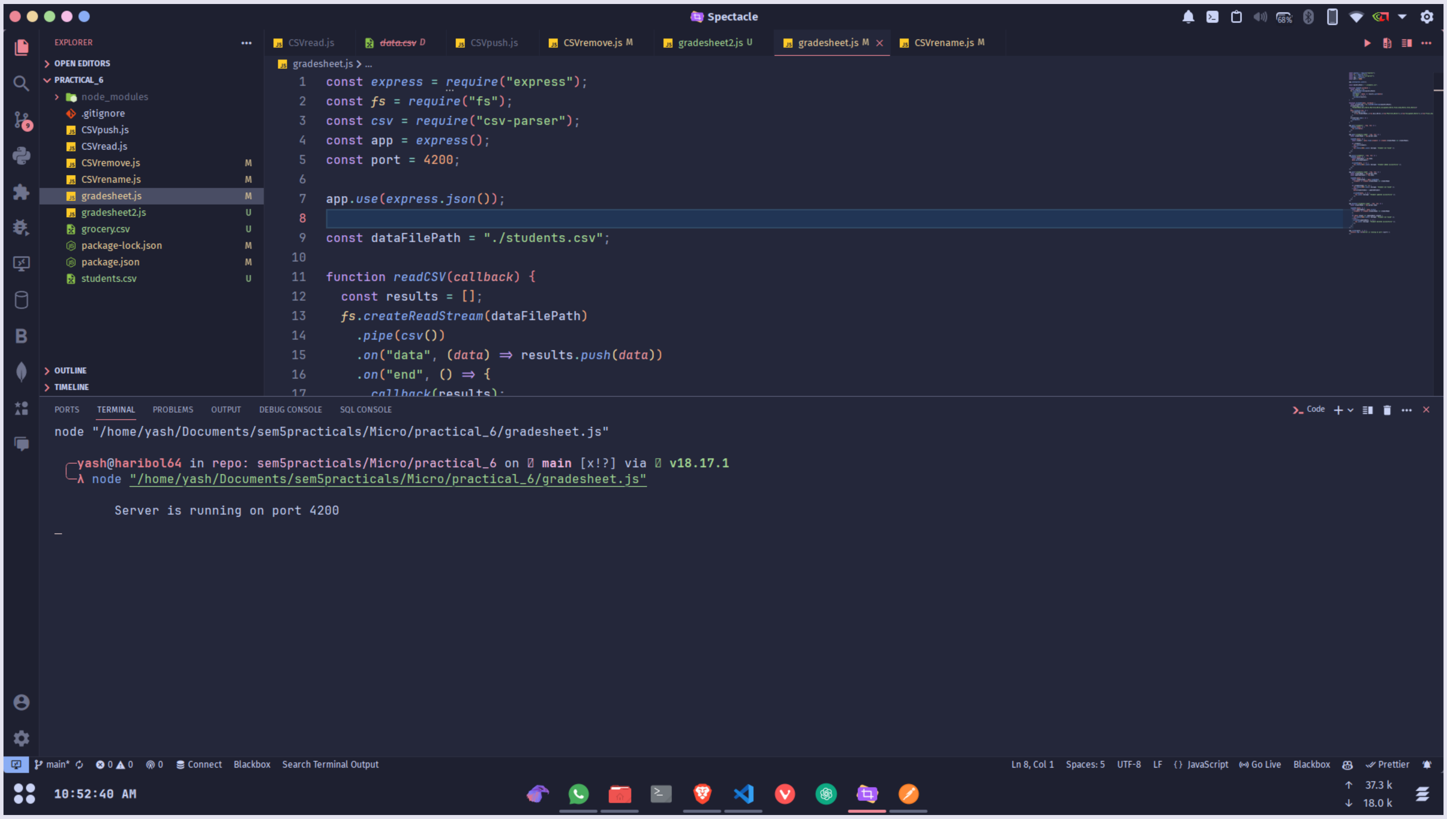
```
});
}
});
});

app.listen(port, () ⇒ {
console.log(`\n\tServer is running on port ${port}`);
});
```

