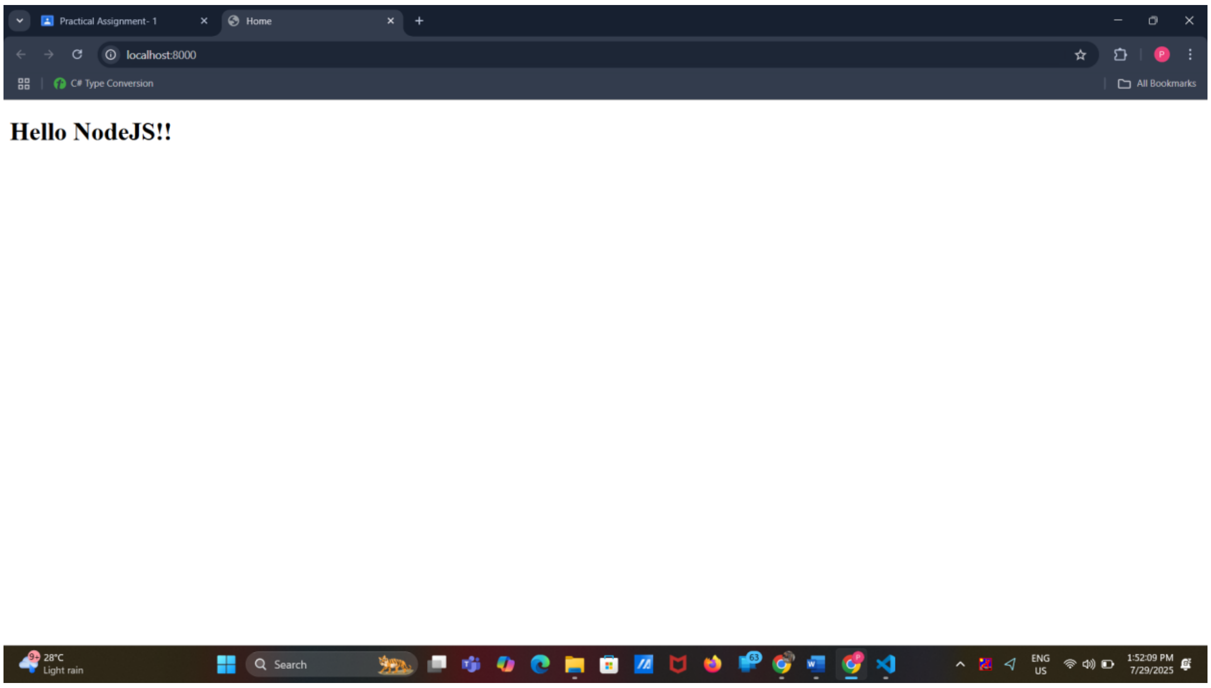
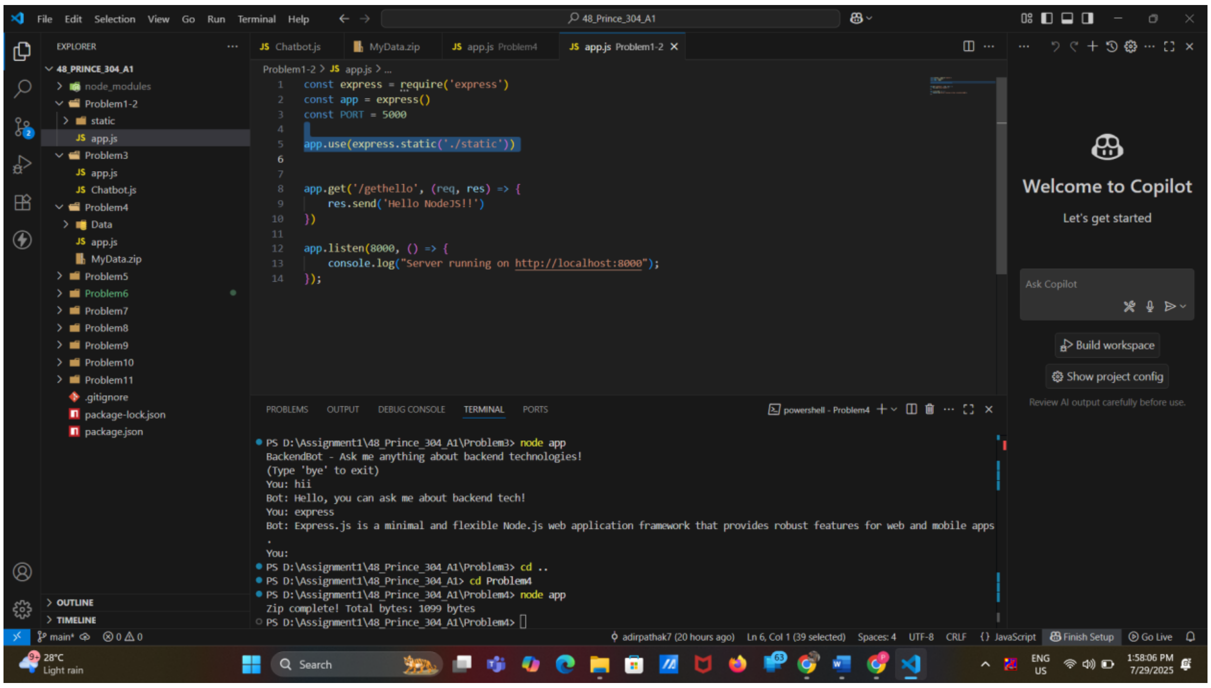
1. Develop a route "/gethello" with GET method. It displays "Hello NodeJS!!" as response.
2. Make an HTML page and display.



Hello NodeJS!!

