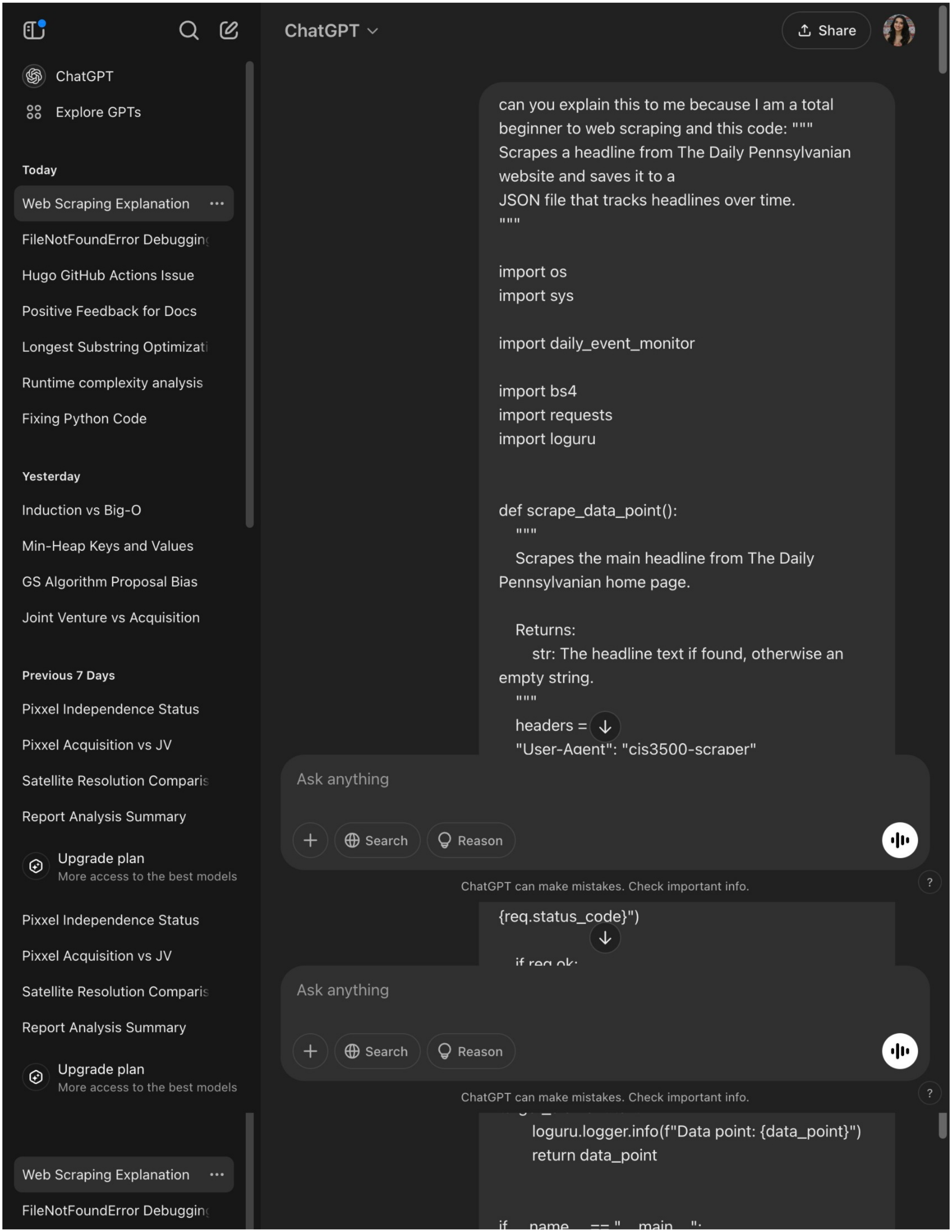
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can you explain this to me because I am a total beginner to web scraping and this code: """
Scrapes a headline from The Daily Pennsylvanian website and saves it to a
JSON file that tracks headlines over time.
"""

```
import os
import sys

import daily_event_monitor

import bs4
import requests
import loguru


def scrape_data_point():
   """
   Scrapes the main headline from The Daily Pennsylvanian home page.

   Returns:
      str: The headline text if found, otherwise an empty string.
   """
   headers =
   "User-Agent": "cis3500-scraper"
```

ChatGPT can make mistakes. Check important info.

