JS
Bangkok 2.0.0

From Nodes to Prompts: Exploring Prompt Engineering with Rivet

Jack

Vatcharat Rattananun

18 October 2024 #JSBangkok #JSBKK

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Agenda

1. Introduction
2. Overview of Rivet
3. Demonstration
4. X-Shot Prompts
5. Hands-on Labs
6. Integrating Rivet
7. Graphs in Node.js Applications
8. Graphs in Node.js Applications
9. Debugging with Rivet
10. Q&A Session

Introduction

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Do you have experience with

NodeJS ?

Click to add text

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Do you know

Prompt Engineering ?

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Have you heard about

Rivet ?

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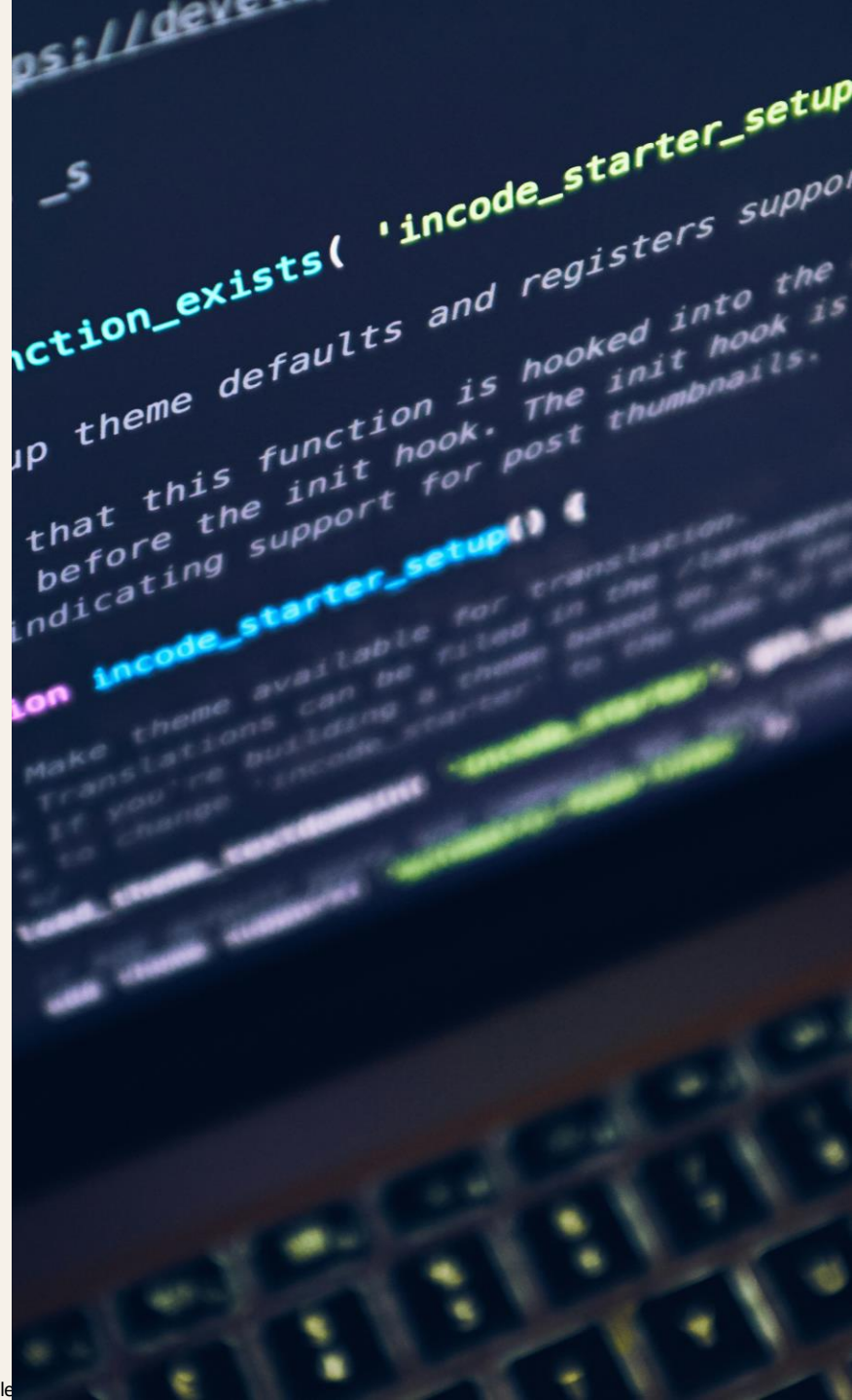
Introduction

Workshop objectives

- Learn to write effective one-shot prompts.
- Develop skills to create few-shot prompts.
- Understand how to integrate Rivet graphs with a Node.js application.
- Learn debugging techniques to visualize and troubleshoot the flow.

Rivet



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Overview of Rivet

What is it?

- A visual programming environment for building AI agents witha LLMs.
- Allows iteration on prompt graphs and direct application integration.

Overview of Rivet

Why do we use it?

Visualize and Build

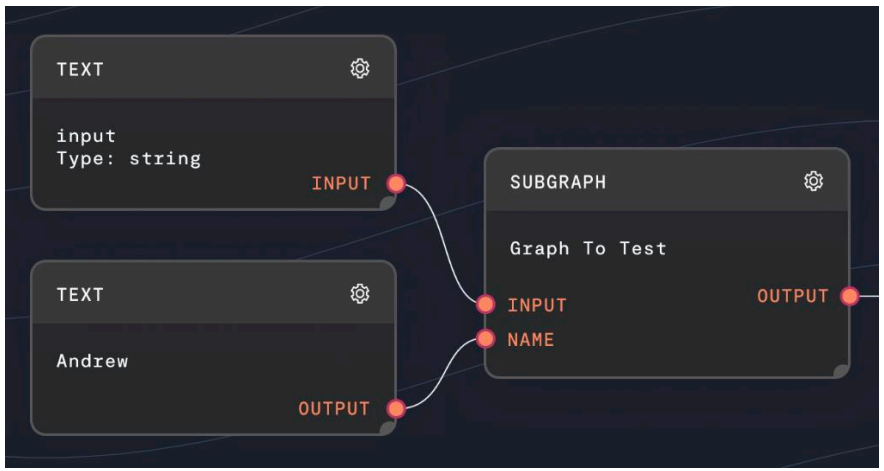
Create complex chains for production applications.

Debug Remotely

Observe and debug prompt chains in real-time.

Collaborate

- YAML files
- Versioning



Demonstration

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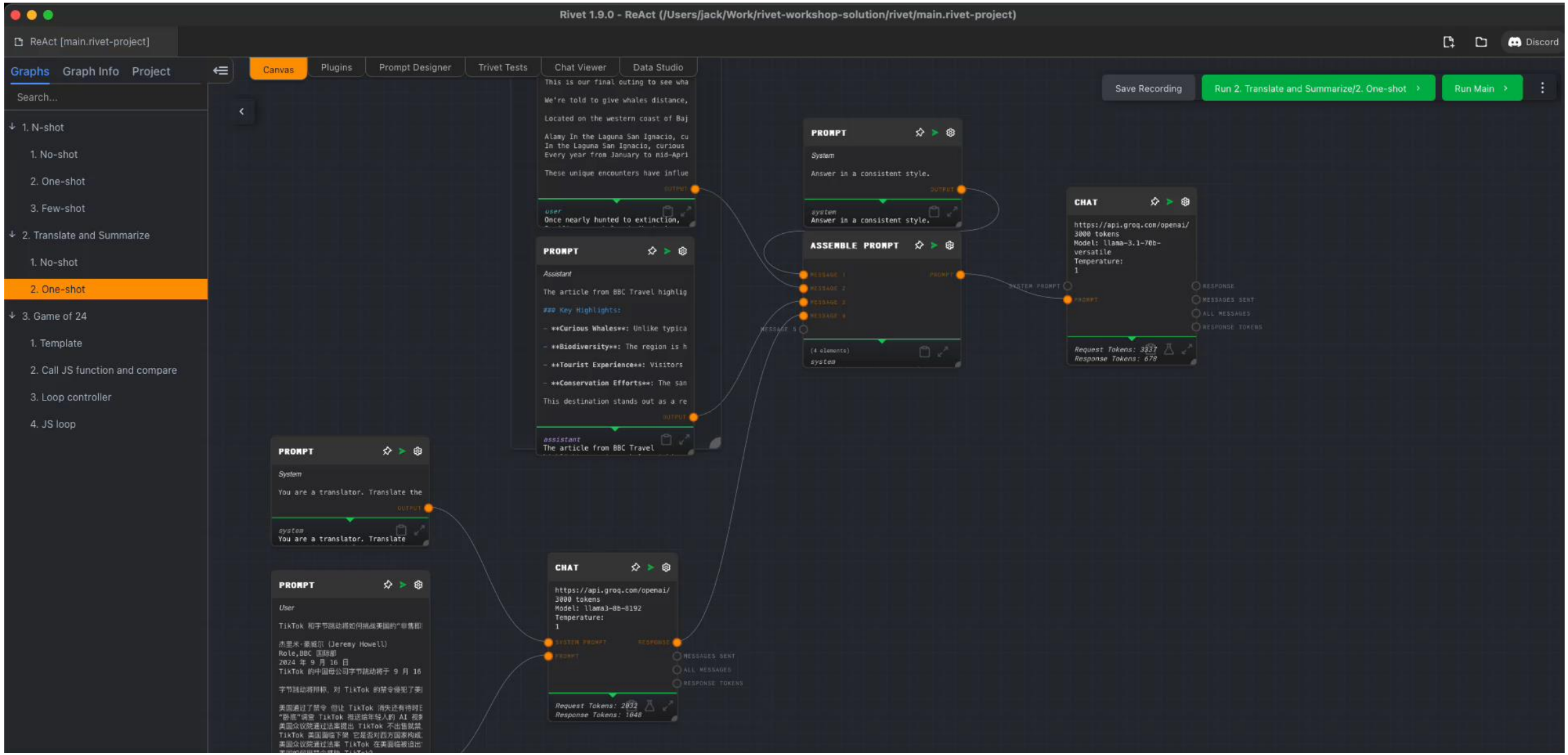
What we're going to do



