Express API

This is an enhanced HTTP API built with Node.js and Express.js that provides multiple endpoints for learning about RESTful APIs and server-side programming.

What is an API?

An API (Application Programming Interface) is a set of rules and protocols that allows different software applications to communicate with each other. This API demonstrates various HTTP methods and endpoints.

API Endpoints

GET /hello

Returns a simple greeting message.

Response:

```
{
  "message": "Hello, World!"
}
```

GET /random

Returns a random number between 0 and 1.

Response:

```
{
  "random": 0.123456789
}
```

GET /time

Returns the current server time in ISO format.

Response:

```
{
  "time": "2025-10-28T12:00:00.000Z"
}
```

GET /users

Returns a list of all users.

Response:

```json
[
  {
    "id": 1,
    "name": "Rick",
    "age": 23
  },
  {
    "id": 2,
    "name": "Aadrija",
    "age": 22
  }
]
```

How this code works

1. **Import Express**: We use the Express.js framework for easier routing.

2. **Routes**: Each endpoint is defined with `app.get()`.

3. **Data Storage**: Users are stored in the hardcoded code, can be linked to a database later.

4. **Error Handling**: Basic validation for POST requests.

Running the API

1. Make sure you have Node.js installed.

2. Install dependencies: `npm install`

3. Start the server: `npm start`

4. The API will be available at `http://localhost:3000`

Testing the API

You can test the endpoints using curl, Postman, or your browser:

```
# GET requests
curl http://localhost:3000/hello
curl http://localhost:3000/random
curl http://localhost:3000/time
curl http://localhost:3000/users
```

Next Steps

- Add data persistence with a database
- Implement authentication and authorization
- Add input validation and error handling
- Create more complex endpoints with query parameters

- Learn about middleware for logging and CORS

This API provides a solid foundation for understanding RESTful web services and can be expanded for more advanced features.

Full Code

server.js

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

// Middleware to parse JSON
app.use(express.json());

// In-memory storage for users
let users = [
  { id: 1, name: "Rick", age: 23 },
  { id: 2, name: "Aadrija", age: 22 },
];

// Routes

// GET /hello - Returns a greeting
app.get("/hello", (req, res) => {
  res.json({ message: "Hello, World!" });
});

// GET /random - Returns a random number
app.get("/random", (req, res) => {
  const randomNum = Math.random();
  res.json({ random: randomNum });
});

// GET /time - Returns current server time
app.get("/time", (req, res) => {
  const currentTime = new Date().toISOString();
  res.json({ time: currentTime });
});

// GET /users - Returns list of users
app.get("/users", (req, res) => {
  res.json(users);
});
```

```javascript
// Start server
const PORT = 3000;
app.listen(PORT, () => {
  console.log(`Server is running on http://localhost:${PORT}`);
});
```

package.json

```json
{
  "name": "express-api",
  "version": "1.0.0",
  "description": "A simple Express API with multiple endpoints",
  "main": "server.js",
  "scripts": {
    "start": "node server.js"
  },
  "dependencies": {
    "express": "^4.18.2"
  }
}
```