Screenshots :

a. Running local server



```
const express = require("express");
const fs = require("fs");
const csv = require("csv-parser");
const app = express();
const port = 4200;

app.use(express.json());

const dataFilePath = "./students.csv";

function readCSV(callback) {
  const results = [];
  fs.createReadStream(dataFilePath)
    .pipe(csv())
    .on("data", (data) ⇒ results.push(data))
    .on("end", () ⇒ {
      callback(results);
```

```
node "/home/yash/Documents/sem5practicals/Micro/practical_6/gradesheet.js"

┌yash@haribol64 in repo: sem5practicals/Micro/practical_6 on  main [x!?] via  v18.17.1
└λ node "/home/yash/Documents/sem5practicals/Micro/practical_6/gradesheet.js"

	Server is running on port 4200

_
```

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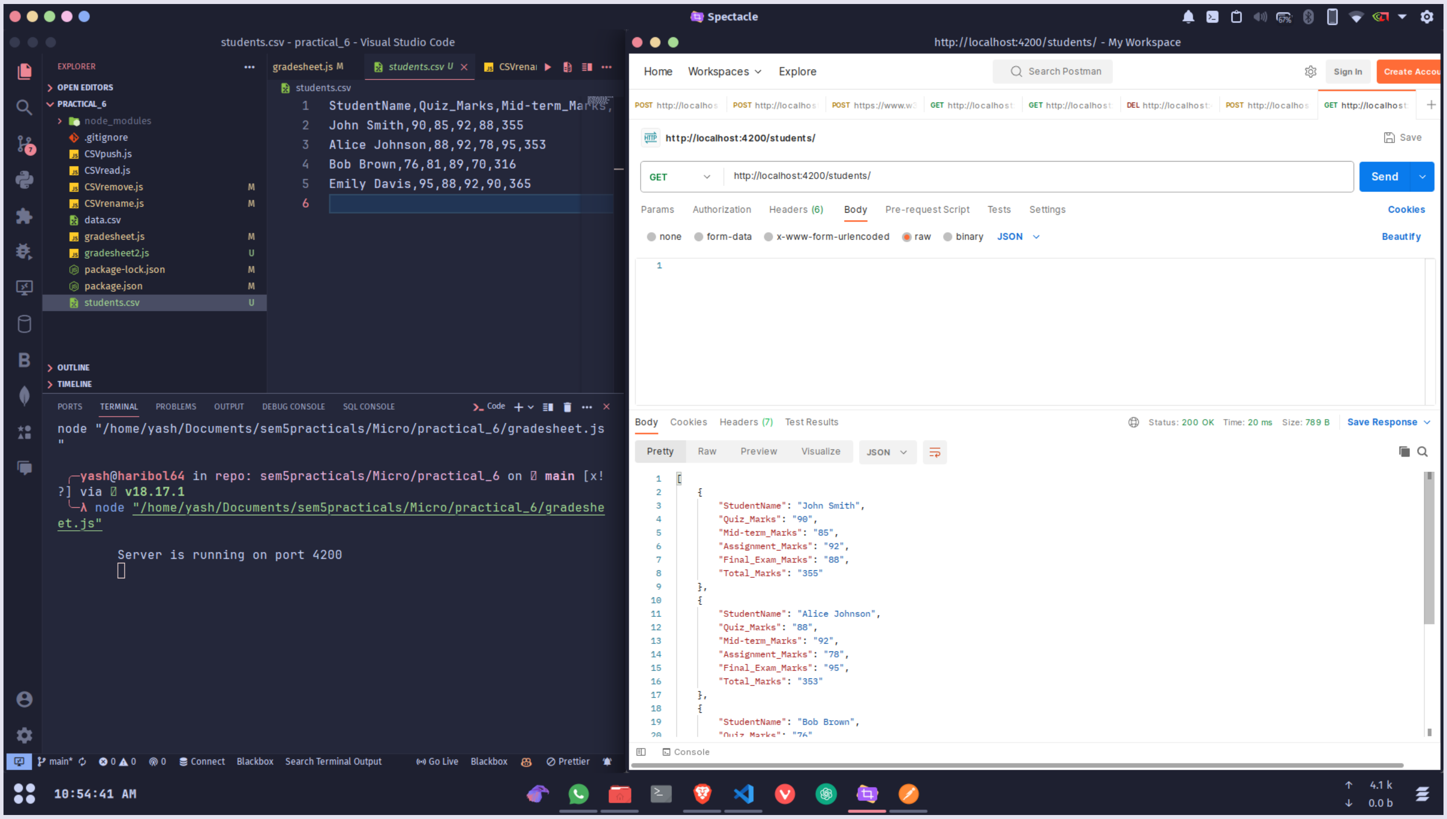
b. GET all details



