

Example Task: Build a Simple Notes API Using Expressjs

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Objective: Create a Node.js API using Express.js with:

- GET /notes: Returns all notes as JSON.
- POST /notes: Adds a new note with a content field.

Requirements

- **Node.js:** v20.9.0 (confirmed installed).
- **VS Code:** Installed, with PowerShell terminal.
- **Folder:** C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api (to avoid conflicts).
- **Express.js:** Installed via npm.

Detailed Step-by-Step Instructions in VS Code

Step 1: Set Up the Project in VS Code

1. **Open VS Code:**
 - Launch VS Code from your desktop or Start menu.
2. **Create and Open Project Folder:**
 - Create a new folder: C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api. You can do this in File Explorer or VS Code.
 - In VS Code, go to File > Open Folder.
 - Navigate to C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api and click Select Folder.
3. **Open Integrated Terminal:**
 - In VS Code, press Ctrl + ~ (or go to View > Terminal) to open the PowerShell terminal.
 - Confirm you're in the notes-api folder by running:

```

PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks> cd "C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api"
>>
PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api> pwd

Path
----
C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api

```

4. Initialize Node.js Project:

- Run:

```

PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api> npm init -y
>>
Wrote to C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api\package.json:

{
  "name": "notes-api",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC"
}

PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api>

```

- This creates a package.json file in C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api.
- Verify:

```

PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api> dir

Directory: C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api

Mode                LastWriteTime         Length Name
----                -
-a---1            04-05-2025  12:49 AM           223 package.json

PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api>

```

5. Install Express.js:

- Per expressjs.com/en/starter/installing.html, run:

```
PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api> npm install express
>>

added 66 packages, and audited 67 packages in 5s

14 packages are looking for funding
  run `npm fund` for details

found 0 vulnerabilities
PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api>
```

- This installs Express.js and creates node_modules and package-lock.json.
- Verify:

```
PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api> dir

Directory: C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api

Mode                LastWriteTime         Length Name
----                -
da---l            04-05-2025  12:51 AM             node_modules
-a---l            04-05-2025  12:51 AM          27011 package-lock.json
-a---l            04-05-2025  12:51 AM           272 package.json

PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api>
```

Step 2: Write the API Code in VS Code

1. Create index.js:

- In VS Code, click File > New File (or press Ctrl + N).
- Save it as index.js in C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api:
 - Go to File > Save As.
 - Navigate to C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api.
 - Name the file index.js and click Save.
 - Copy and paste this code (based on expressjs.com/en/starter/hello-world.html):

```

const express = require('express');
const app = express();
app.use(express.json());

let notes = [];

app.get('/notes', (req, res) => {
  res.json(notes);
});

app.post('/notes', (req, res) => {
  const note = { id: notes.length + 1, content: req.body.content };
  notes.push(note);
  res.status(201).json(note);
});

app.listen(3000, () => {
  console.log('Server running at http://localhost:3000/');
});

```

2. Verify File:

- In VS Code's Explorer (left sidebar, or press Ctrl + B to toggle), ensure index.js is listed under notes-api.

```

Directory: C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api

Mode                LastWriteTime         Length Name
----                -
da---l            04-05-2025  12:51 AM             node_modules
-a---l            04-05-2025  12:55 AM              423 index.js
-a---l            04-05-2025  12:51 AM          27011 package-lock.json
-a---l            04-05-2025  12:51 AM              272 package.json

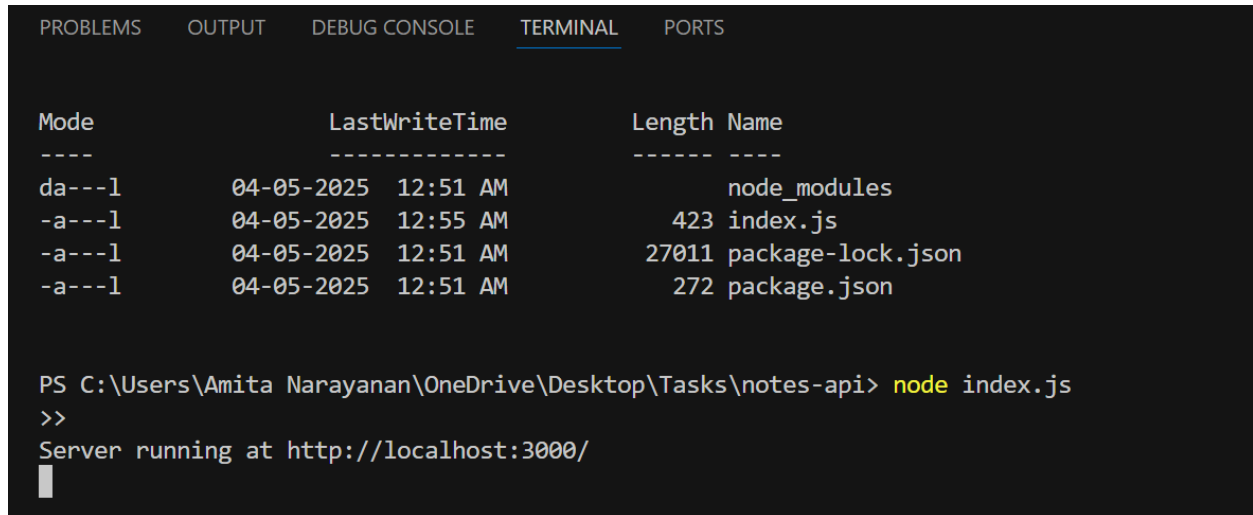
PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api>