Setting up the environment

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Prerequisites

Setting Up the Environment

- Rivet
- GroqAI key (Free AI)
- Workshop repository
- Node.js (`v20.17.0`)
- Postman
- VS Code or your favorite code editor

Download Rivet

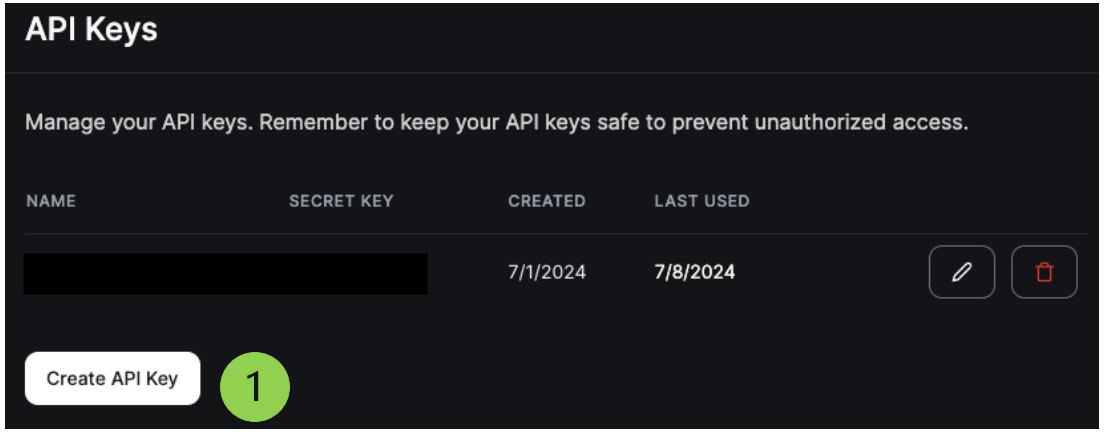
Setting Up the Environment

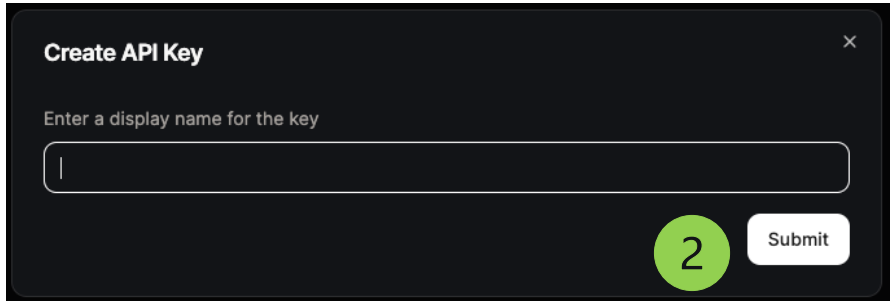
https://rivet.ironcladapp.com/

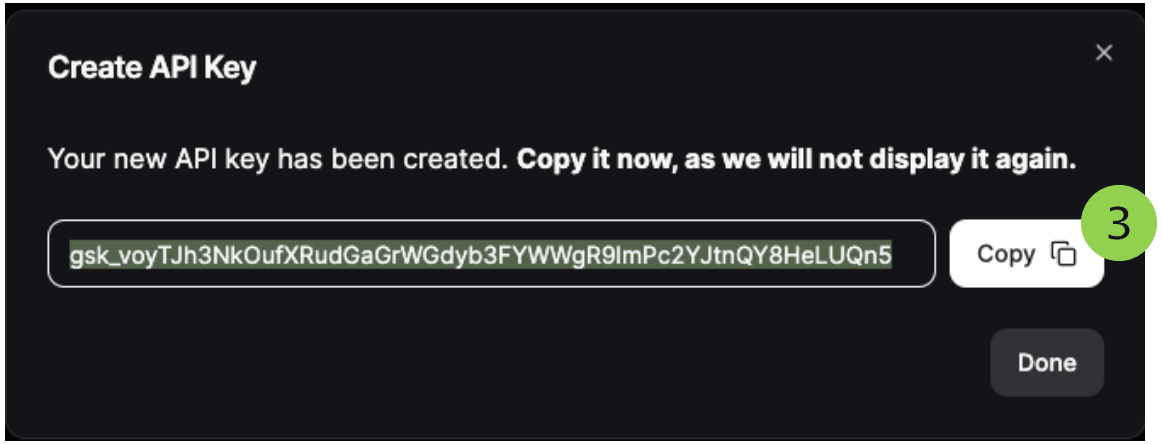
Create GroqAI key

Setting Up the Environment

https://console.groq.com/



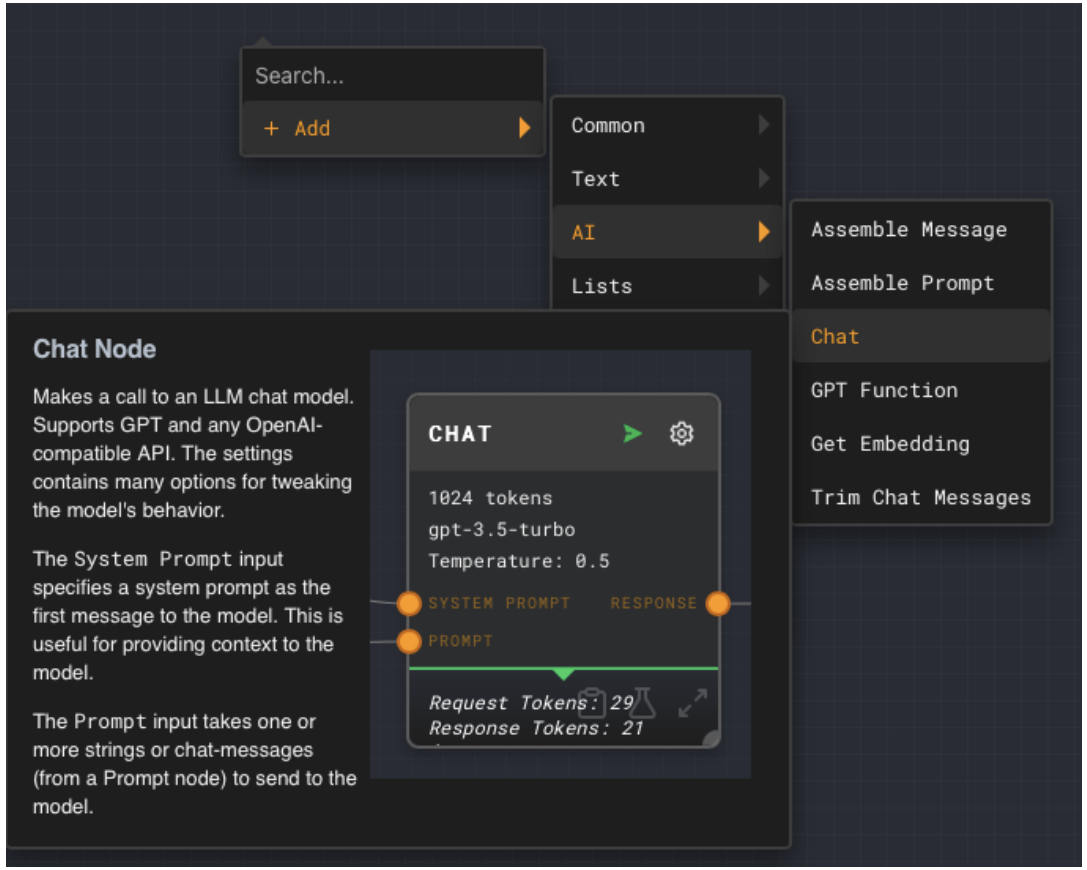