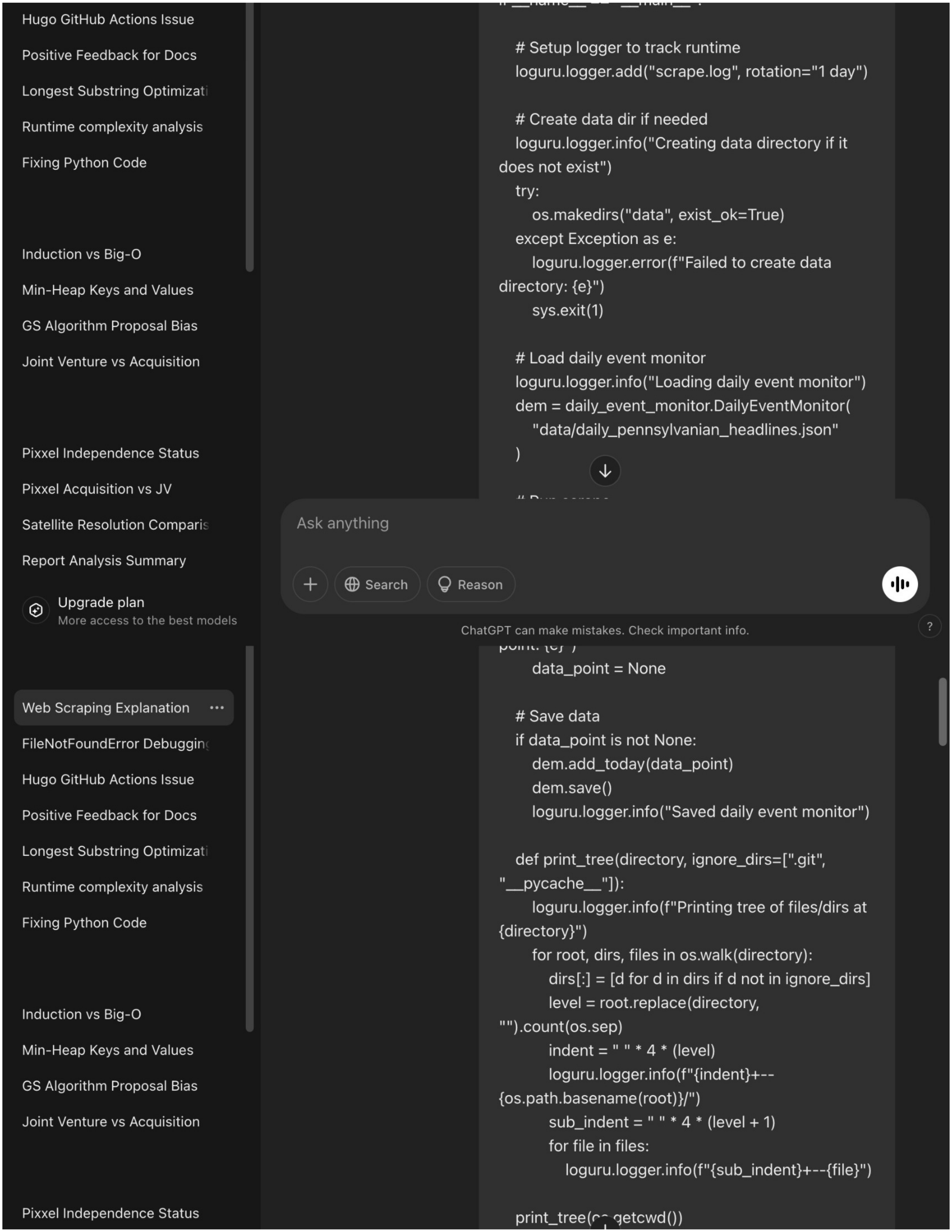
```
{req.status_code}")

   if req.ok:
```