3. Call "/gethello" route from HTML page using AJAX call. (Any frontend AJAX call API can be
used.)

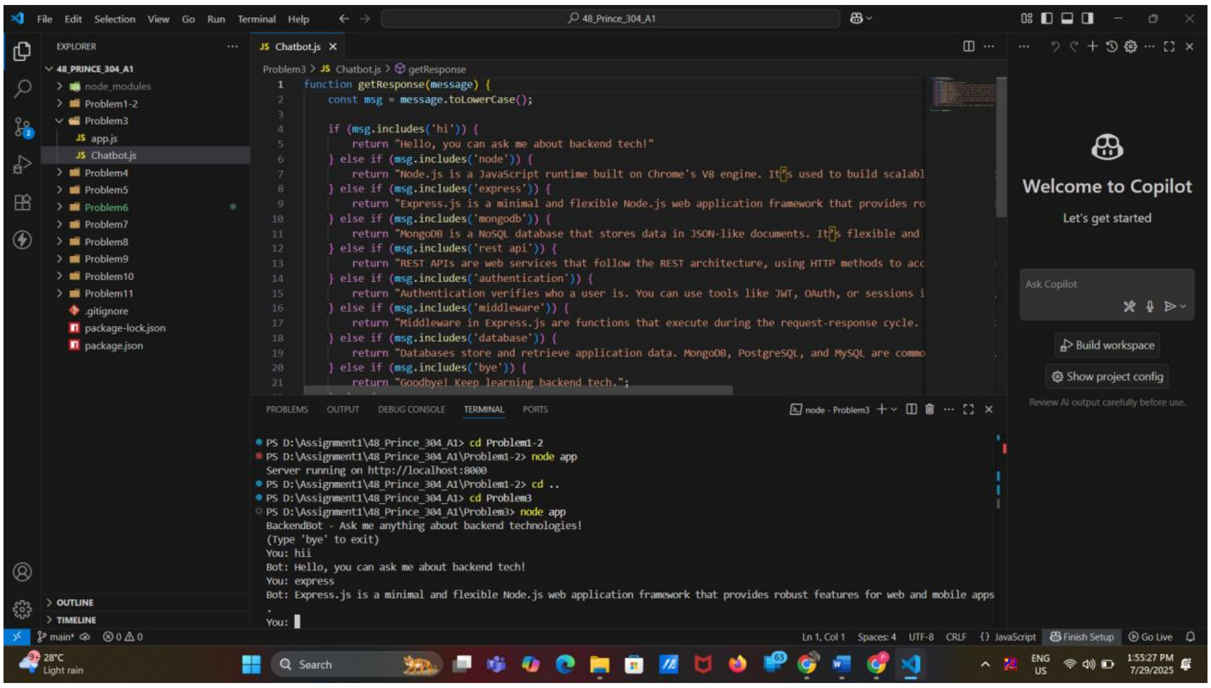
2. Develop a web server which serves static resources.



```
const express = require('express')
const app = express()
const PORT = 5000

app.use(express.static('./static'))


app.get('/gethello', (req, res) => {
    res.send('Hello NodeJS!!')
})

app.listen(8000, () => {
    console.log("Server running on http://localhost:8000");
});
```

```
PS D:\Assignment1\48_Prince_304_A1\Problem3> node app
BackendBot - Ask me anything about backend technologies!
(Type 'bye' to exit)
You: hii
Bot: Hello, you can ask me about backend tech!
You: express
Bot: Express.js is a minimal and flexible Node.js web application framework that provides robust features for web and mobile apps
.
You:
PS D:\Assignment1\48_Prince_304_A1\Problem3> cd ..