students.csv

```
StudentName,Quiz_Marks,Mid-term_Marks,
John Smith,90,85,92,88,355
Alice Johnson,88,92,78,95,353
Bob Brown,76,81,89,70,316
Emily Davis,95,88,92,90,365
```

```
node "/home/yash/Documents/sem5practicals/Micro/practical_6/gradesheet.js
"

┌─yash@haribol64 in repo: sem5practicals/Micro/practical_6 on  main [x!
?] via  v18.17.1
└─λ node "/home/yash/Documents/sem5practicals/Micro/practical_6/gradeshe
et.js"

        Server is running on port 4200
```

GET http://localhost:4200/students/

Body: ○ none ○ form-data ○ x-www-form-urlencoded ● raw ○ binary JSON

Status: 200 OK Time: 20 ms Size: 789 B

```
[
    {
        "StudentName": "John Smith",
        "Quiz_Marks": "90",
        "Mid-term_Marks": "85",
        "Assignment_Marks": "92",
        "Final_Exam_Marks": "88",
        "Total_Marks": "355"
    },
    {
        "StudentName": "Alice Johnson",
        "Quiz_Marks": "88",
        "Mid-term_Marks": "92",
        "Assignment_Marks": "78",
        "Final_Exam_Marks": "95",
        "Total_Marks": "353"
    },
    {
        "StudentName": "Bob Brown",
        "Quiz_Marks": "76"
```