ChatGPT can make mistakes. Check important info.

```
      loguru.logger.info(f"Data point: {data_point}")
      return data_point


if __name__ == "__main__":
```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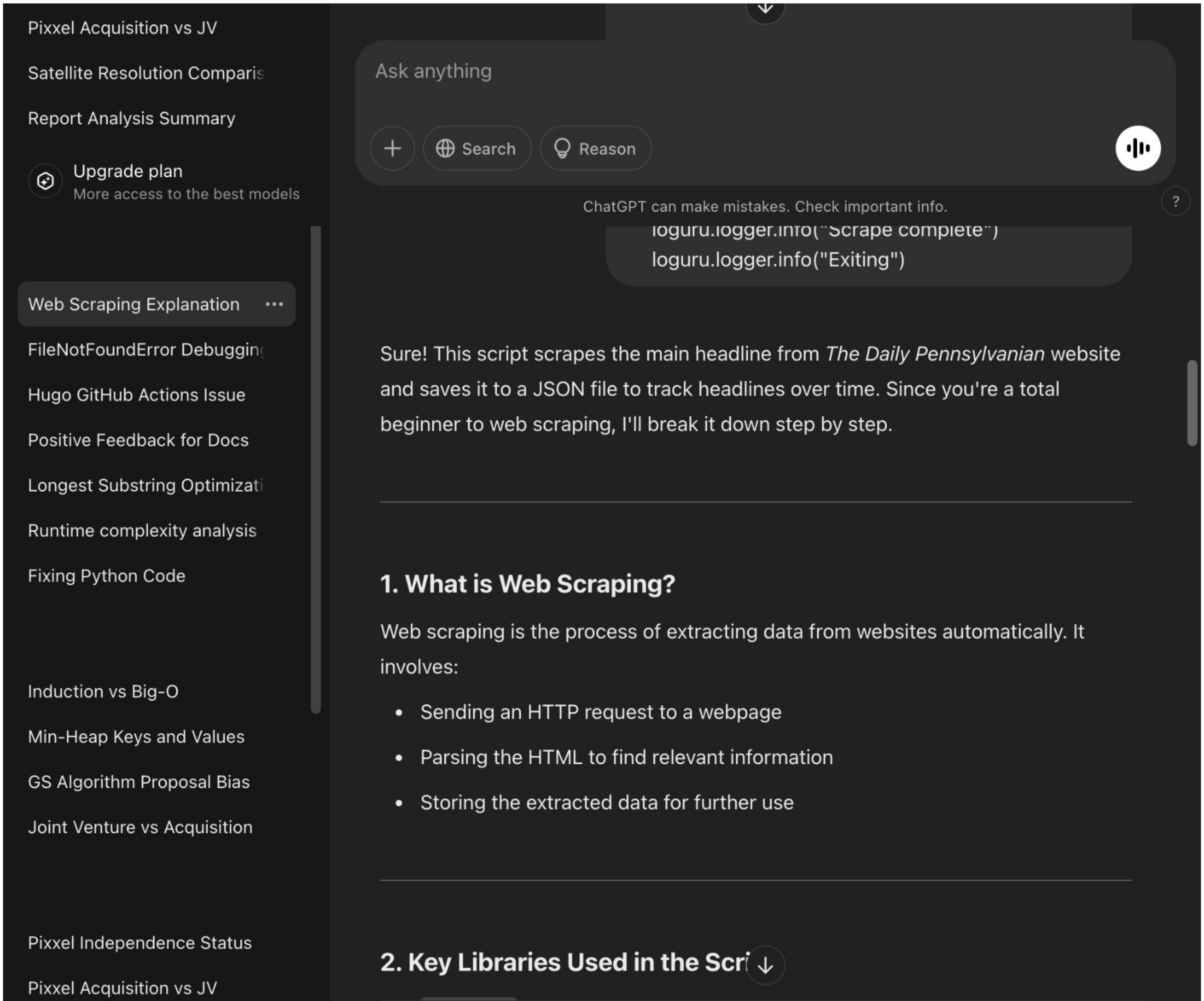
```
    # Setup logger to track runtime
    loguru.logger.add("scrape.log", rotation="1 day")

    # Create data dir if needed
    loguru.logger.info("Creating data directory if it
does not exist")
    try:
        os.makedirs("data", exist_ok=True)
    except Exception as e:
        loguru.logger.error(f"Failed to create data
directory: {e}")
        sys.exit(1)

    # Load daily event monitor
    loguru.logger.info("Loading daily event monitor")
    dem = daily_event_monitor.DailyEventMonitor(
        "data/daily_pennsylvanian_headlines.json"
    )
```

```
point: {e}")
        data_point = None

    # Save data
    if data_point is not None:
        dem.add_today(data_point)
        dem.save()
        loguru.logger.info("Saved daily event monitor")

    def print_tree(directory, ignore_dirs=[".git",
"__pycache__"]):
        loguru.logger.info(f"Printing tree of files/dirs at
{directory}")
        for root, dirs, files in os.walk(directory):
            dirs[:] = [d for d in dirs if d not in ignore_dirs]
            level = root.replace(directory,
"").count(os.sep)
            indent = " " * 4 * (level)
            loguru.logger.info(f"{indent}+--
{os.path.basename(root)}/")
            sub_indent = " " * 4 * (level + 1)
            for file in files:
                loguru.logger.info(f"{sub_indent}+--{file}")

    print_tree(os.getcwd())
```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```
loguru.logger.info("Scrape complete")
loguru.logger.info("Exiting")
```

Sure! This script scrapes the main headline from *The Daily Pennsylvanian* website and saves it to a JSON file to track headlines over time. Since you're a total beginner to web scraping, I'll break it down step by step.

---

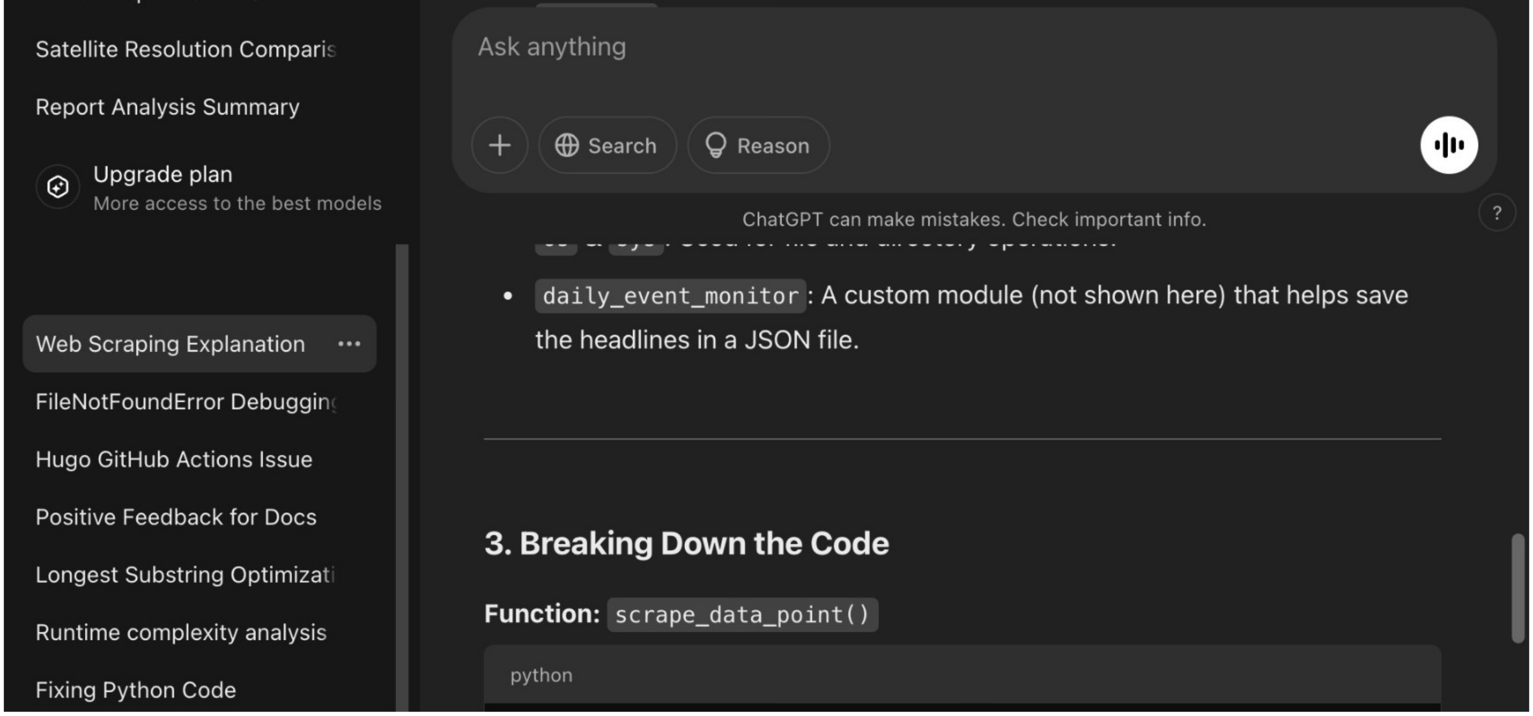
1. What is Web Scraping?

Web scraping is the process of extracting data from websites automatically. It involves:

- Sending an HTTP request to a webpage
- Parsing the HTML to find relevant information
- Storing the extracted data for further use

---

2. Key Libraries Used in the Scri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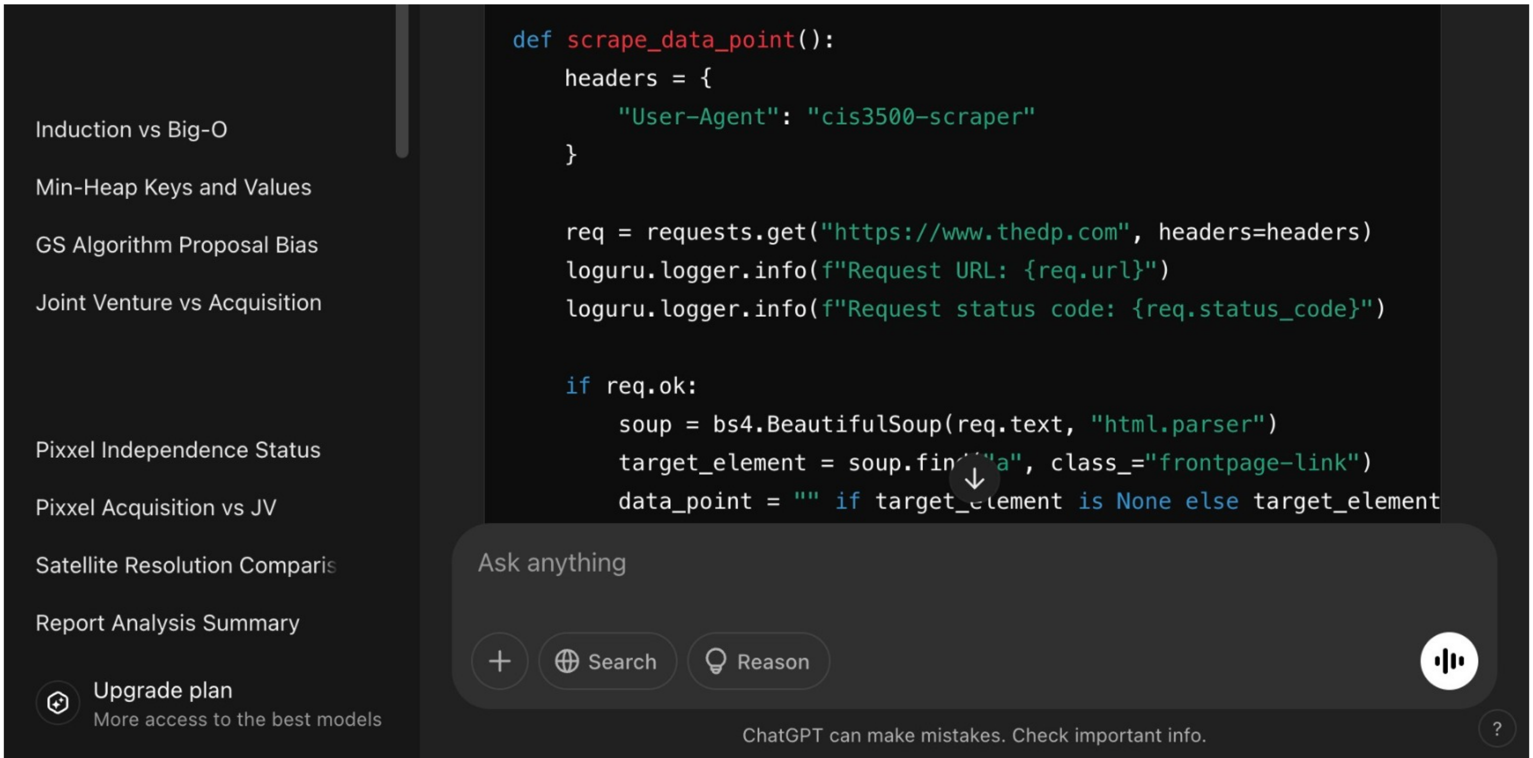
- `daily_event_monitor`: A custom module (not shown here) that helps save the headlines in a JSON file.

---

3. Breaking Down the Code

Function: `scrape_data_point()`

python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```python
def scrape_data_point():
    headers = {
        "User-Agent": "cis3500-scraper"
    }

    req = requests.get("https://www.thedp.com", headers=headers)
    loguru.logger.info(f"Request URL: {req.url}")
    loguru.logger.info(f"Request status code: {req.status_code}")

    if req.ok:
        soup = bs4.BeautifulSoup(req.text, "html.parser")
        target_element = soup.find("a", class_="frontpage-link")
        data_point = "" if target_element is None else target_element
```