PS D:\Assignment1\48_Prince_304_A1> cd Problem4
PS D:\Assignment1\48_Prince_304_A1\Problem4> node app
Zip complete! Total bytes: 1099 bytes
PS D:\Assignment1\48_Prince_304_A1\Problem4>
```

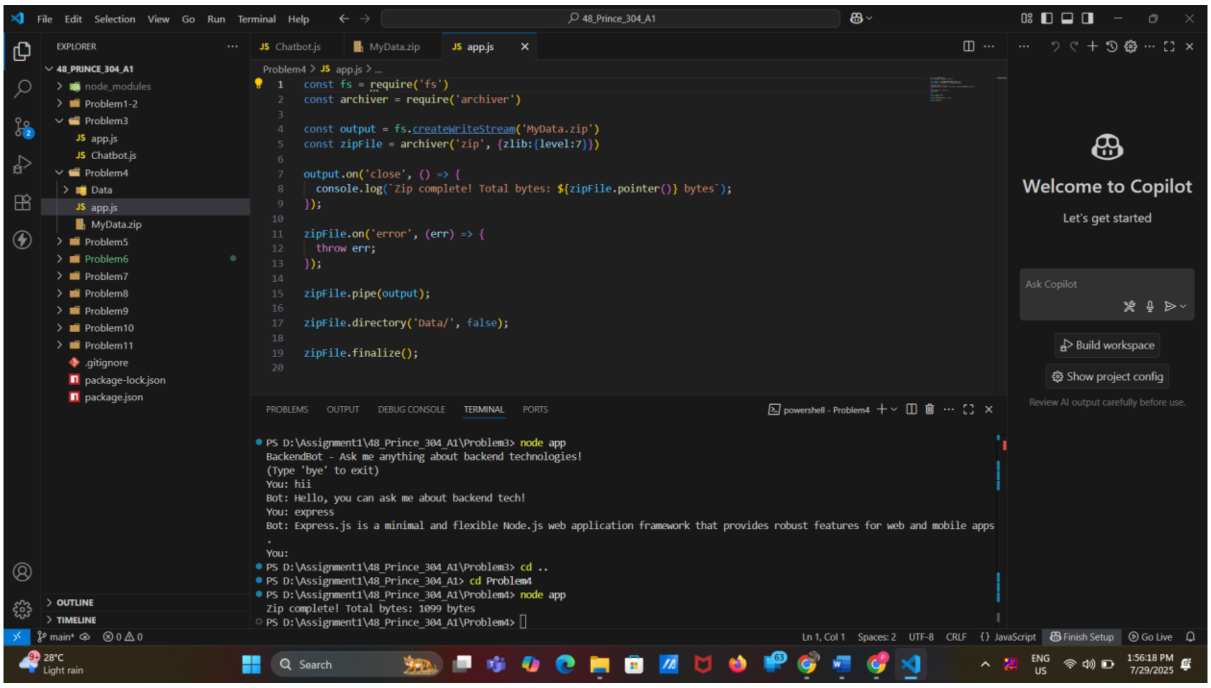
3. Develop a module for domain specific chatbot and use it in a command line application.



```javascript
function getResponse(message) {
    const msg = message.toLowerCase();

    if (msg.includes('hi')) {
        return "Hello, you can ask me about backend tech!"
    } else if (msg.includes('node')) {
        return "Node.js is a JavaScript runtime built on Chrome's V8 engine. It’s used to build scalabl
    } else if (msg.includes('express')) {
        return "Express.js is a minimal and flexible Node.js web application framework that provides ro
    } else if (msg.includes('mongodb')) {
        return "MongoDB is a NoSQL database that stores data in JSON-like documents. It’s flexible and
    } else if (msg.includes('rest api')) {
        return "REST APIs are web services that follow the REST architecture, using HTTP methods to acc
    } else if (msg.includes('authentication')) {
        return "Authentication verifies who a user is. You can use tools like JWT, OAuth, or sessions i
    } else if (msg.includes('middleware')) {
        return "Middleware in Express.js are functions that execute during the request-response cycle.
    } else if (msg.includes('database')) {
        return "Databases store and retrieve application data. MongoDB, PostgreSQL, and MySQL are commo
    } else if (msg.includes('bye')) {
        return "Goodbye! Keep learning backend tech.";
```

```
PS D:\Assignment1\48_Prince_304_A1> cd Problem1-2
PS D:\Assignment1\48_Prince_304_A1\Problem1-2> node app
Server running on http://localhost:8000
PS D:\Assignment1\48_Prince_304_A1\Problem1-2> cd ..
PS D:\Assignment1\48_Prince_304_A1> cd Problem3
PS D:\Assignment1\48_Prince_304_A1\Problem3> node app
BackendBot - Ask me anything about backend technologies!
(Type 'bye' to exit)
You: hii
Bot: Hello, you can ask me about backend tech!
You: express
Bot: Express.js is a minimal and flexible Node.js web application framework that provides robust features for web and mobile apps
.