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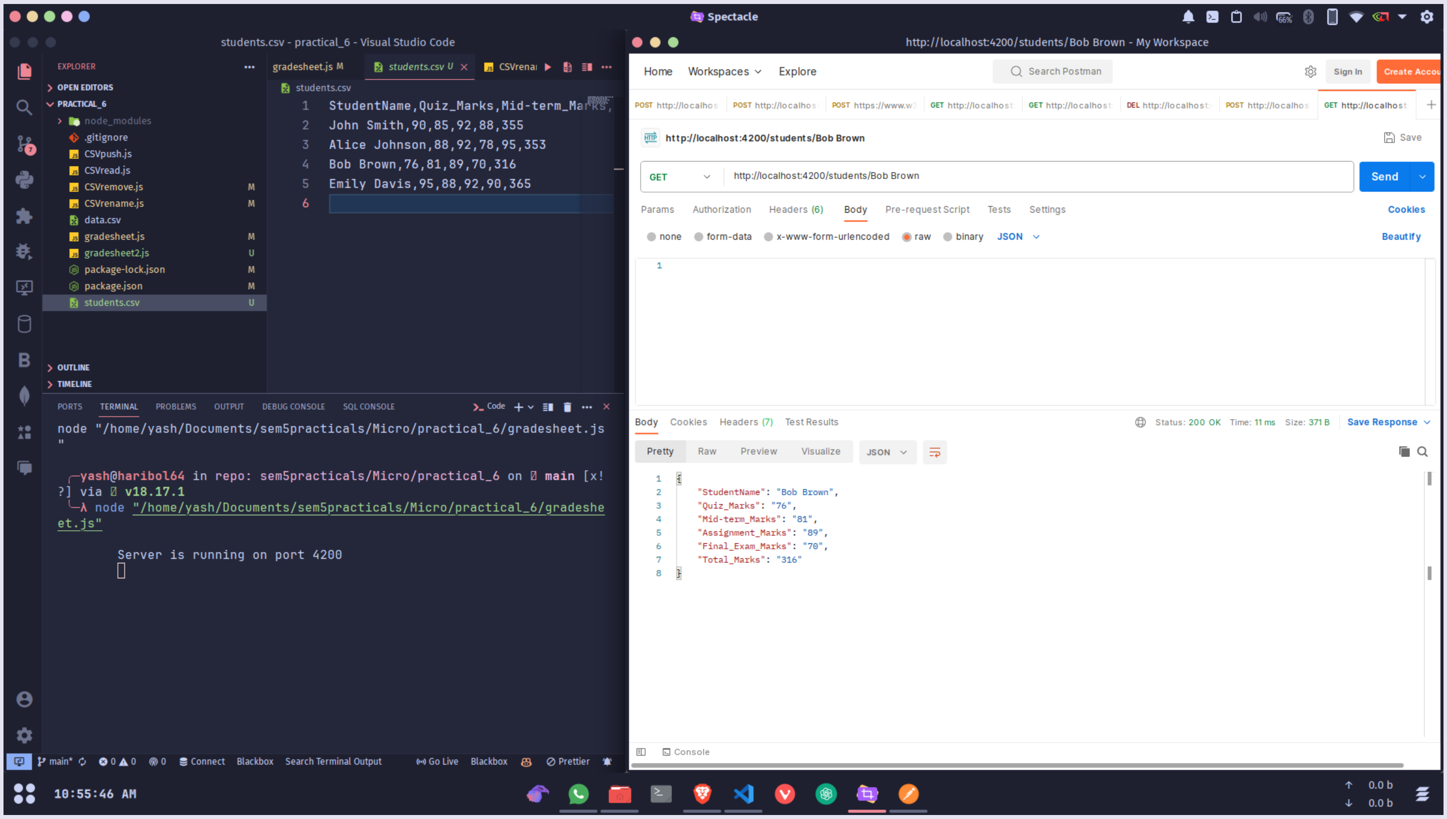
c. GET details by name



students.csv

```
StudentName,Quiz_Marks,Mid-term_Marks,
John Smith,90,85,92,88,355
Alice Johnson,88,92,78,95,353
Bob Brown,76,81,89,70,316
Emily Davis,95,88,92,90,365
```

```
node "/home/yash/Documents/sem5practicals/Micro/practical_6/gradesheet.js
"

 ╭─yash@haribol64 in repo: sem5practicals/Micro/practical_6 on  main [x!
?] via  v18.17.1
 ╰─λ node "/home/yash/Documents/sem5practicals/Micro/practical_6/gradeshe
et.js"

        Server is running on port 4200
        █
```

http://localhost:4200/students/Bob Brown - My Workspace

http://localhost:4200/students/Bob Brown

GET http://localhost:4200/students/Bob Brown

Body: ○ none ○ form-data ○ x-www-form-urlencoded ● raw ○ binary JSON

Status: 200 OK Time: 11 ms Size: 371 B

```
{
    "StudentName": "Bob Brown",
    "Quiz_Marks": "76",
    "Mid-term_Marks": "81",
    "Assignment_Marks": "89",
    "Final_Exam_Marks": "70",
    "Total_Marks": "316"
}
```