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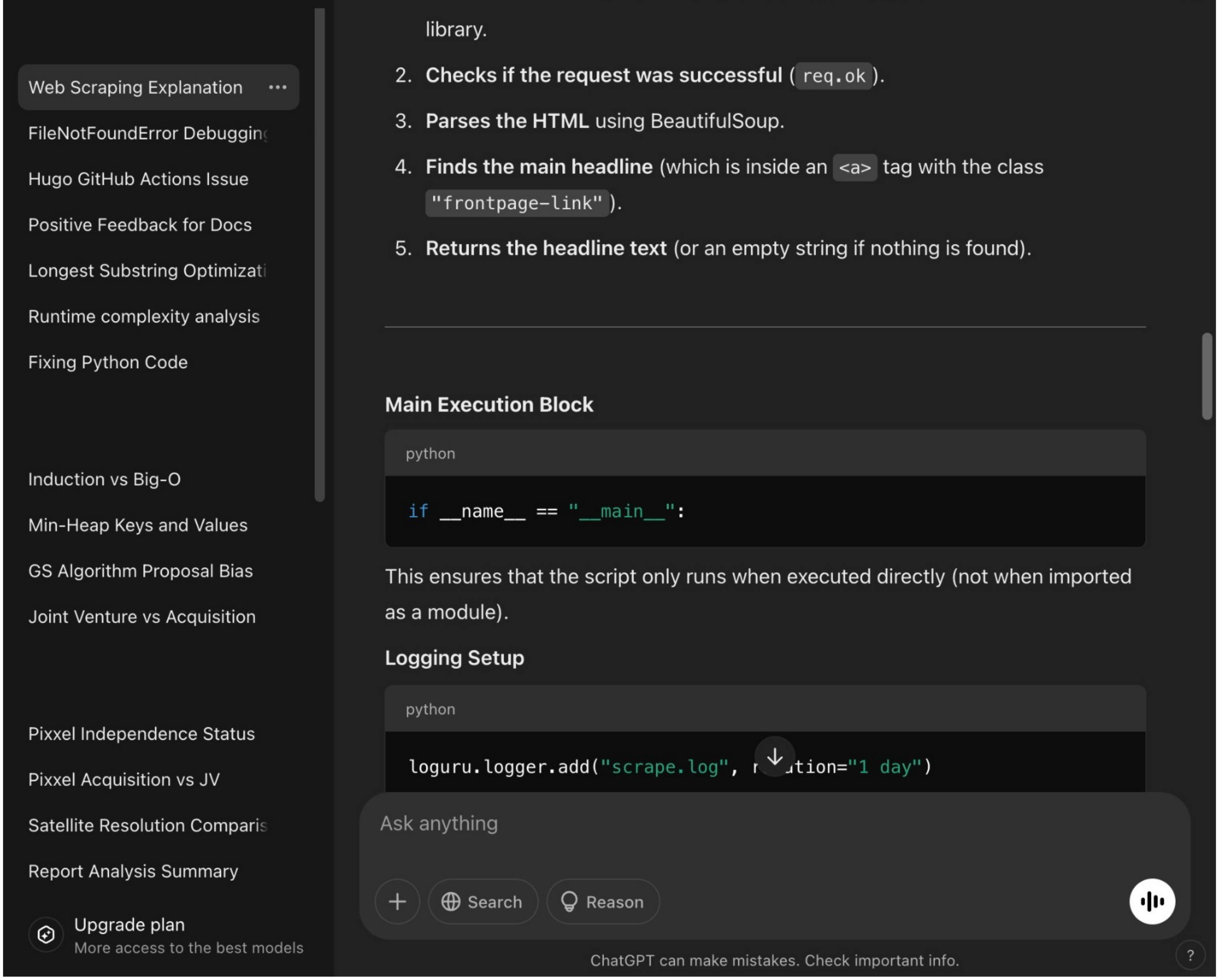
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library.