You: 
```

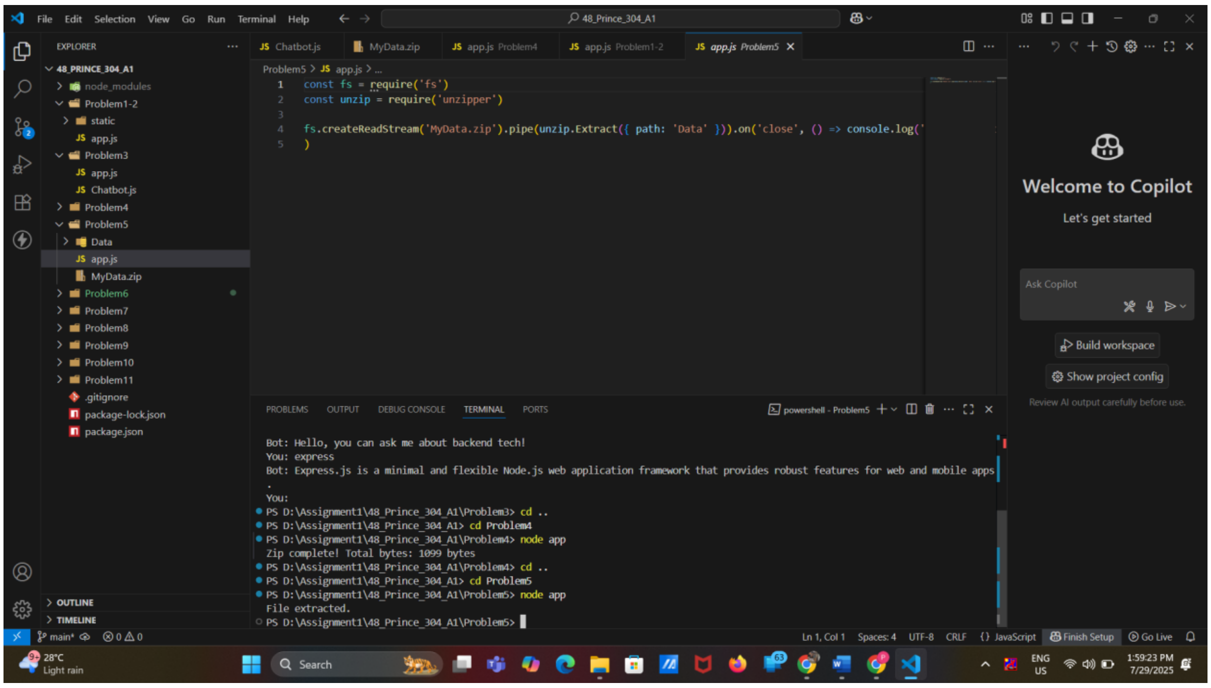
4. Write a program to create a compressed zip file for a folder.



```javascript
const fs = require('fs')
const archiver = require('archiver')

const output = fs.createWriteStream('MyData.zip')
const zipFile = archiver('zip', {zlib:{level:7}})

output.on('close', () => {
  console.log(`Zip complete! Total bytes: ${zipFile.pointer()} bytes`);
});

zipFile.on('error', (err) => {
  throw err;
});

zipFile.pipe(output);

zipFile.directory('Data/', false);

zipFile.finalize();
```

```
PS D:\Assignment1\48_Prince_304_A1\Problem3> node app
BackendBot - Ask me anything about backend technologies!
(Type 'bye' to exit)
You: hii
Bot: Hello, you can ask me about backend tech!
You: express
Bot: Express.js is a minimal and flexible Node.js web application framework that provides robust features for web and mobile apps
.
You:
PS D:\Assignment1\48_Prince_304_A1\Problem3> cd ..
PS D:\Assignment1\48_Prince_304_A1> cd Problem4
PS D:\Assignment1\48_Prince_304_A1\Problem4> node app
Zip complete! Total bytes: 1099 bytes
PS D:\Assignment1\48_Prince_304_A1\Problem4> 
```