Use Groq in Rivet

Setting Up the Environment

1. Right-click on an empty space
2. Create Chat node by clicking Add => AI => Chat node

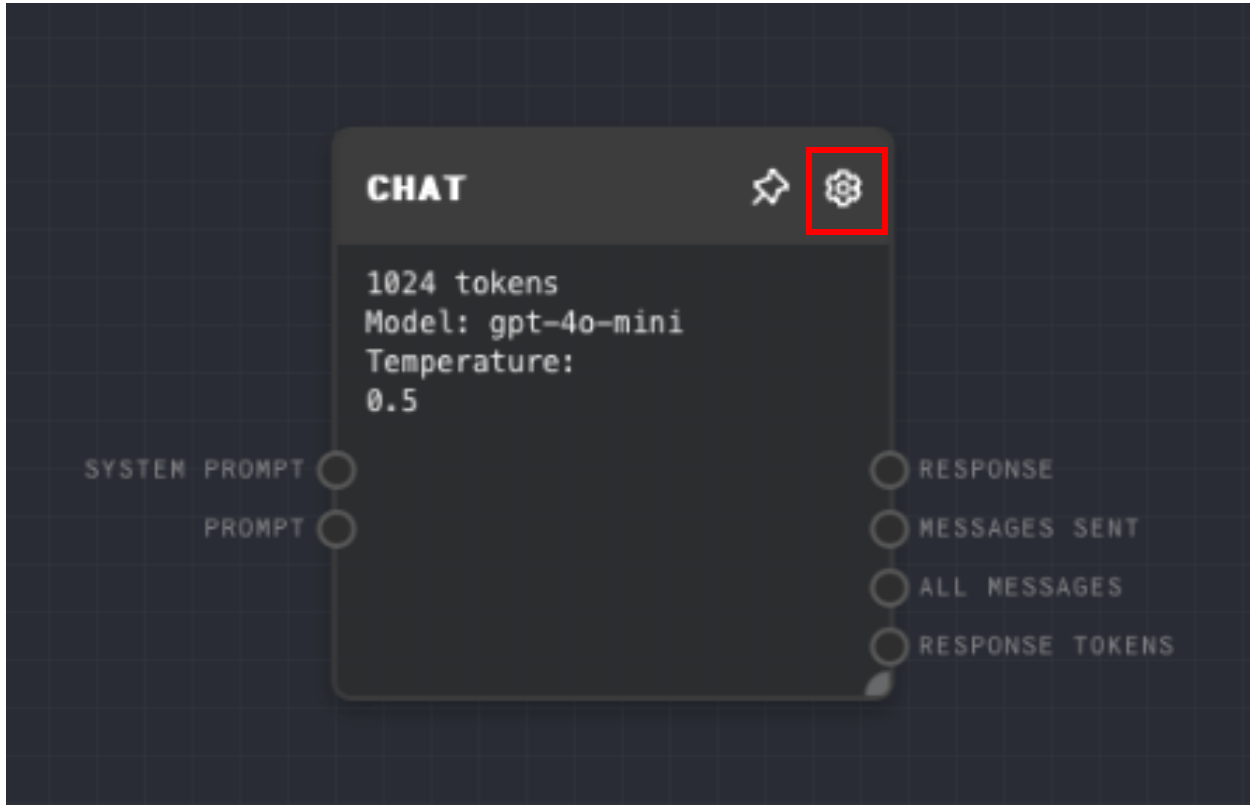


Use Groq in Rivet

Setting Up the Environment

3. A new chat node should appear

4. Click Gear icon (red rectangle)

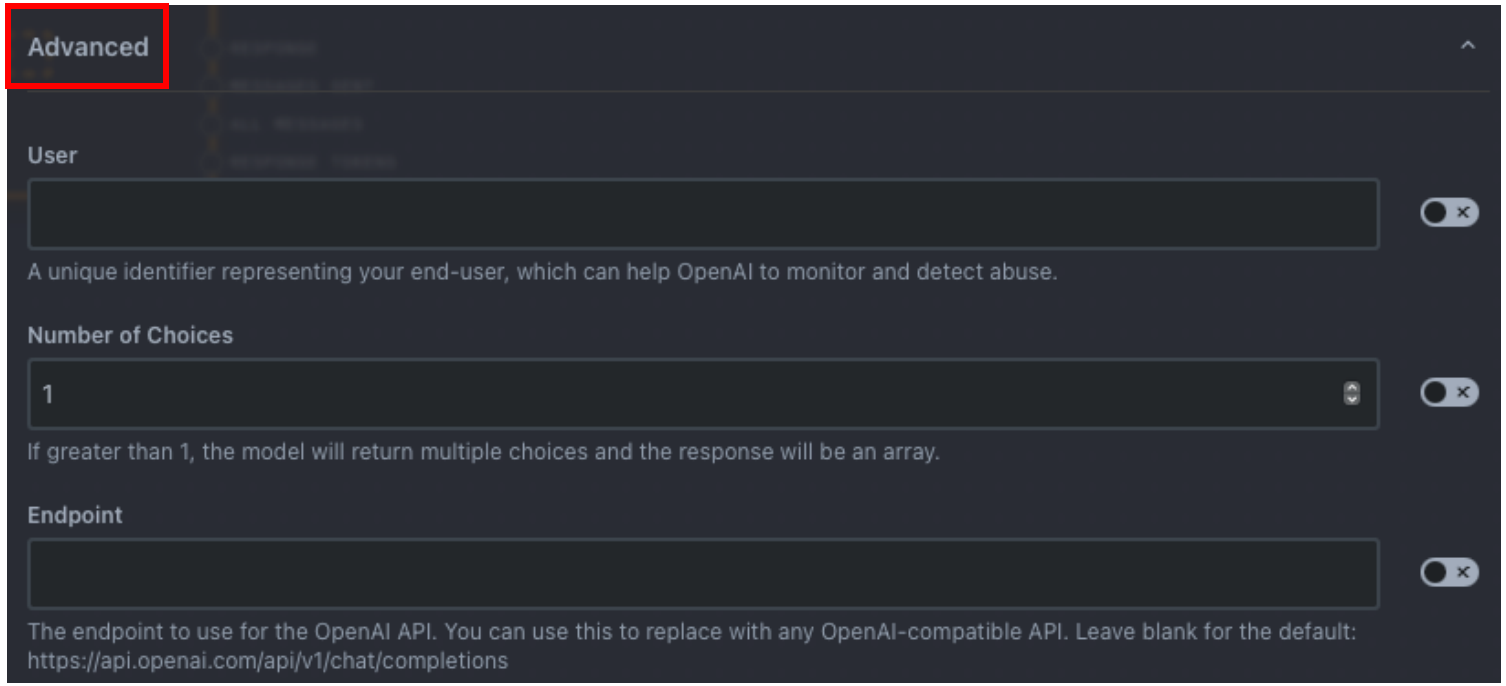


Use Groq in Rivet

Setting Up the Environment

5. Scroll-down the right section

6. Expand Advanced tab



Use Groq in Rivet

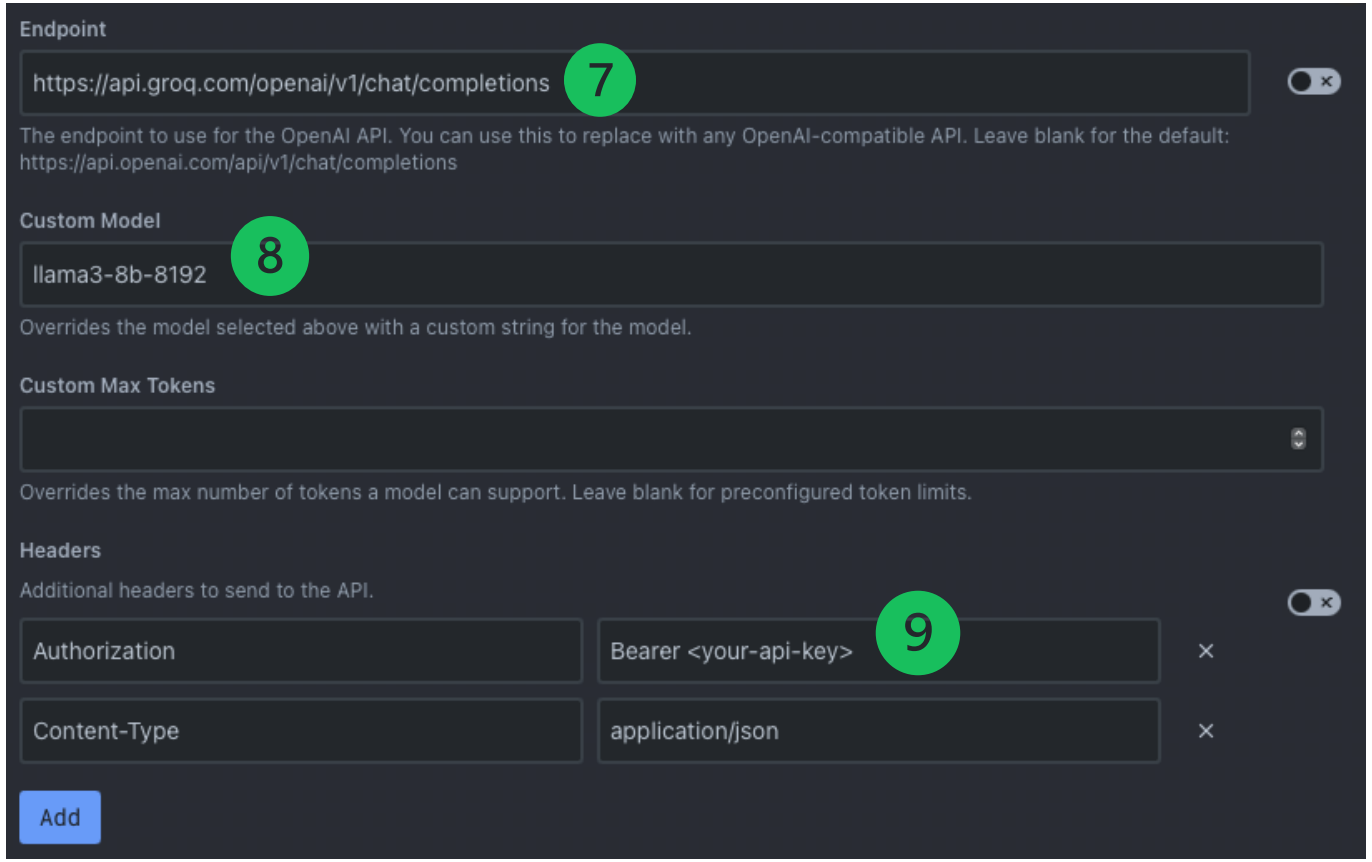
Setting Up the Environment

