Experiment 8: Custom Node.js Server

Objective

Create a basic Node.js server using core modules.

Technologies Used

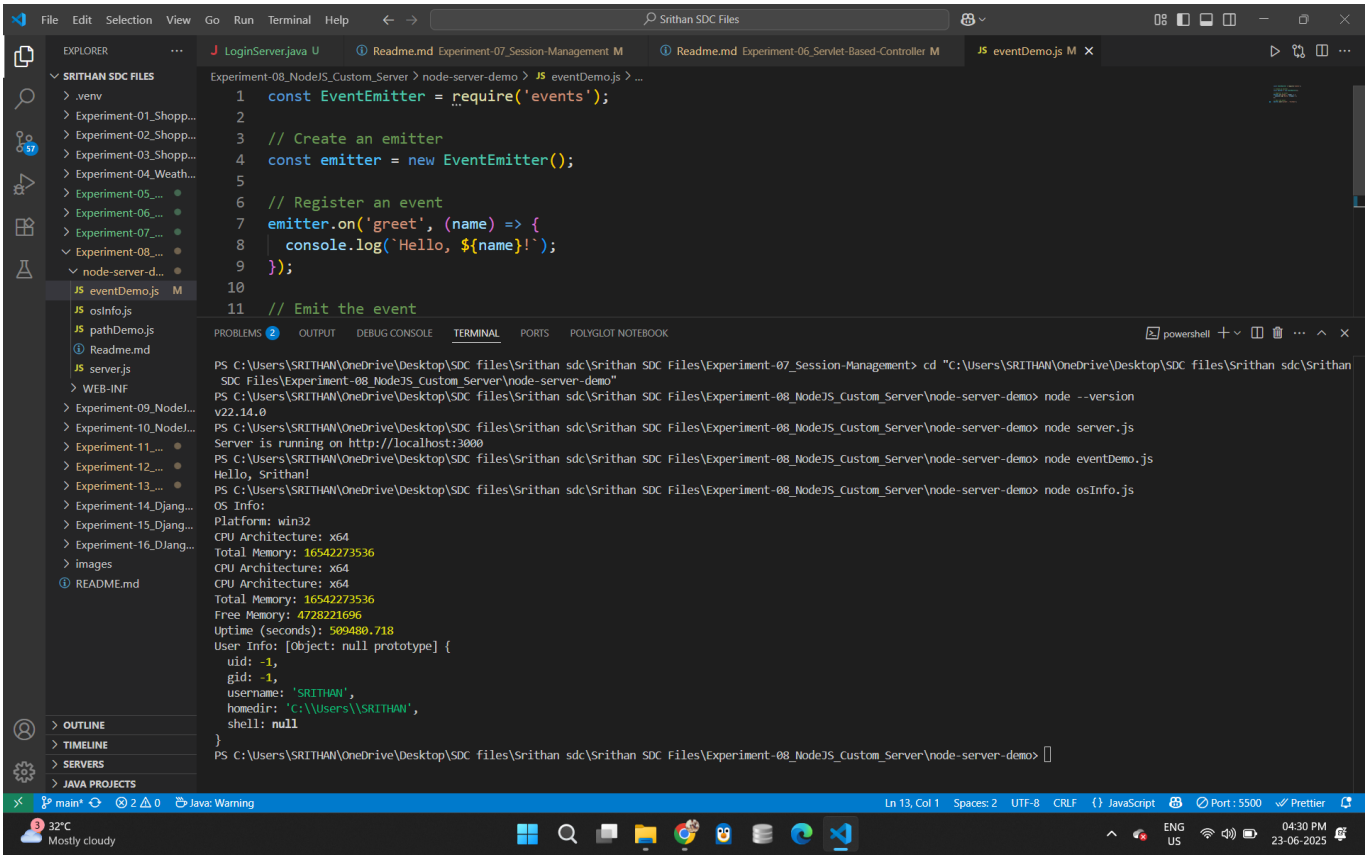
- Node.js (HTTP module)

Features

- Respond to GET and POST requests

Steps to Execute

1. Run: `node server.js`
2. Open: http://localhost:3000



Folder Contents

- `server.js`: Custom server logic

Node.js Custom HTTP Server & Core Modules Exploration

This project demonstrates building a basic HTTP server using Node.js's built-in `http` module and explores other fundamental Node.js core modules such as `fs` (File System), `os` (Operating System), `path`, and `events`.

Features

- **Custom HTTP Server:** Built from scratch using the `http` module, handling various routes.
- **Static File Serving:** Serves `index.html` and `about.html` from the `public` directory using the `fs` (File System) module.
- **Operating System Information:** An endpoint (`/os-info`) that provides detailed information about the server's operating system using the `os` module (e.g., hostname, platform, memory usage).
- **Path Manipulation:** An endpoint (`/path-demo`) illustrating functions from the `path` module for joining paths, parsing paths, and extracting file extensions.
- **Custom Event Handling:** Demonstrates the `events` module by creating a custom event emitter that logs server activity to the console and to a persistent log file (`logs/server_logs.txt`).

Technologies Used

- Node.js
- Built-in Node.js modules: `http`, `fs`, `os`, `path`, `events`

Setup and Running

1. **Prerequisites:**
    - Node.js (LTS version recommended) installed on your system. You can download it from nodejs.org.
2. **Clone the repository (or create manually):**

```
git clone <repository_url>
cd nodejs-custom-server # or your project directory name
```

If creating manually, create a directory and then create `server.js`, `public/index.html`, `public/about.html`, and `logs/` folder.

3. **Install Dependencies:** This project uses only Node.js core modules, so `npm install` is not strictly necessary for dependencies, but it's good practice if you have a `package.json` (created via `npm init -y`).

4. **Start the Server:** Open your terminal or command prompt, navigate to the project root directory, and run:

```
node server.js
```

You should see the message: `Server running on http://localhost:3000/`.

Usage

Once the server is running, open your web browser and navigate to the following URLs:

- `http://localhost:3000/`: Access the main home page (`index.html`).
- `http://localhost:3000/about`: View the about page (`about.html`).
- `http://localhost:3000/os-info`: Get JSON formatted information about the server's operating system.
- `http://localhost:3000/path-demo`: See JSON formatted output demonstrating `path` module functionalities.

Important:

- **Console Output:** Observe the terminal where you started the server. You will see "LOG EVENT" messages indicating requests and server activity.
- **Log File:** A file named `server_logs.txt` will be created inside the `logs/` directory (if it doesn't exist) and will continuously record server events.

Project Structure

. ├── server.js # Main server logic and module demonstrations ├── public/ # Directory for static HTML files │ ├── index.html # Home page │ └── about.html # About page ├── logs/ # Directory for server log files │ └── server_logs.txt # Log file (created/appended by the server) ├── package.json # Project metadata (if npm init was used) └── README.md