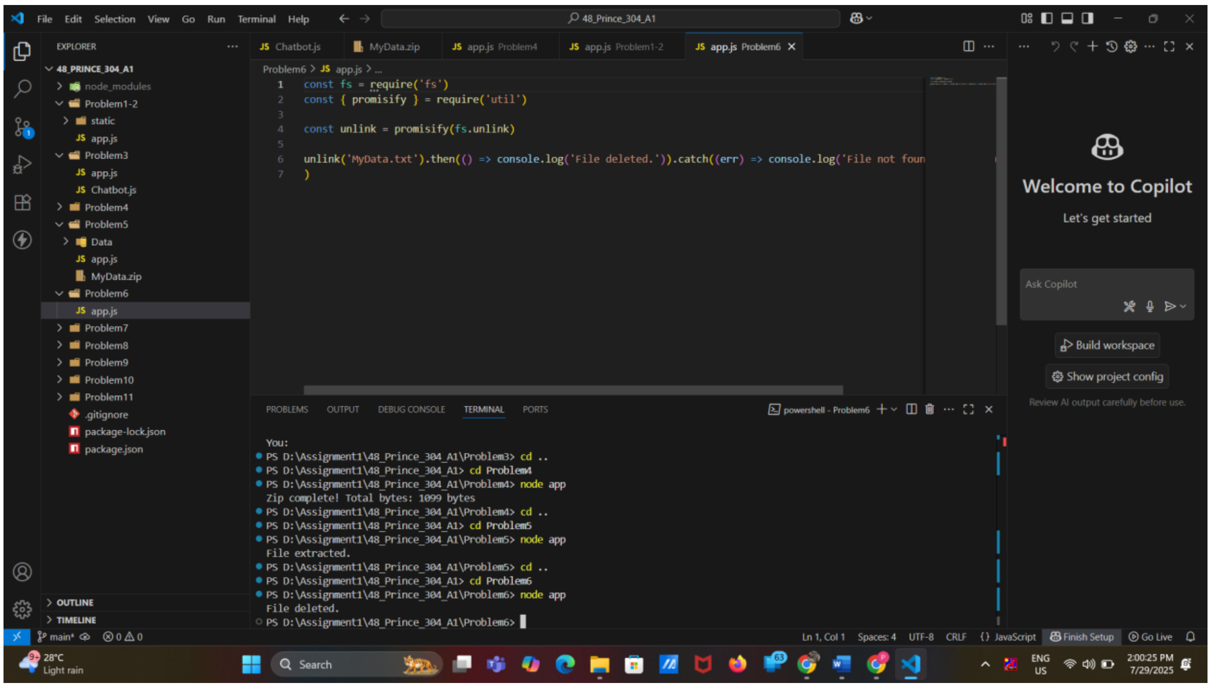
5. Write a program to extract a zip file.



```
const fs = require('fs')
const unzip = require('unzipper')

fs.createReadStream('MyData.zip').pipe(unzip.Extract({ path: 'Data' })).on('close', () => console.log('
)
```

```
Bot: Hello, you can ask me about backend tech!
You: express
Bot: Express.js is a minimal and flexible Node.js web application framework that provides robust features for web and mobile apps
.
You:
PS D:\Assignment1\48_Prince_304_A1\Problem3> cd ..
PS D:\Assignment1\48_Prince_304_A1> cd Problem4
PS D:\Assignment1\48_Prince_304_A1\Problem4> node app
Zip complete! Total bytes: 1099 bytes
PS D:\Assignment1\48_Prince_304_A1\Problem4> cd ..
PS D:\Assignment1\48_Prince_304_A1> cd Problem5
PS D:\Assignment1\48_Prince_304_A1\Problem5> node app
File extracted.
PS D:\Assignment1\48_Prince_304_A1\Problem5>
```

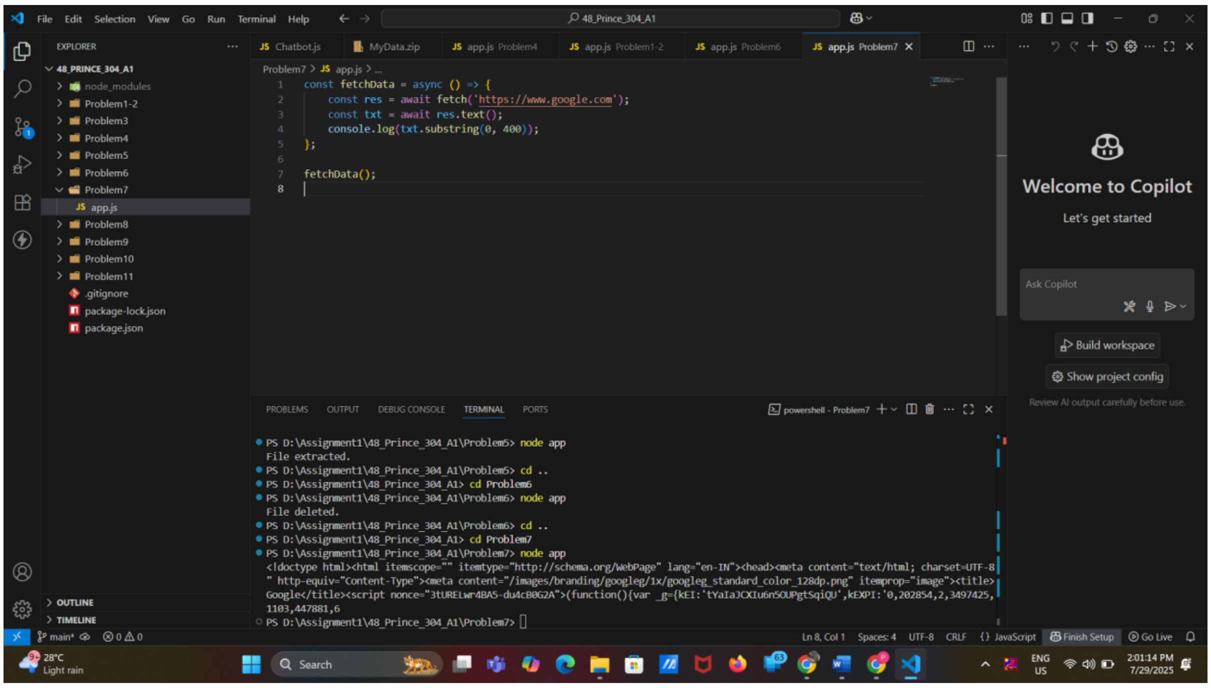
6. Write a program to promisify fs.unlink function and call it.



```
const fs = require('fs')
const { promisify } = require('util')

const unlink = promisify(fs.unlink)

unlink('MyData.txt').then(() => console.log('File deleted.')).catch((err) => console.log('File not foun
)
```

```
You:
PS D:\Assignment1\48_Prince_304_A1\Problem3> cd ..
PS D:\Assignment1\48_Prince_304_A1> cd Problem4
PS D:\Assignment1\48_Prince_304_A1\Problem4> node app
Zip complete! Total bytes: 1099 bytes
PS D:\Assignment1\48_Prince_304_A1\Problem4> cd ..