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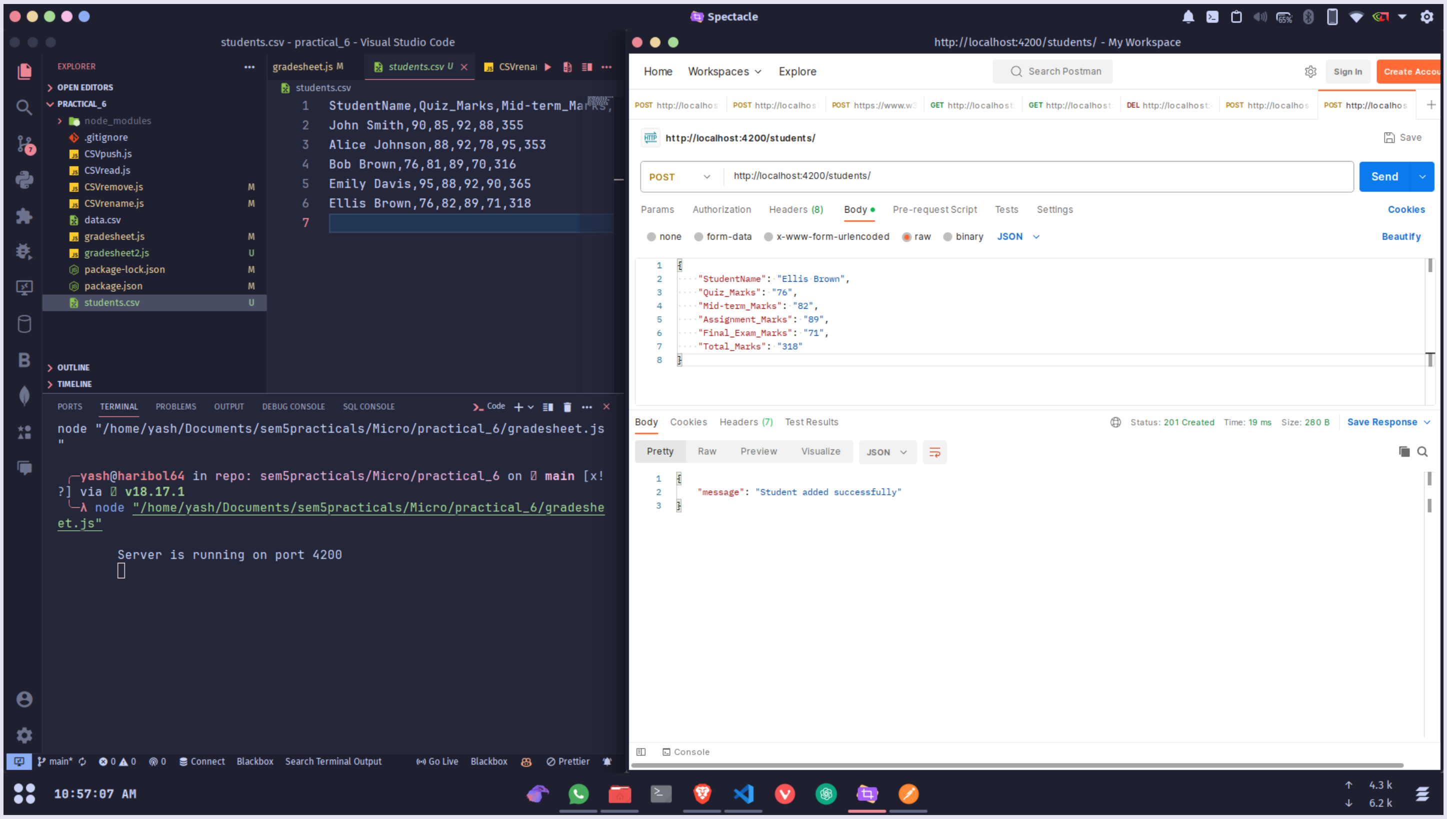
d. Add details