7. Use Groq API endpoint:

`https://api.groq.com/openai/v1/chat/completions`

8. Use `llama3-8b-8192` model

9. Replace `<your-api-key>` with your Groq API key

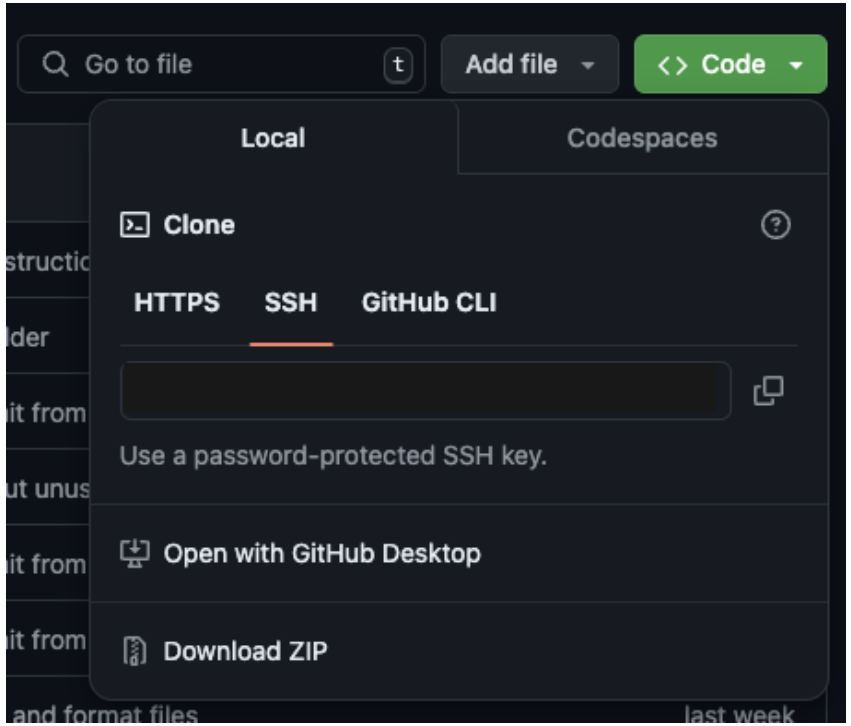


Download the repo

Setting Up the Environment

1. https://github.com/palo-it-th/rivet-workshop

2. Clone or download ZIP file



Technical terms

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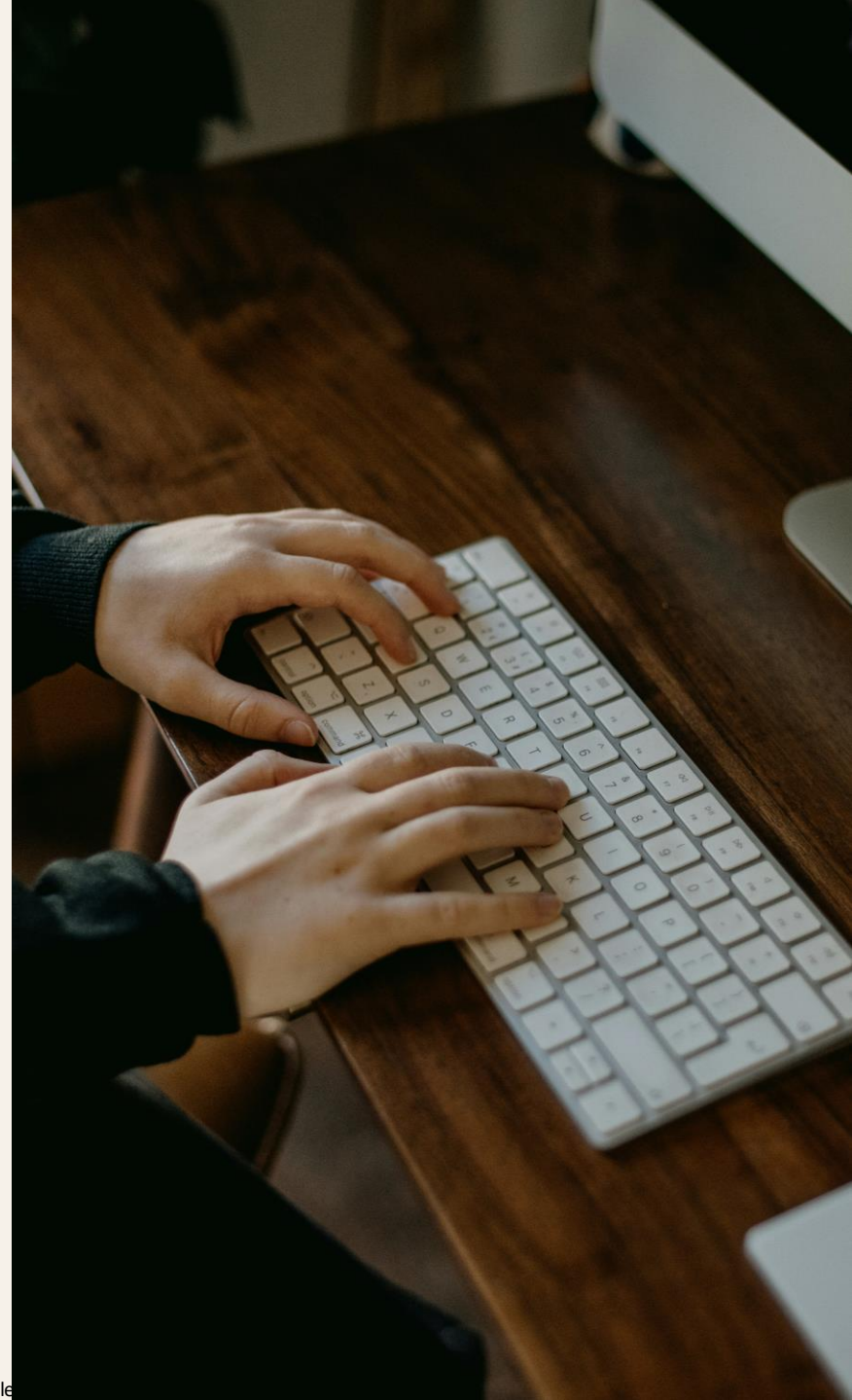
Technical terms

System Prompt is a set of instructions given to the AI to define how it should behave.