PS D:\Assignment1\48_Prince_304_A1> cd Problem5
PS D:\Assignment1\48_Prince_304_A1\Problem5> node app
File extracted.
PS D:\Assignment1\48_Prince_304_A1\Problem5> cd ..
PS D:\Assignment1\48_Prince_304_A1> cd Problem6
PS D:\Assignment1\48_Prince_304_A1\Problem6> node app
File deleted.
PS D:\Assignment1\48_Prince_304_A1\Problem6>
```

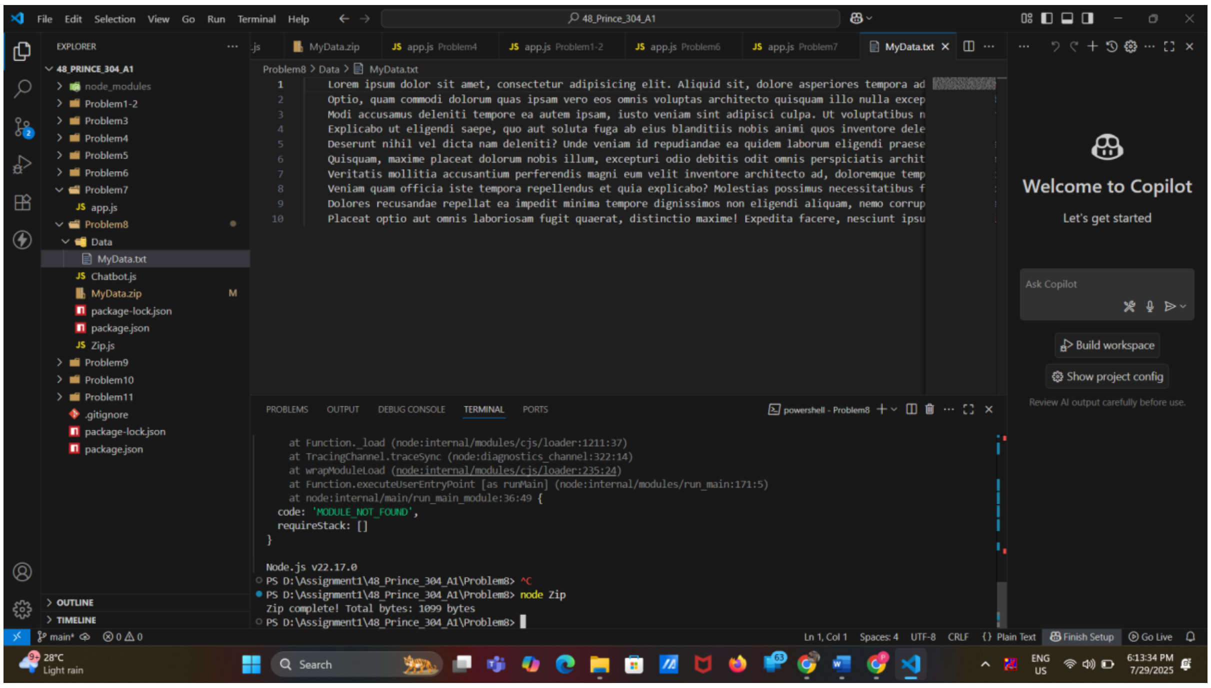
7. Fetch data of google page using note-fetch using async-await model.



```
const fetchData = async () => {
    const res = await fetch('https://www.google.com');
    const txt = await res.text();
    console.log(txt.substring(0, 400));
};

fetchData();
```

```
PS D:\Assignment1\48_Prince_304_A1\Problem5> node app
File extracted.
PS D:\Assignment1\48_Prince_304_A1\Problem5> cd ..
PS D:\Assignment1\48_Prince_304_A1> cd Problem6
PS D:\Assignment1\48_Prince_304_A1\Problem6> node app
File deleted.
PS D:\Assignment1\48_Prince_304_A1\Problem6> cd ..