students.csv - practical_6 - Visual Studio Code

```
StudentName,Quiz_Marks,Mid-term_Marks,
John Smith,90,85,92,88,355
Alice Johnson,88,92,78,95,353
Bob Brown,76,81,89,70,316
Emily Davis,95,88,92,90,365
Ellis Brown,76,82,89,71,318
```

```
node "/home/yash/Documents/sem5practicals/Micro/practical_6/gradesheet.js
"

 ╭─yash@haribol64 in repo: sem5practicals/Micro/practical_6 on ▯ main [x!
?] via ▯ v18.17.1
 ╰─λ node "/home/yash/Documents/sem5practicals/Micro/practical_6/gradeshe
et.js"

        Server is running on port 4200
```

http://localhost:4200/students/ - My Workspace

POST http://localhost:4200/students/

```
{
    "StudentName": "Ellis Brown",
    "Quiz_Marks": "76",
    "Mid-term_Marks": "82",
    "Assignment_Marks": "89",
    "Final_Exam_Marks": "71",
    "Total_Marks": "318"
}
```

Status: 201 Created Time: 19 ms Size: 280 B

```
{
    "message": "Student added successfully"
}
```

Name - Yash Lakhtariya
Enrollment number - 21162101012
Branch - CBA   Batch - 51
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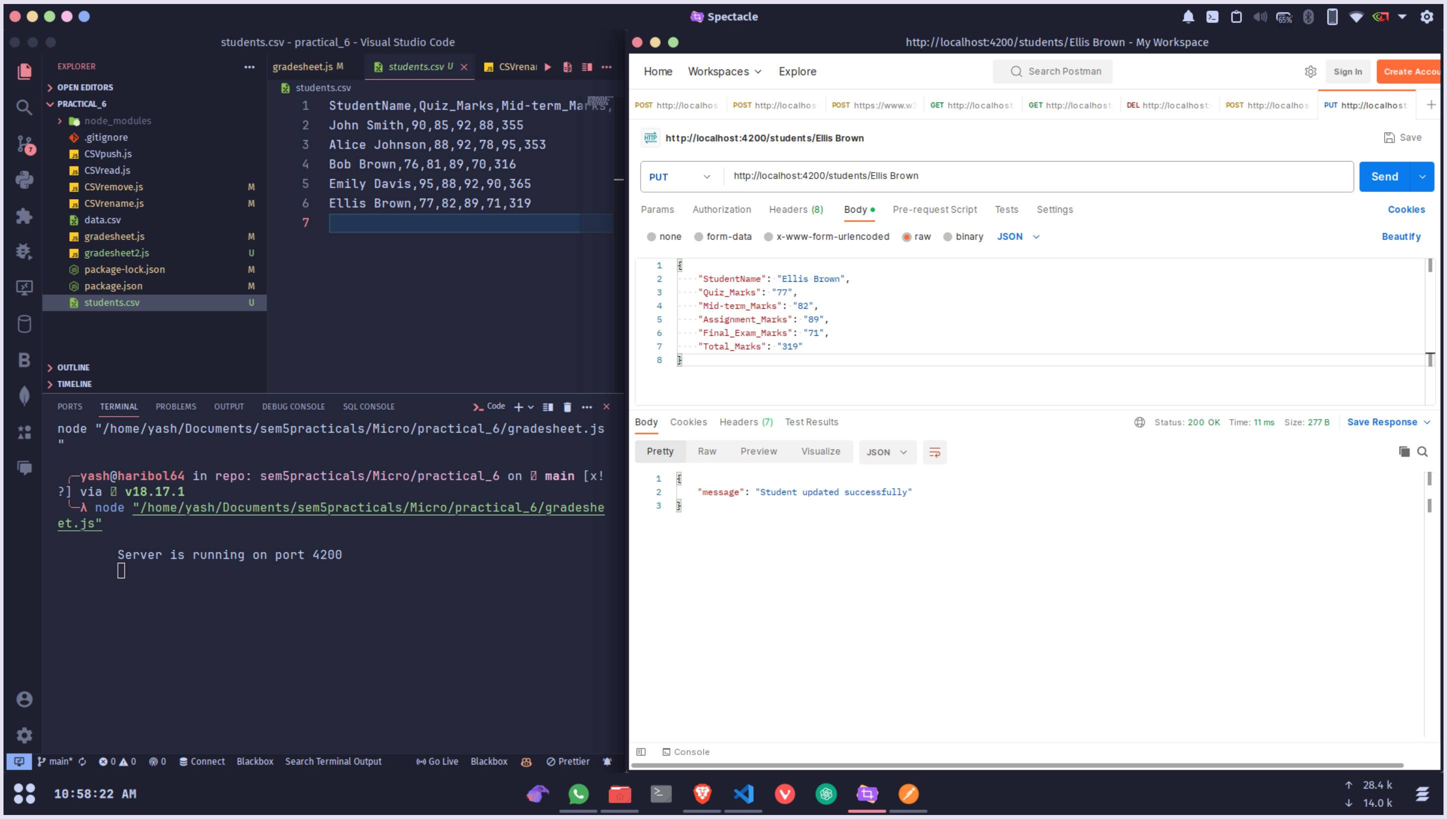
e. Update details