User Prompt is the input or question that the user provide to the AI.

Assistant Prompt is the response generated by the AI.

One-shot prompt



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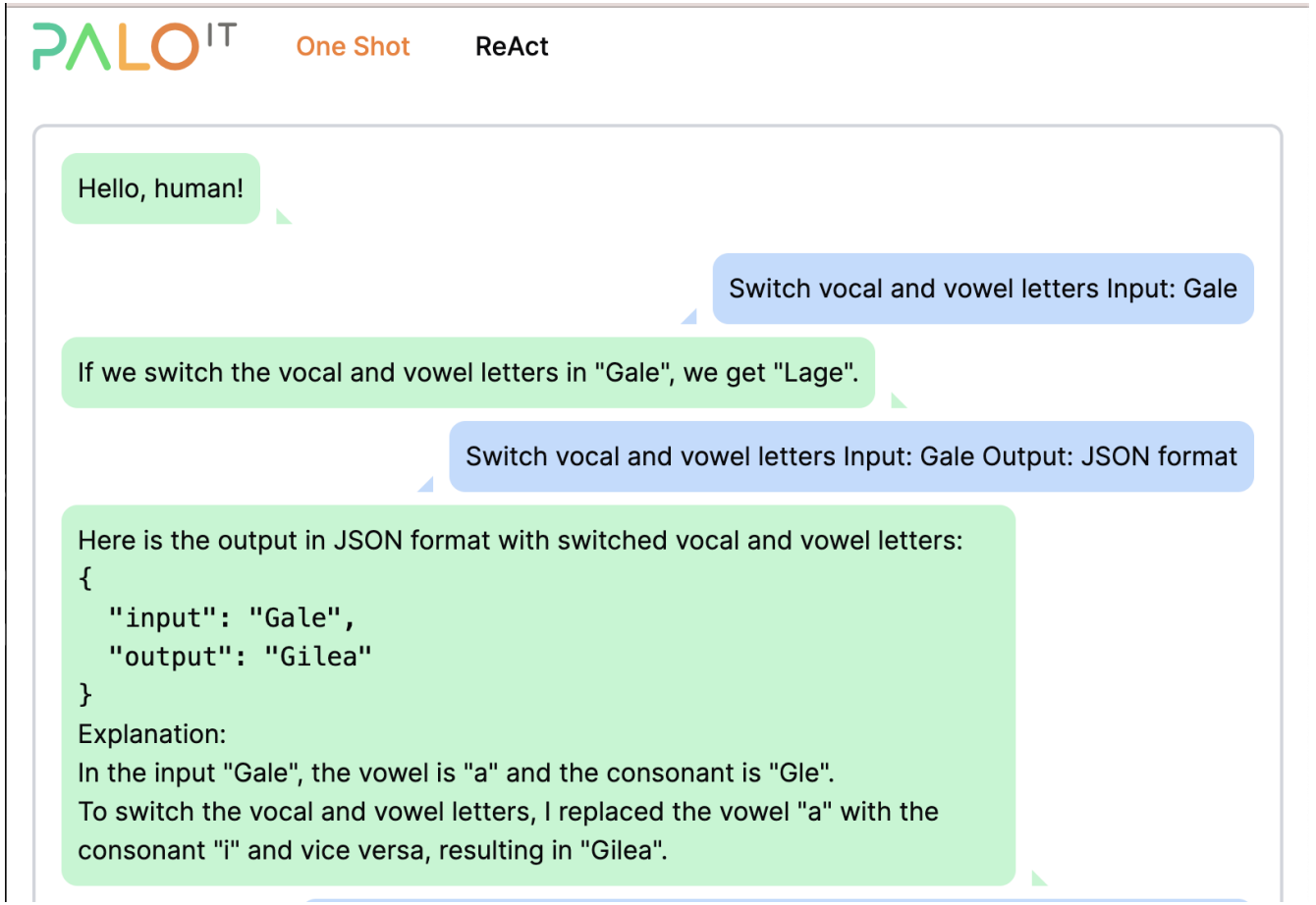
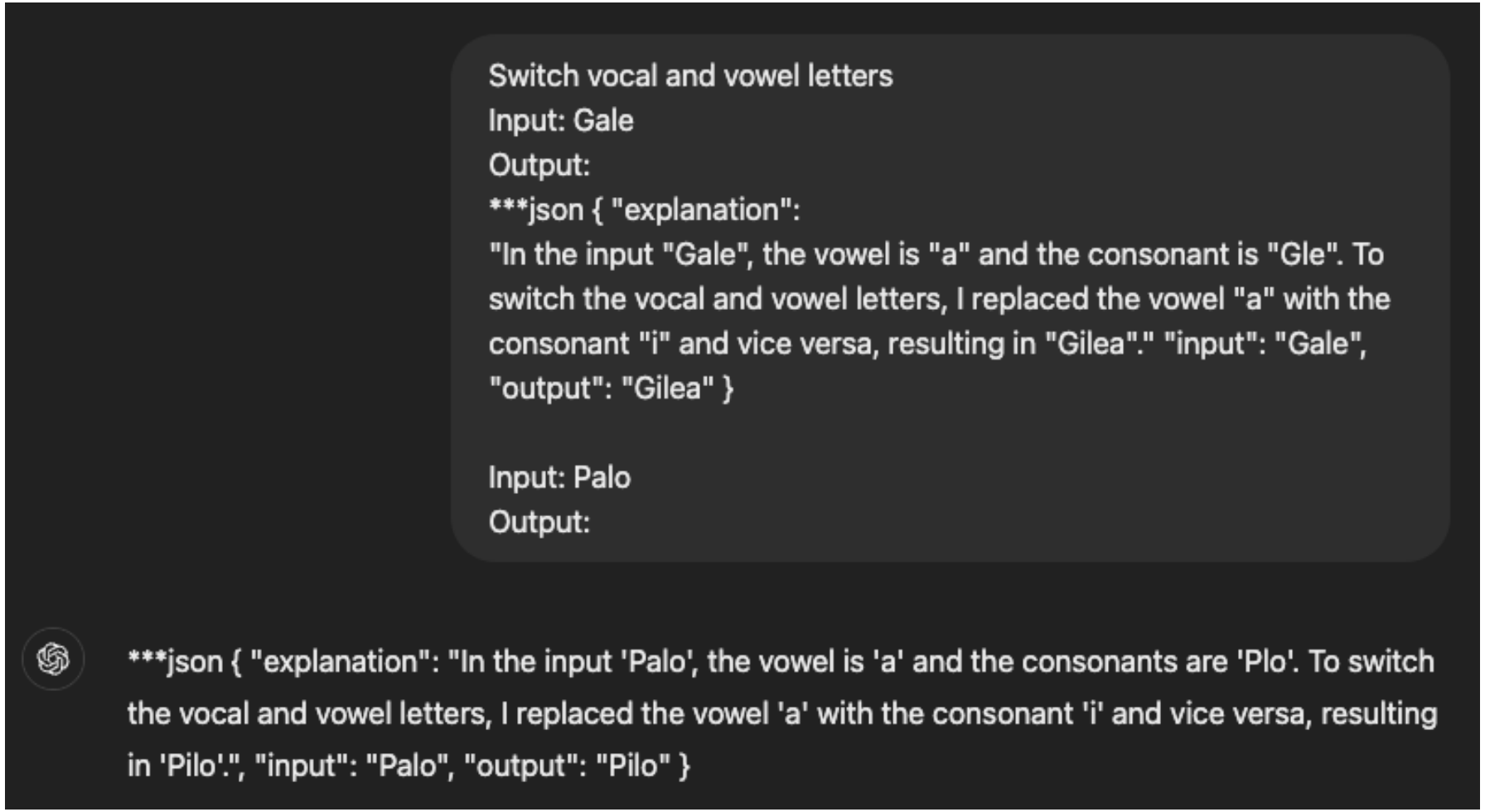
Zero-shot prompting



One-shot prompting



What is it?

One-shot prompt

A single example prompt given to the AI to help it respond correctly.

