

Report

Scraping crude oil price and Alert System

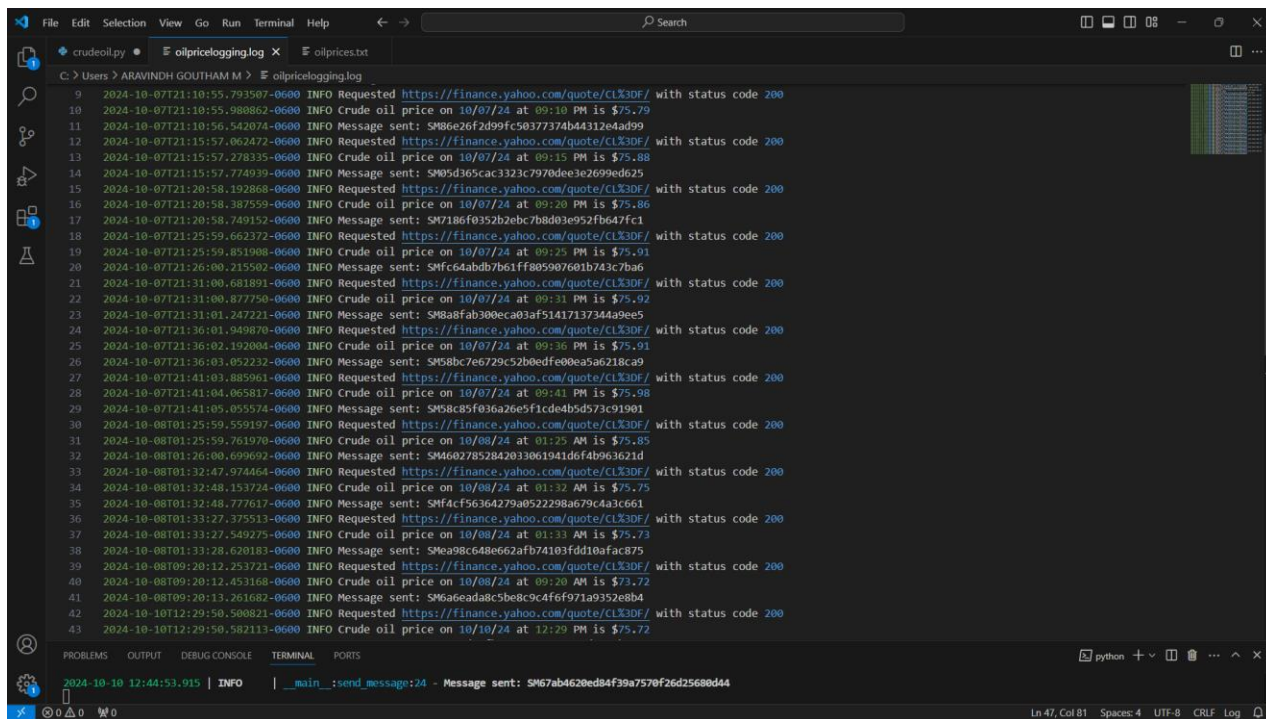
For this project, I developed a Python bot to monitor crude oil prices using web scraping techniques. The website I chose to scrape data from is Yahoo Finance, specifically the crude oil page at <https://finance.yahoo.com/quote/CL%3DF/>. This site offers real-time updates on crude oil prices, which makes it suitable for sending alerts when significant price changes occur. The project utilizes Requests for making HTTP requests, BeautifulSoup for parsing the HTML content of the page, and Twilio for sending SMS alerts.

Bot Workflow and Key Functions

1. **Price Scraping:** The bot retrieves the current crude oil price by making an HTTP request using the `requests.get()` function. The response is processed with BeautifulSoup to extract the price from a specific HTML element, identified by a unique attribute such as `data-field`.
2. **Logging Activity:** Each scrape event is logged, capturing both the request status and the price extracted. This log, maintained using a logging library, ensures comprehensive records of all operations for future reference.
3. **Sending SMS Alerts:** Twilio's API is employed to send SMS alerts with the crude oil price to a designated phone number. The user can supply their Twilio credentials (`account_sid` and `auth_token`) and the recipient's phone number through command-line inputs.
4. **File Recording:** Along with real-time alerts, the bot saves each scraped price to a text file (`oilprices.txt`), providing an ongoing record of price checks for offline analysis.
5. **Error Handling:** To avoid crashes during network failures or scraping issues, the bot implements error handling mechanisms. This ensures that any problems are captured in the logs and the program continues running smoothly.

To avoid overloading the website and ensure compliance with Yahoo Finance's terms, I added a sleep interval between requests. This ensures the bot checks the site no more than once every five minutes by default.