students.csv - practical_6 - Visual Studio Code

students.csv

```
StudentName,Quiz_Marks,Mid-term_Marks,
John Smith,90,85,92,88,355
Alice Johnson,88,92,78,95,353
Bob Brown,76,81,89,70,316
Emily Davis,95,88,92,90,365
Ellis Brown,77,82,89,71,319
```

```
node "/home/yash/Documents/sem5practicals/Micro/practical_6/gradesheet.js
"

 ╭─yash@haribol64 in repo: sem5practicals/Micro/practical_6 on  main [x!
?] via  v18.17.1
 ╰─λ node "/home/yash/Documents/sem5practicals/Micro/practical_6/gradeshe
et.js"

        Server is running on port 4200
```

http://localhost:4200/students/Ellis Brown - My Workspace

PUT http://localhost:4200/students/Ellis Brown

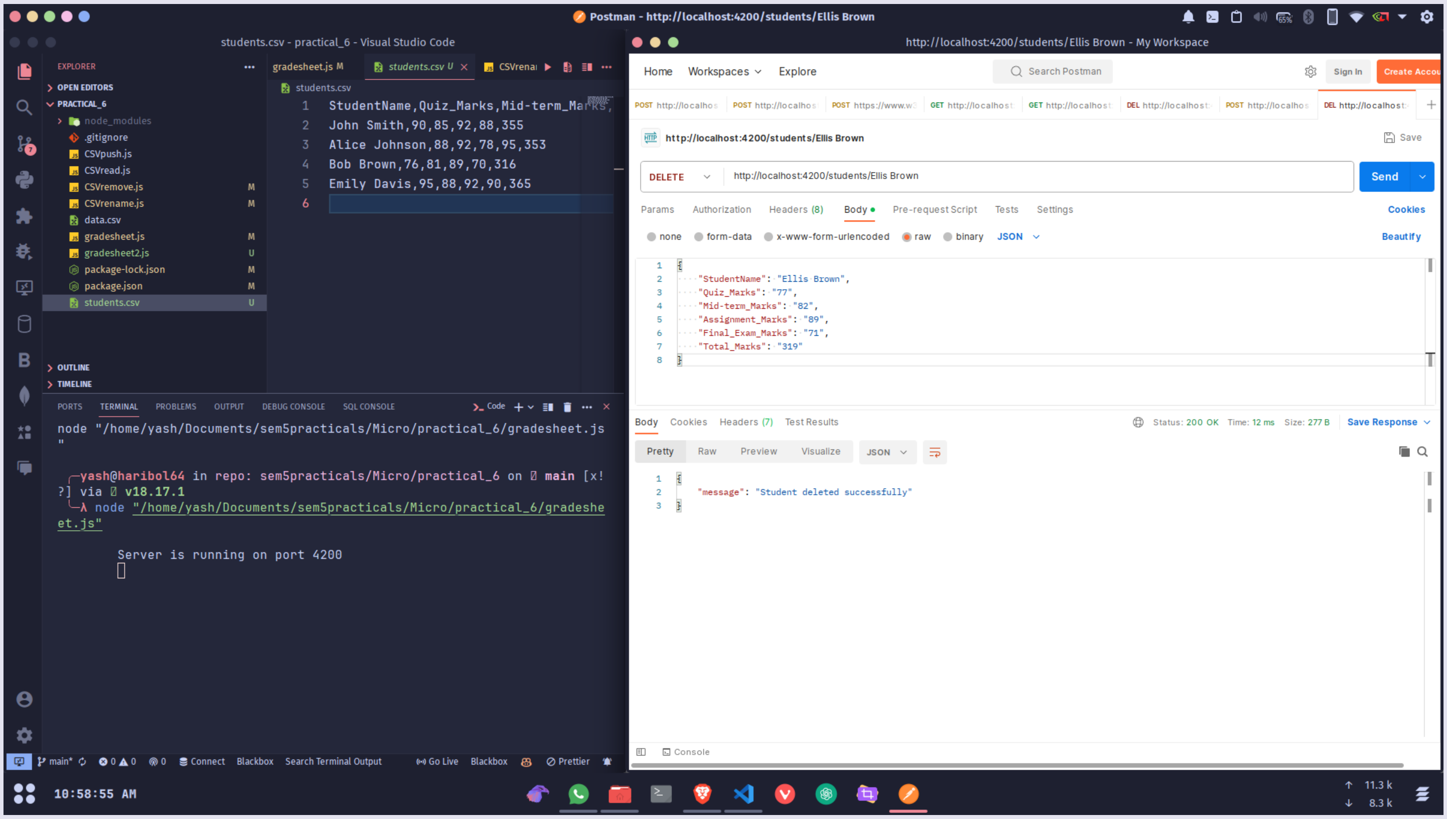
```
{
    "StudentName": "Ellis Brown",
    "Quiz_Marks": "77",
    "Mid-term_Marks": "82",
    "Assignment_Marks": "89",
    "Final_Exam_Marks": "71",
    "Total_Marks": "319"
}
```

Status: 200 OK Time: 11 ms Size: 277 B

```
{
    "message": "Student updated successfully"
}
```

Name - Yash Lakhtariya
Enrollment number - 21162101012