SYSTEM	Answer in a consistent style.
USER	Teach me about patience.
ASSISTANT	The river that carves the deepest valley flows from a modest spring; the grandest symphony originates from a single note; the most intricate tapestry begins with a solitary thread.
USER	Teach me about the ocean.

How does the code look?

Specify roles in OpenAI messages array

Click to add title

```
messages: [
  {
    role: 'system',
    content: 'Answer in a consistent style.',
  },
  {
    role: 'user',
    content: 'Teach me about patience.',
  },
  {
    role: 'assistant',
    content: 'The river that carves...',
  },
  {
```

Few-shot prompts

What are they?

A few example prompts given to the AI to help it respond correctly.

Hands-on Lab #1

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Hands-on Lab #1

1. Use `job-description.md` under exercises folder as the graph input
2. Extract Job Title, Company, Location and output in JSON format

One-shot Prompt

```
{
"jobTitle": "Digital Marketing Specialist",
"company": "Naruto Co., Ltd.",
"location": "Konoha Village",
}
```

Hands-on Lab #1

Your Turn

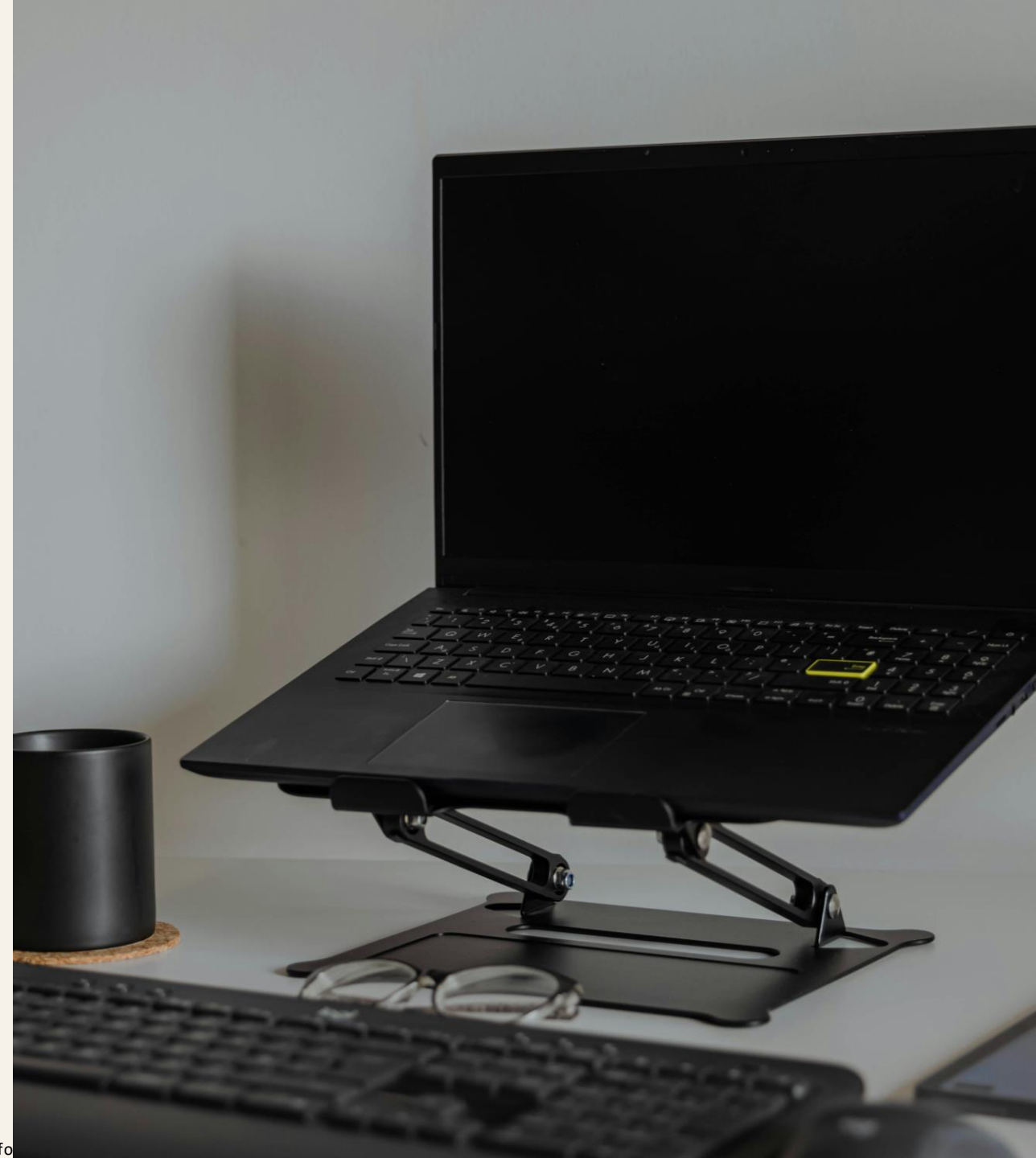
Create a one-shot prompt in Rivet:

1. Input job description and output in JSON format.

2. To determine the sentiment of a given sentence.

3. To translate a simple English sentence into French and Chinese.

Hands-on Lab #2



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Hands-on Lab #2

Your Turn

1. Open `Translate and Summarize` folder in Rivet.
2. Use example in `exercises/news` folder.
3. Use one-shot prompting technique to translate and summarize news article in the following format:

<Summary>

```
### Key Highlights:
  - Key point #1
  - Key point #2
  - Key point #3
```

Using Rivet graph in Node.js applications

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USING RIVET GRAPH IN NODE.JS APPLICATIONS

1. Import Rivet

```
import { runGraphInFile, RunGraphOptions, startDebuggerServer } from '@ironclad/rivet-node'
```

2.Read Rivet project file

```
const result = await runGraphInFile(rivetProjPath, {
    graph: graph,
    inputs: rivetInputs,
    openAiKey: process.env.OPENAI_API_KEY,
  } as RunGraphOptions)
```

3.Run

Run this command on Terminal:

```
npm run dev
```

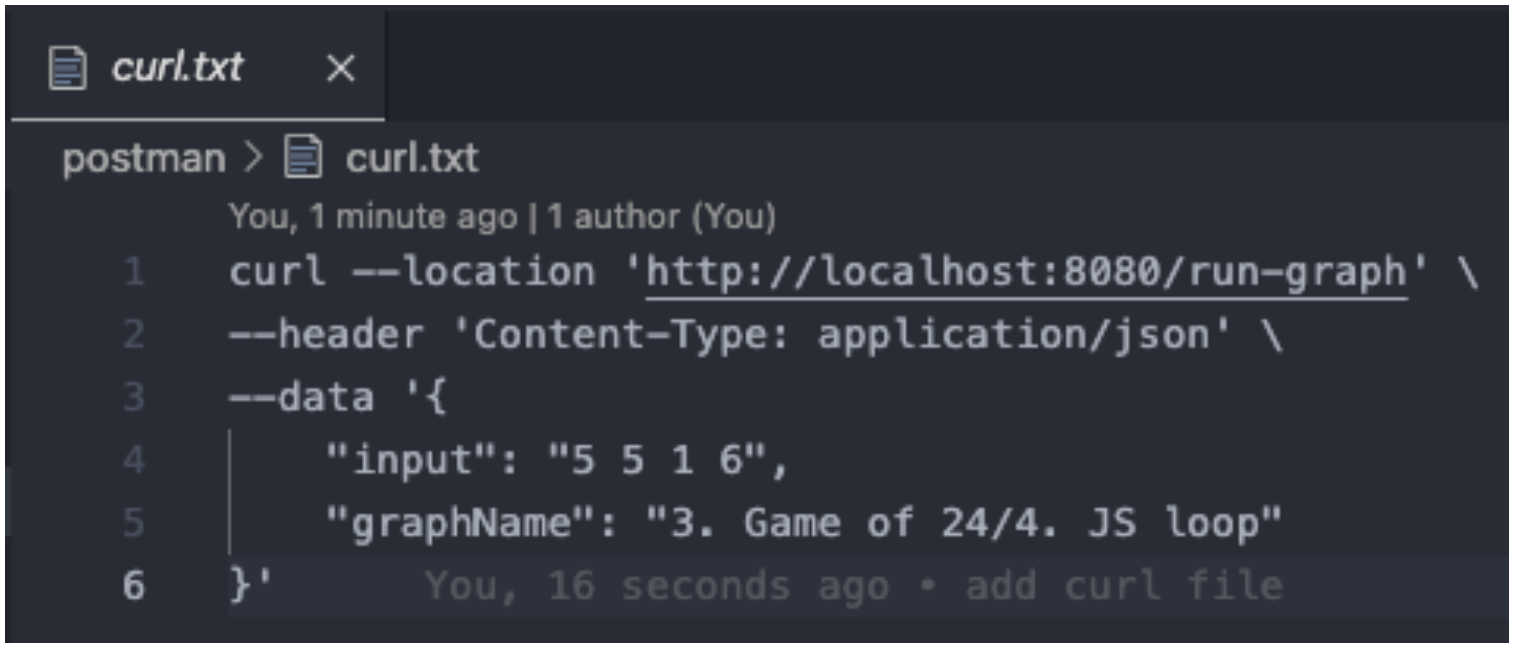
If you have a program listening to port number 8080, create **.env** file and put

```
PORT=8084
```

DEBUGGING IN RIVET

4. Copy curl and paste in Postman

Add slide copy here.