PS D:\Assignment1\48_Prince_304_A1> cd Problem7
PS D:\Assignment1\48_Prince_304_A1\Problem7> node app
<!doctype html><html itemscope="" itemtype="http://schema.org/WebPage" lang="en-IN"><head><meta content="text/html; charset=UTF-8
" http-equiv="Content-Type"><meta content="/images/branding/googleg/1x/googleg_standard_color_128dp.png" itemprop="image"><title>
Google</title><script nonce="3tURELwr4BA5-du4cB0G2A">(function(){var _g={kEI:'tYaIaJCXIu6n5OUPgtSqiQU',kEXPI:'0,202854,2,3497425,
1103,447881,6
PS D:\Assignment1\48_Prince_304_A1\Problem7>
```

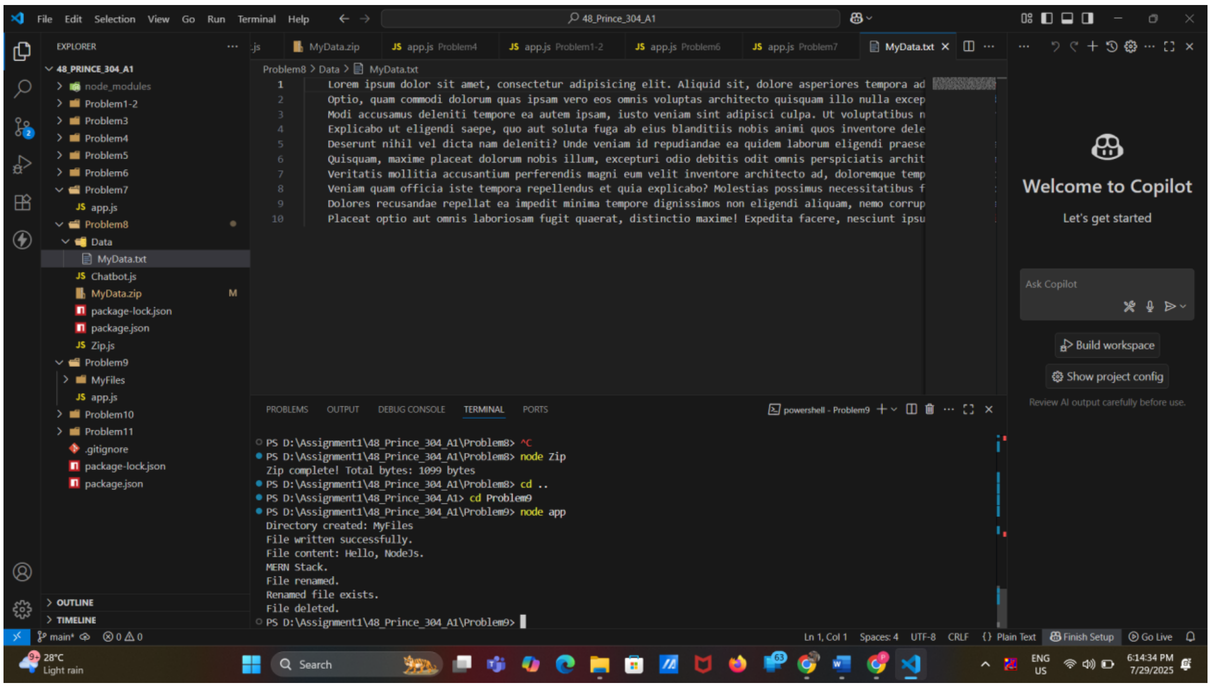
8. Set a server script, a test script and 3 user defined scripts in package.json file in your nodejs application.



```
Lorem ipsum dolor sit amet, consectetur adipisicing elit. Aliquid sit, dolore asperiores tempora ad
Optio, quam commodi dolorum quas ipsam vero eos omnis voluptas architecto quisquam illo nulla excep
Modi accusamus deleniti tempore ea autem ipsam, iusto veniam sint adipisci culpa. Ut voluptatibus n
Explicabo ut eligendi saepe, quo aut soluta fuga ab eius blanditiis nobis animi quos inventore dele
Deserunt nihil vel dicta nam deleniti? Unde veniam id repudiandae ea quidem laborum eligendi praese
Quisquam, maxime placeat dolorum nobis illum, excepturi odio debitis odit omnis perspiciatis archit
Veritatis mollitia accusantium perferendis magni eum velit inventore architecto ad, doloremque temp
Veniam quam officia iste tempora repellendus et quia explicabo? Molestias possimus necessitatibus f
Dolores recusandae repellat ea impedit minima tempore dignissimos non eligendi aliquam, nemo corrup
Placeat optio aut omnis laboriosam fugit quaerat, distinctio maxime! Expedita facere, nesciunt ipsu
```

```
    at Function._load (node:internal/modules/cjs/loader:1211:37)
    at TracingChannel.traceSync (node:diagnostics_channel:322:14)
    at wrapModuleLoad (node:internal/modules/cjs/loader:235:24)
    at Function.executeUserEntryPoint [as runMain] (node:internal/modules/run_main:171:5)
    at node:internal/main/run_main_module:36:49 {
  code: 'MODULE_NOT_FOUND',
  requireStack: []
}

Node.js v22.17.0
PS D:\Assignment1\48_Prince_304_A1\Problem8> ^C
PS D:\Assignment1\48_Prince_304_A1\Problem8> node Zip
Zip complete! Total bytes: 1099 bytes
PS D:\Assignment1\48_Prince_304_A1\Problem8>
```

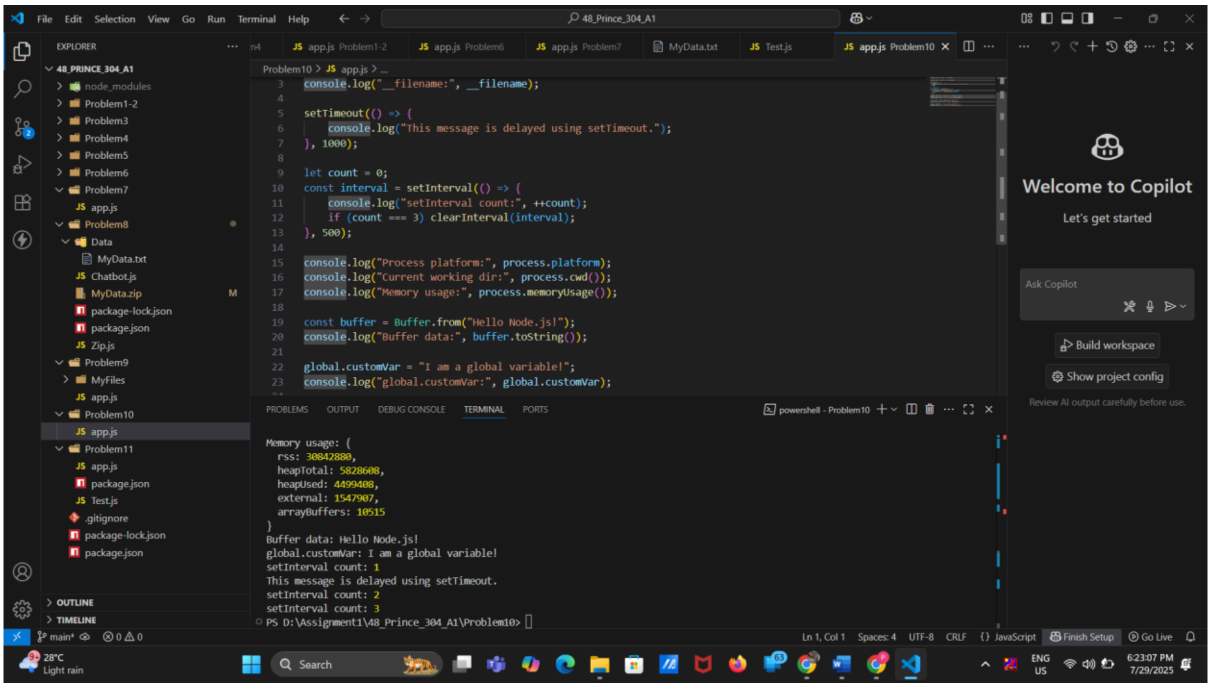
9. A program which calls useful functions in fs modile.



```
Lorem ipsum dolor sit amet, consectetur adipisicing elit. Aliquid sit, dolore asperiores tempora ad