Branch - CBA   Batch - 51
Microservices Practical 6

f. Delete details



students.csv

```
StudentName,Quiz_Marks,Mid-term_Marks,
John Smith,90,85,92,88,355
Alice Johnson,88,92,78,95,353
Bob Brown,76,81,89,70,316
Emily Davis,95,88,92,90,365
```

```
node "/home/yash/Documents/sem5practicals/Micro/practical_6/gradesheet.js
"

 ┌─yash@haribol64 in repo: sem5practicals/Micro/practical_6 on  main [x!
?] via  v18.17.1
 └─λ node "/home/yash/Documents/sem5practicals/Micro/practical_6/gradeshe
et.js"

        Server is running on port 4200
```

http://localhost:4200/students/Ellis Brown

DELETE http://localhost:4200/students/Ellis Brown

Body: ○ none ○ form-data ○ x-www-form-urlencoded ● raw ○ binary JSON

```
{
    "StudentName": "Ellis Brown",
    "Quiz_Marks": "77",
    "Mid-term_Marks": "82",
    "Assignment_Marks": "89",
    "Final_Exam_Marks": "71",
    "Total_Marks": "319"
}
```

Body Cookies Headers (7) Test Results

Status: 200 OK Time: 12 ms Size: 277 B

JSON

```
{
    "message": "Student deleted successfully"
}
```