2. **Checks if the request was successful** (`req.ok`).
3. **Parses the HTML** using BeautifulSoup.
4. **Finds the main headline** (which is inside an `<a>` tag with the class `"frontpage-link"`).
5. **Returns the headline text** (or an empty string if nothing is found).

Main Execution Block

python

```python
if __name__ == "__main__":
```

This ensures that the script only runs when executed directly (not when imported as a module).

Logging Setup

python

```python
loguru.logger.add("scrape.log", rotation="1 day")
```

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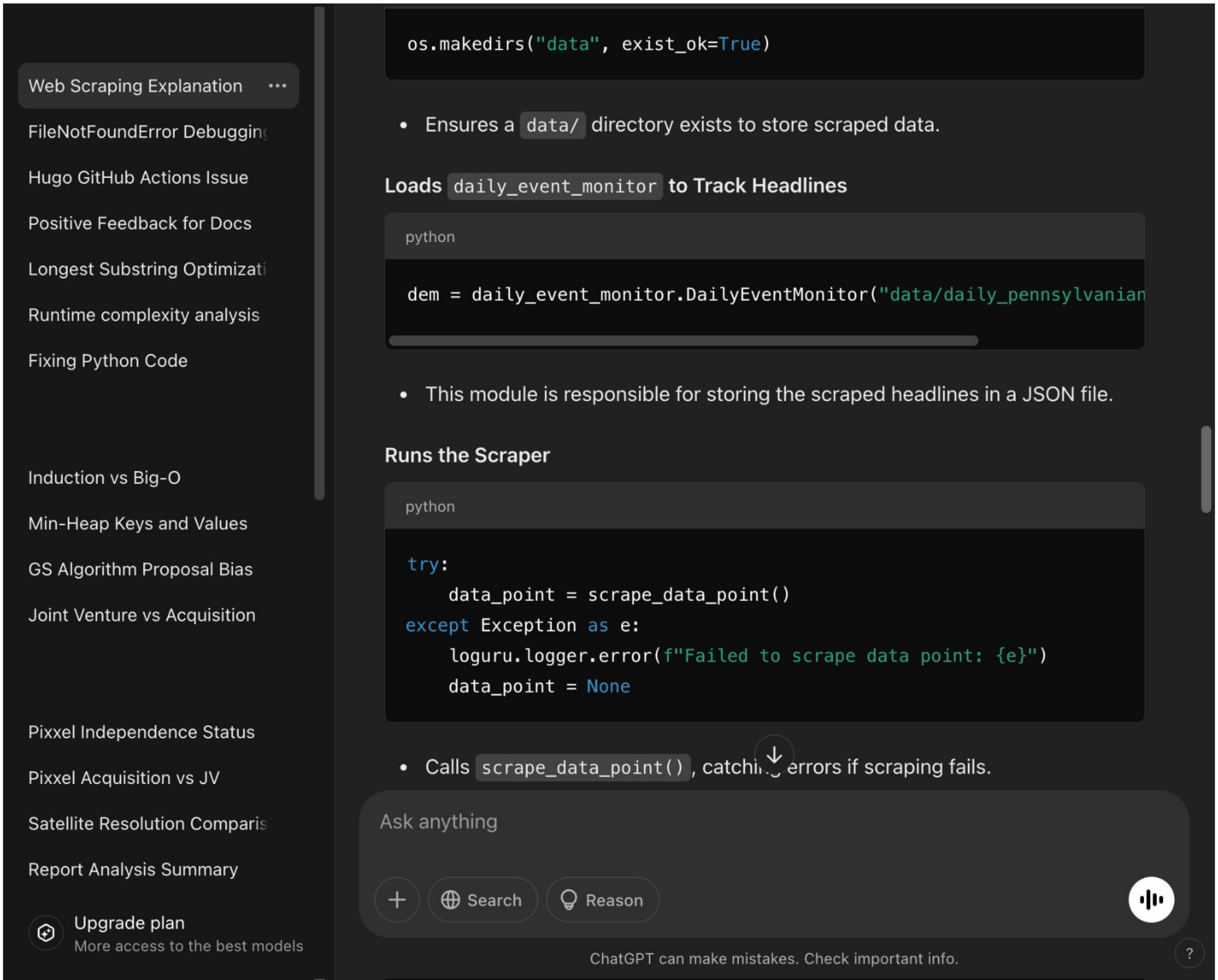
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```
os.makedirs("data", exist_ok=True)
```

- Ensures a `data/` directory exists to store scraped data.

Loads `daily_event_monitor` to Track Headlines

python

```
dem = daily_event_monitor.DailyEventMonitor("data/daily_pennsylvanian
```

- This module is responsible for storing the scraped headlines in a JSON file.

Runs the Scraper

python