```

Step 3: Run the API in VS Code

1. Start the Server:

- In the VS Code terminal (ensure you're in C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api), run:



The screenshot shows the VS Code interface with the 'TERMINAL' tab active. At the top, there are tabs for PROBLEMS, OUTPUT, DEBUG CONSOLE, and PORTS. Below these, a table lists files in the current directory:

Mode	LastWriteTime	Length	Name
da---l	04-05-2025 12:51 AM		node_modules
-a---l	04-05-2025 12:55 AM	423	index.js
-a---l	04-05-2025 12:51 AM	27011	package-lock.json
-a---l	04-05-2025 12:51 AM	272	package.json

Below the table, the terminal shows the command to run the server:

```
PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api> node index.js
>>
Server running at http://localhost:3000/
```

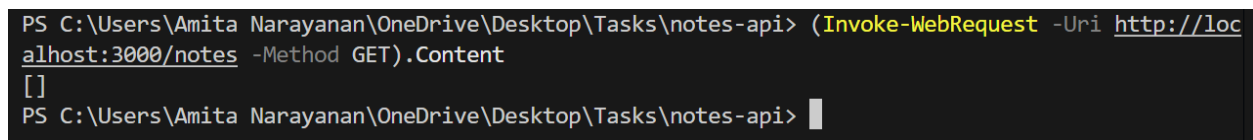
Step 4: Test the API in VS Code

1. Open a New Terminal Tab:

- In VS Code, click the + button in the terminal panel (top-right of the terminal) to open a new PowerShell terminal. Keep the server running (node index.js) in the first terminal.

2. Test GET Request:

- Run:



The screenshot shows a new PowerShell terminal window. The command entered is:

```
PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api> (Invoke-WebRequest -Uri http://localhost:3000/notes -Method GET).Content
```

The output of the command is shown as an empty array: `[]`.

3. Test POST Request:

- Run:

```
PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api> (Invoke-WebRequest -Uri http://localhost:3000/notes -Method POST -Headers @{"Content-Type"="application/json"} -Body '{"content":"Buy milk"}').Content
>>
{"id":1,"content":"Buy milk"}
PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api>
```

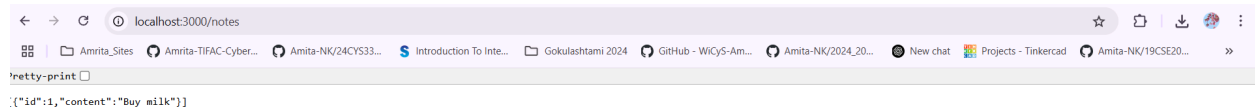
4. Test GET Request Again:

- Run:

```
PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api> (Invoke-WebRequest -Uri http://localhost:3000/notes -Method GET).Content
>>
[{"id":1,"content":"Buy milk"}]
PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api>
```

5. Optional Browser Test:

- Open a browser (e.g., Chrome) and go to <http://localhost:3000/notes>.



Step 5: Stop the Server

1. Stop the Server:

- In the VS Code terminal running node index.js, press Ctrl + C to stop the server.

```
Server running at http://localhost:3000/
PS C:\Users\Amita Narayanan\OneDrive\Desktop\Tasks\notes-api>
```