DEBUGGING IN RIVET

5. Send request in Postman

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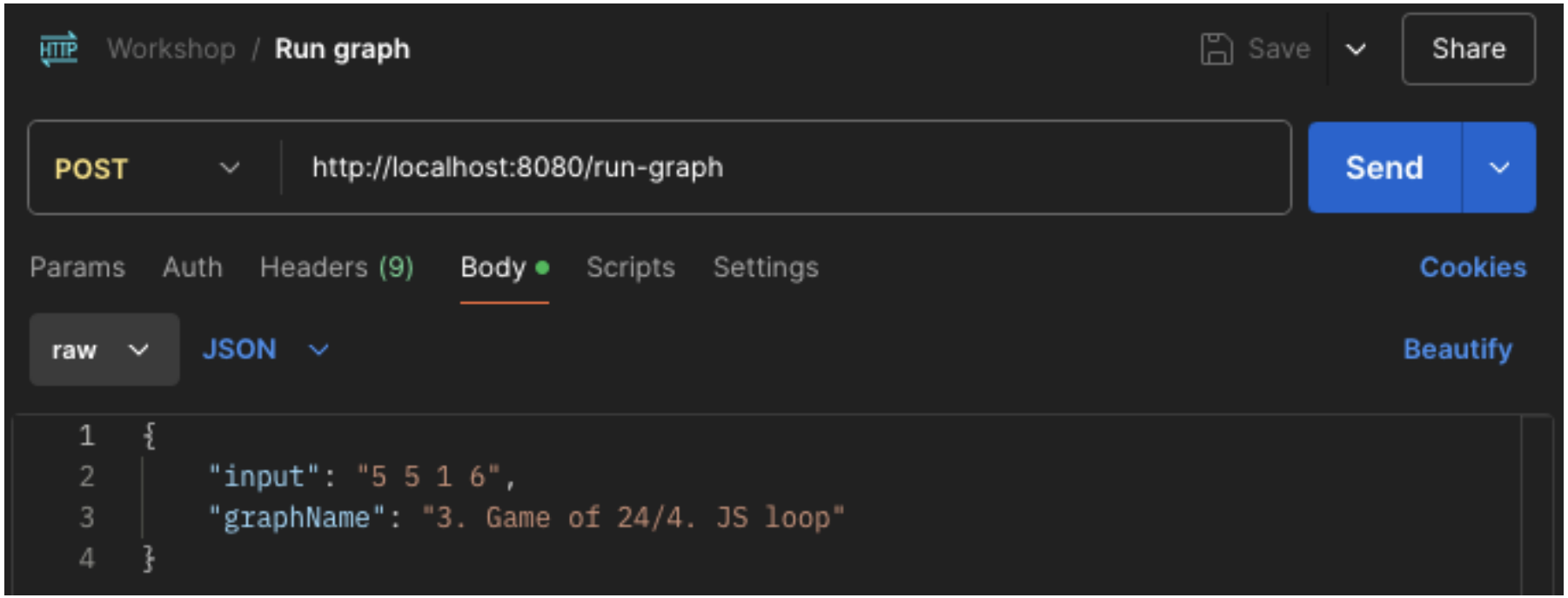

Debugging in Rivet

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DEBUGGING IN RIVET

1. Create debugger server

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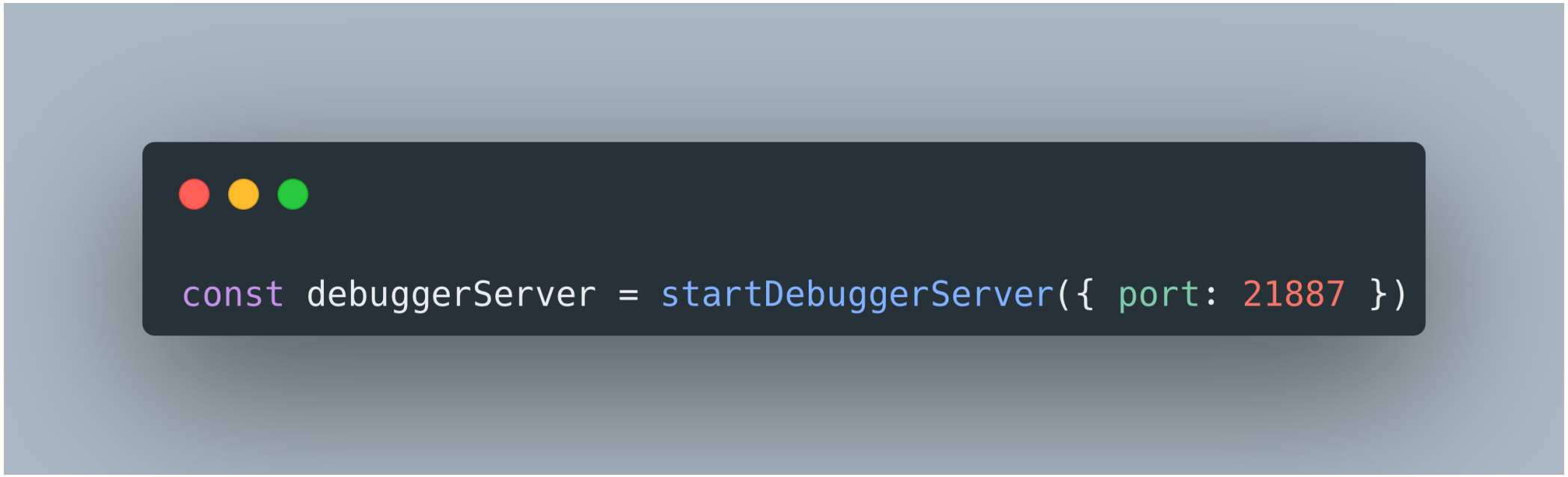

DEBUGGING IN RIVET

2. Use as remoteDebugger

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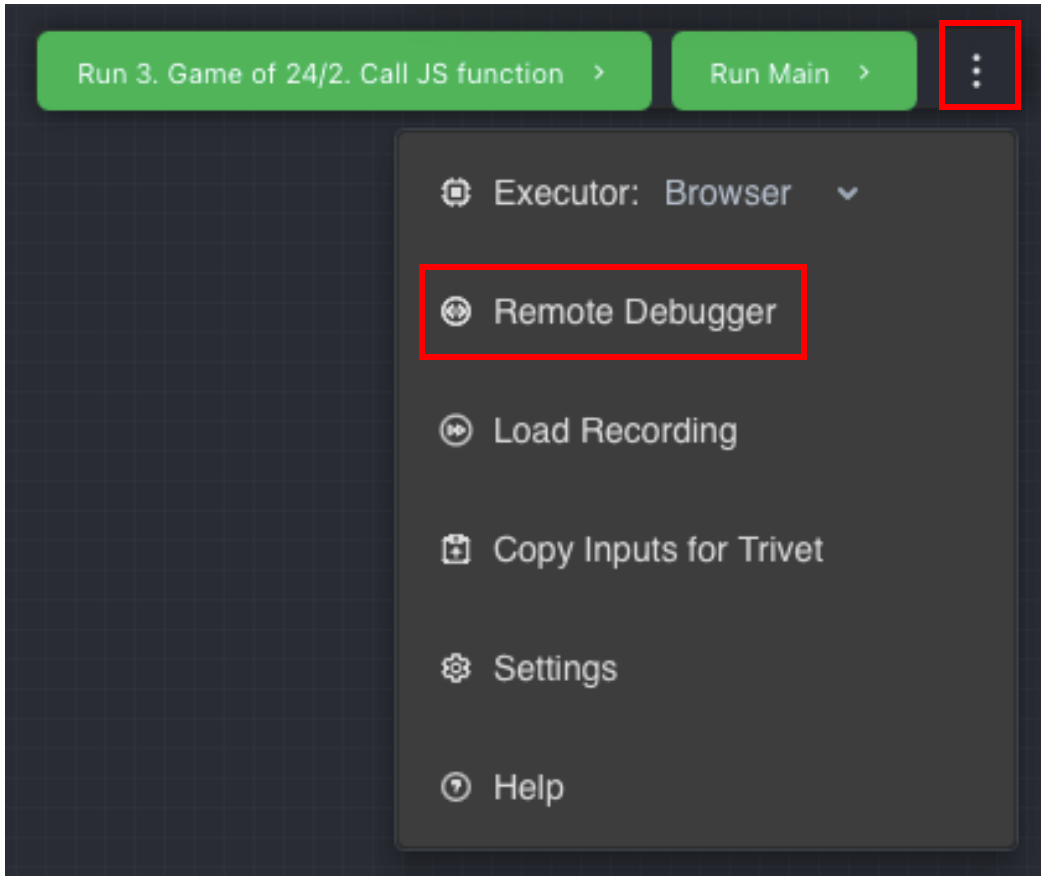
```
const result = await runGraphInFile(rivetProjPath, {
    graph: graph,
    remoteDebugger: debuggerServer,
    inputs: rivetInputs,
    context: {},
    externalFunctions: {},
    onUserEvent: {},
    openAiKey: process.env.OPENAI_API_KEY,
  } as RunGraphOptions)
```