```
try:
    data_point = scrape_data_point()
except Exception as e:
    loguru.logger.error(f"Failed to scrape data point: {e}")
    data_point = None
```

- Calls `scrape_data_point()`, catchi errors if scraping fails.

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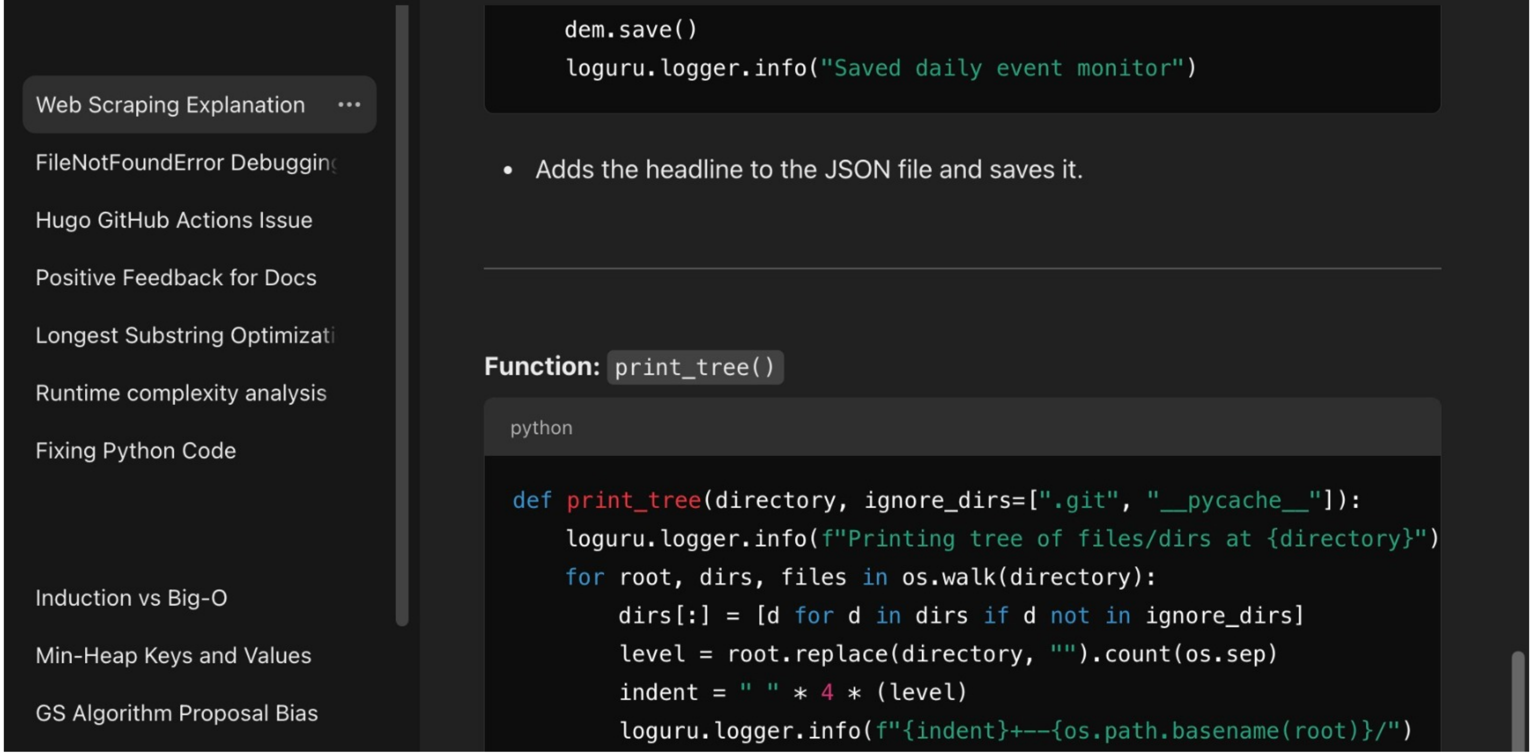
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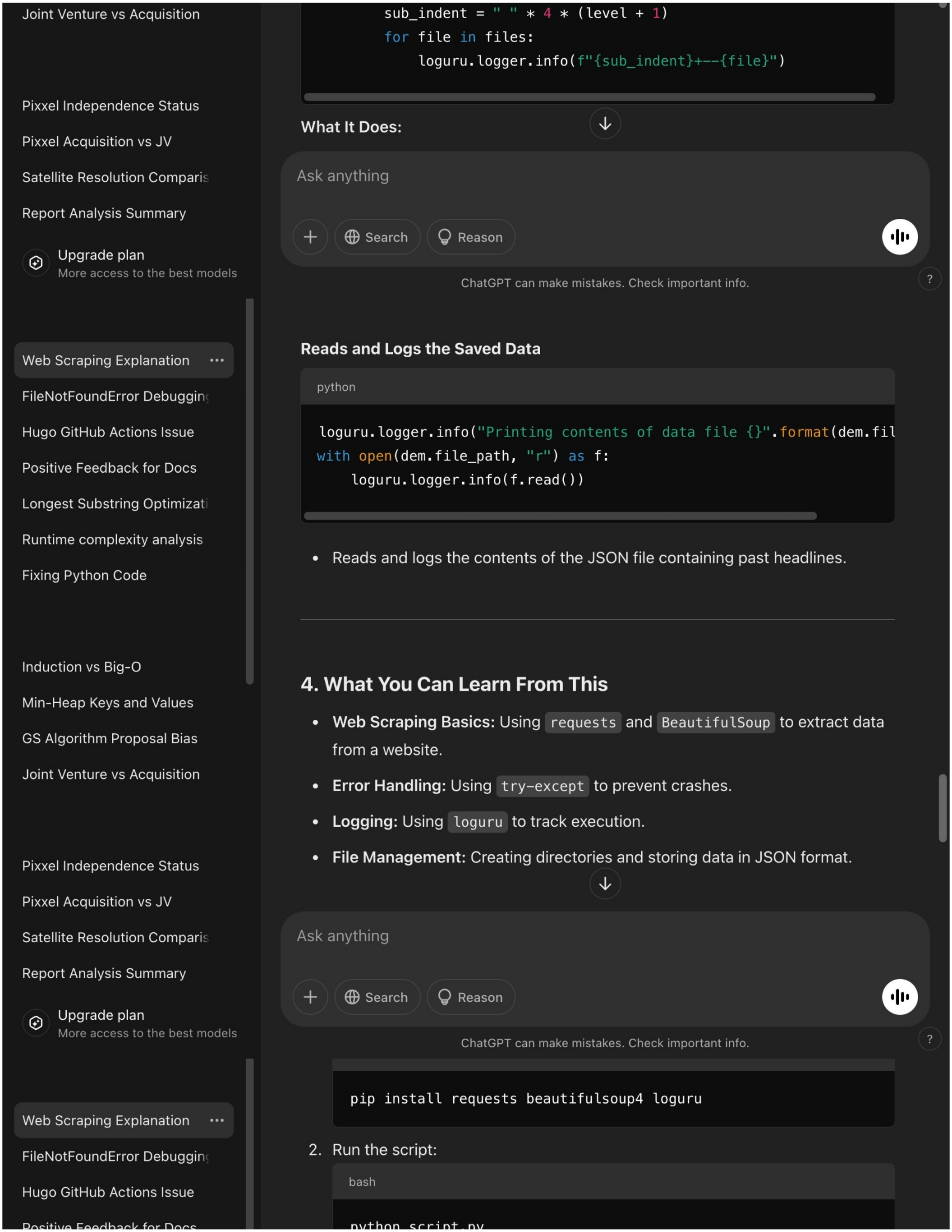
```
    dem.save()
    loguru.logger.info("Saved daily event monitor")
```

- Adds the headline to the JSON file and saves it.

Function: `print_tree()`

python