Optio, quam commodi dolorum quas ipsam vero eos omnis voluptas architecto quisquam illo nulla excep
Modi accusamus deleniti tempore ea autem ipsam, iusto veniam sint adipisci culpa. Ut voluptatibus n
Explicabo ut eligendi saepe, quo aut soluta fuga ab eius blanditiis nobis animi quos inventore dele
Deserunt nihil vel dicta nam deleniti? Unde veniam id repudiandae ea quidem laborum eligendi praese
Quisquam, maxime placeat dolorum nobis illum, excepturi odio debitis odit omnis perspiciatis archit
Veritatis mollitia accusantium perferendis magni eum velit inventore architecto ad, doloremque temp
Veniam quam officia iste tempora repellendus et quia explicabo? Molestias possimus necessitatibus f
Dolores recusandae repellat ea impedit minima tempore dignissimos non eligendi aliquam, nemo corrup
Placeat optio aut omnis laboriosam fugit quaerat, distinctio maxime! Expedita facere, nesciunt ipsu
```

```
PS D:\Assignment1\48_Prince_304_A1\Problem8> ^C
PS D:\Assignment1\48_Prince_304_A1\Problem8> node Zip
Zip complete! Total bytes: 1099 bytes
PS D:\Assignment1\48_Prince_304_A1\Problem8> cd ..
PS D:\Assignment1\48_Prince_304_A1> cd Problem9
PS D:\Assignment1\48_Prince_304_A1\Problem9> node app
Directory created: MyFiles
File written successfully.
File content: Hello, NodeJs.
MERN Stack.
File renamed.
Renamed file exists.
File deleted.
PS D:\Assignment1\48_Prince_304_A1\Problem9>
```

10. A program which uses global objects in nodejs.



```javascript
console.log("__filename:", __filename);

setTimeout(() => {
    console.log("This message is delayed using setTimeout.");
}, 1000);

let count = 0;
const interval = setInterval(() => {
    console.log("setInterval count:", ++count);
    if (count === 3) clearInterval(interval);
}, 500);

console.log("Process platform:", process.platform);
console.log("Current working dir:", process.cwd());
console.log("Memory usage:", process.memoryUsage());

const buffer = Buffer.from("Hello Node.js!");
console.log("Buffer data:", buffer.toString());

global.customVar = "I am a global variable!";
console.log("global.customVar:", global.customVar);
```

```
Memory usage: {
  rss: 30842880,
  heapTotal: 5828608,
  heapUsed: 4499408,
  external: 1547907,
  arrayBuffers: 10515
}
Buffer data: Hello Node.js!
global.customVar: I am a global variable!
setInterval count: 1
This message is delayed using setTimeout.
setInterval count: 2
setInterval count: 3
PS D:\Assignment1\48_Prince_304_A1\Problem10>
```