

## Gen AI Unit 2 Assignment 2: Building a Mixture of Experts (MoE) Router

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### Load API Keys from the .env file

```
import os
from dotenv import load_dotenv

load_dotenv()

groq_api_key = os.getenv("GROQ_API_KEY")

print("API Key Loaded:", groq_api_key is not None)
```

API Key Loaded: True

### Testing the router

```
print(route_prompt("My python script throws an IndexError"))
print(route_prompt("I was charged twice this month"))
print(route_prompt("Hello how are you"))

technical
billing
general
```

### Testing with technical prompt

## Technical Expert

```
result = process_request("My python script is throwing an IndexError on line 5.")

print("Category:", result["category"])
print("\nResponse:\n")
print(result["response"])
```

Category: technical

Response:

To effectively troubleshoot the issue, I'll need more information. Please provide the following details:

1. \*\*The code snippet\*\*: Share the relevant lines of code around the IndexError (lines 1-7 would be helpful).
2. \*\*The full error message\*\*: Include the entire error message, including any error code or indices.
3. \*\*Context\*\*: Provide some context about the script, such as what it's trying to accomplish and any relevant libraries or frameworks being used.

With that information, I can help you identify the root cause of the IndexError and suggest a solution.

Assuming a generic scenario, here are some common reasons for an IndexError in Python:

1. \*\*Out-of-bounds index\*\*: You're trying to access an index that is outside the bounds of a list, tuple, or string.
2. \*\*Missing or empty iterable\*\*: You're trying to access an element from an empty or missing iterable.

Example code snippet:

```
```python
# Example list
my_list = [1, 2, 3]

# Attempting to access an out-of-bounds index
try:
    print(my_list[5]) # This will raise an IndexError
except IndexError as e:
    print(f"Error: {e}")
...``
```

In this example, the IndexError is raised because we're trying to access the 5th index (0-based indexing) of a list with only 3 elements.

To fix this issue, ensure that the index you're trying to access is within the valid range. You can also add error handling to catch and handle the IndexError as shown above.

Please provide more details about your script, and I'll be happy to help you troubleshoot the issue.

## Testing with technical prompt

### Billing Expert

```
result = process_request("I was charged twice for my subscription this month.")

print("Category:", result["category"])
print("\nResponse:\n")
print(result["response"])
```

Category: billing

Response:

I'm so sorry to hear that you've been charged twice for your subscription this month. That can be frustrating and confusing.

Can you please provide me with some details about your subscription and the charges? This will help me assist you more effectively. Here are some questions to get started:

1. What is the name of the subscription or service you're referring to?
2. What was the date you were charged the second time?
3. Did you receive any notifications or emails from us about the charge?
4. Have you checked your bank or credit card statement to confirm the second charge?

Once I have this information, I'll do my best to look into the matter and assist you in getting a refund for the duplicate charge.

## Testing with General Prompt

### General Expert

```
result = process_request("Tell me a short motivational quote.")

print("Category:", result["category"])
print("\nResponse:\n")
print(result["response"])
```

Category: general

Response:

Here's a short motivational quote for you:

"Believe you can and you're halfway there."

- Theodore Roosevelt

I hope this inspires you to reach your goals!

## Bonus Challenge

### Bonus Challenge - Adding "Tool Use" expert

```
: def get_bitcoin_price():
    return "The current price of Bitcoin is $64,250.

: result = process_request("What is the current price of Bitcoin?")

print("Category:", result["category"])
print("\nResponse:\n")
print(result["response"])
```

Category: tool

Response:

The current price of Bitcoin is \$64,250.