```
def print_tree(directory, ignore_dirs=[".git", "__pycache__"]):
    loguru.logger.info(f"Printing tree of files/dirs at {directory}")
    for root, dirs, files in os.walk(directory):
        dirs[:] = [d for d in dirs if d not in ignore_dirs]
        level = root.replace(directory, "").count(os.sep)
        indent = " " * 4 * (level)
        loguru.logger.info(f"{indent}+--{os.path.basename(root)}/")
```



```
        sub_indent = " " * 4 * (level + 1)
        for file in files:
            loguru.logger.info(f"{sub_indent}+--{file}")
```

What It Does:

Reads and Logs the Saved Data

```python
loguru.logger.info("Printing contents of data file {}".format(dem.fil
with open(dem.file_path, "r") as f:
    loguru.logger.info(f.read())
```

- Reads and logs the contents of the JSON file containing past headlines.

---

4. What You Can Learn From This

- **Web Scraping Basics:** Using `requests` and `BeautifulSoup` to extract data from a website.
- **Error Handling:** Using `try-except` to prevent crashes.
- **Logging:** Using `loguru` to track execution.
- **File Management:** Creating directories and storing data in JSON format.

```
pip install requests beautifulsoup4 loguru
```

2. Run the script:

```bash
python script.py
```

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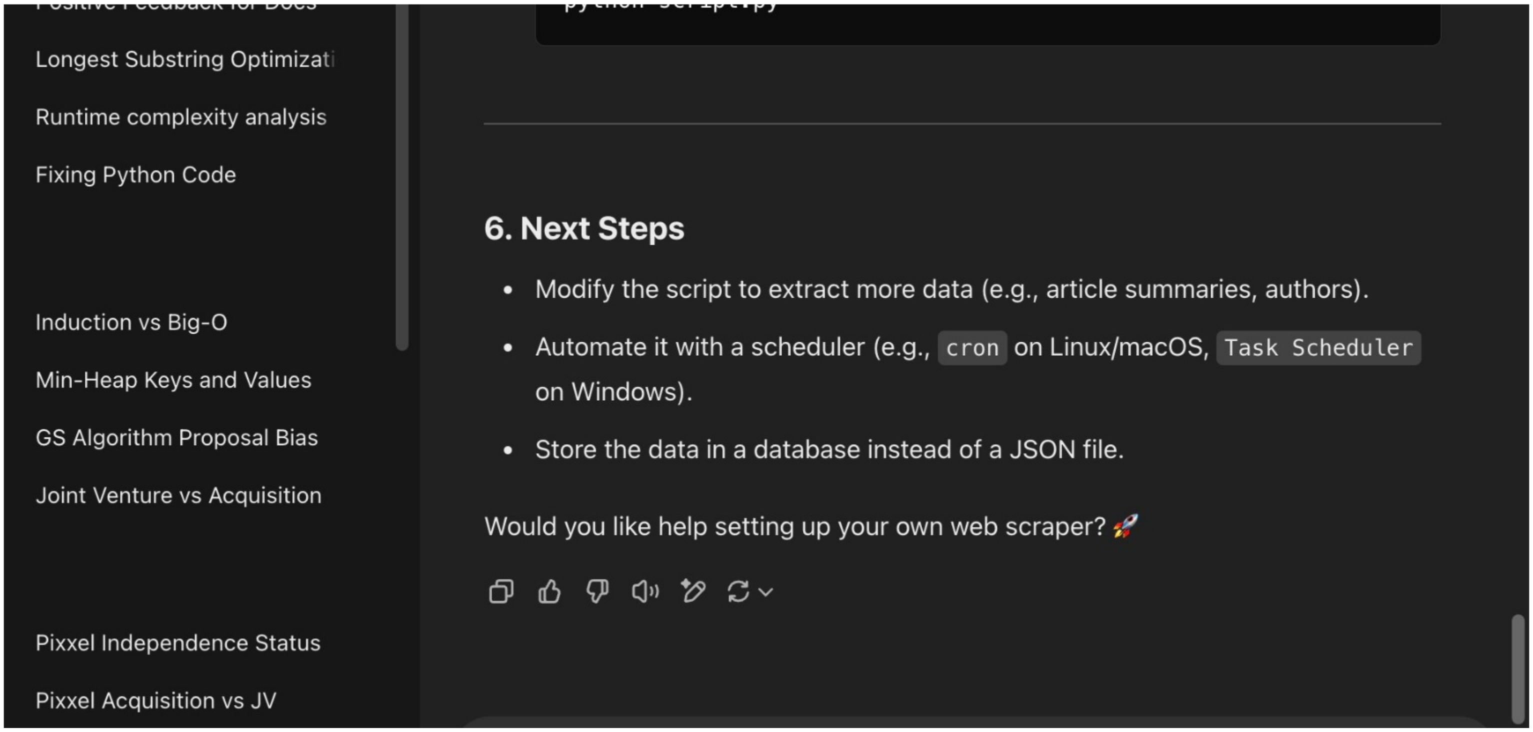
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```
python script.py
```

---

6. Next Steps

- Modify the script to extract more data (e.g., article summaries, authors).
- Automate it with a scheduler (e.g., `cron` on Linux/macOS, `Task Scheduler` on Windows).
- Store the data in a database instead of a JSON file.

Would you like help setting up your own web scraper? 🚀