3. Run

Run this command on Terminal:

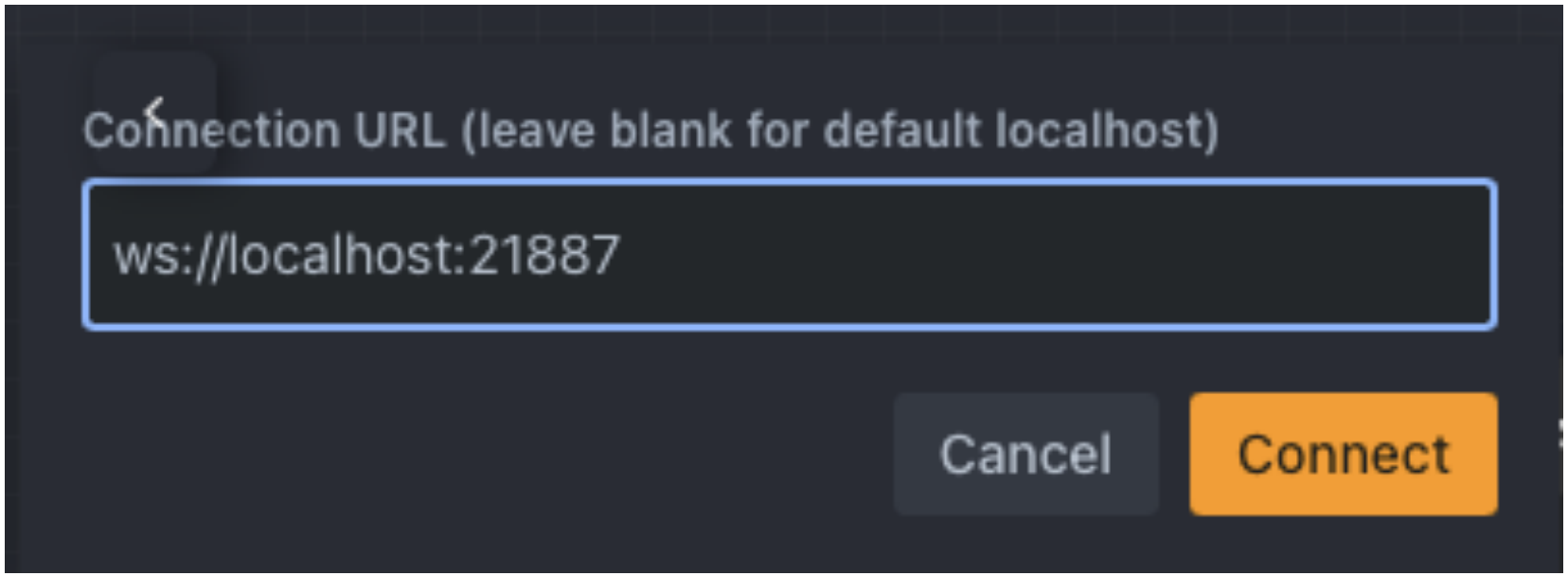
```
npm run dev
```

4. Listen to debugging server



DEBUGGING IN RIVET

5. Set port number



DEBUGGING IN RIVET

6.Observe

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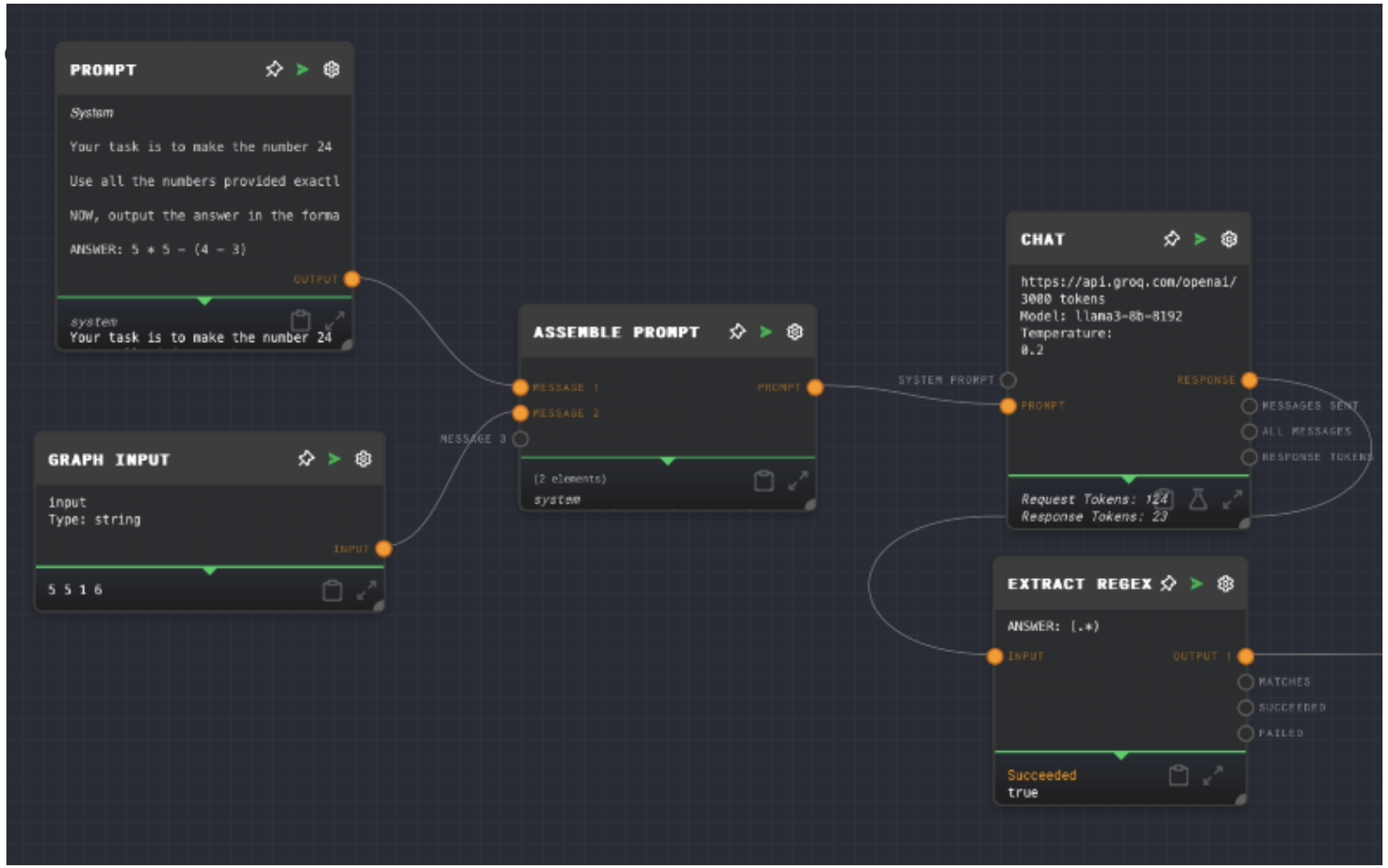

Hands-on Lab #3

Your Turn

1. Open `1.Template` under `Game of 24` folder
2. Duplicate the graph and name it as `Lab3`
3. Connect with NodeJS backend and call JS function from Rivet graph
4. Create a loop that allows the AI to calculate until the answer is correct, using the previous answer as input for the new prompt. Stop after 10 iterations and output ‘No solution’ if no solution is found.

Q & A

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