The initial messages indicate errors such as "\$error, request failed" and "\$Price not found," highlighting issues when the data couldn't be retrieved. These errors are handled by logging and notifying the user. However, once the price is successfully fetched, subsequent messages display prices like \$75.79, \$75.88, etc., confirming that the bot is functioning properly and sending alerts as expected.

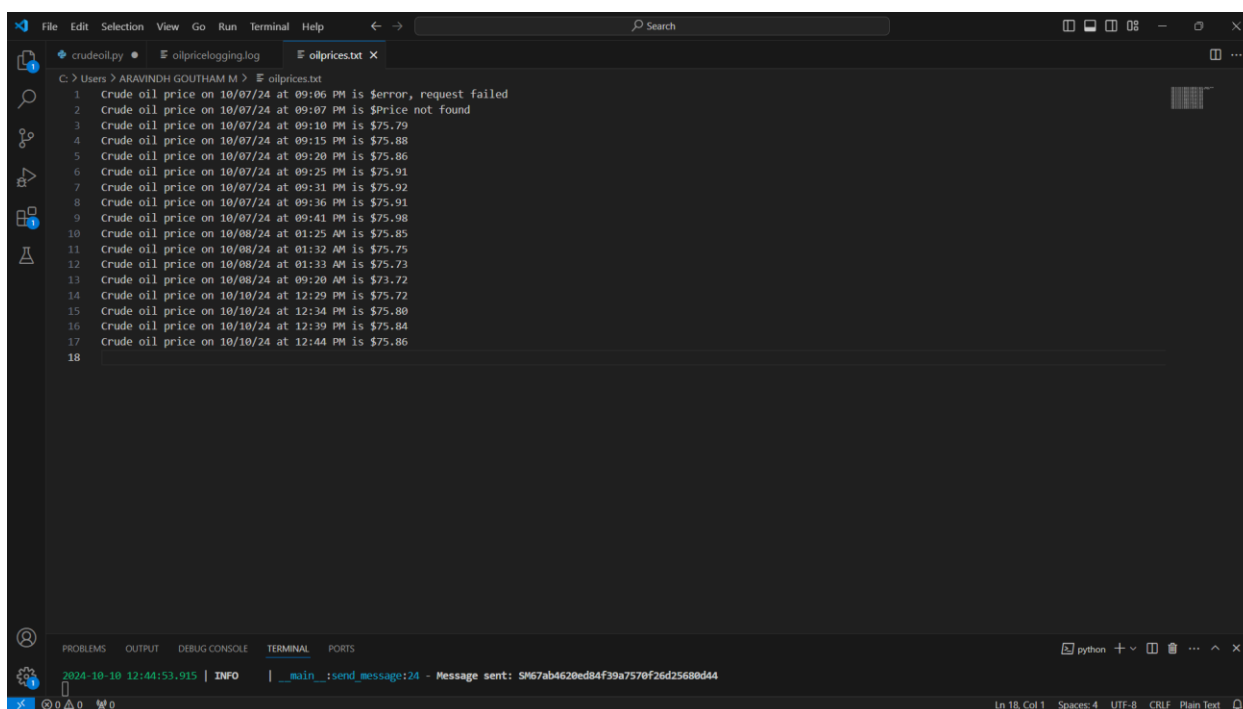


The screenshot shows a VS Code editor with a file named `oilprices.txt` open. The file contains a log of API requests and responses for crude oil prices. The log entries are as follows:

```
9 2024-10-07T21:10:55.793507-0600 INFO Requested https://finance.yahoo.com/quote/CLK3DZF/ with status code 200
10 2024-10-07T21:10:55.980862-0600 INFO Crude oil price on 10/07/24 at 09:10 PM is $75.79
11 2024-10-07T21:10:56.542076-0600 INFO Message sent: SM86c26f2d99fc5b37737ab4312e4d09
12 2024-10-07T21:10:57.062472-0600 INFO Requested https://finance.yahoo.com/quote/CLK3DZF/ with status code 200
13 2024-10-07T21:10:57.278335-0600 INFO Crude oil price on 10/07/24 at 09:15 PM is $75.88
14 2024-10-07T21:10:57.774039-0600 INFO Message sent: SM95d365cac3323c7970dee3e2699ed675
15 2024-10-07T21:20:58.192868-0600 INFO Requested https://finance.yahoo.com/quote/CLK3DZF/ with status code 200
16 2024-10-07T21:20:58.387559-0600 INFO Crude oil price on 10/07/24 at 09:20 PM is $75.86
17 2024-10-07T21:20:58.749132-0600 INFO Message sent: SM7186f0352b2ebc7bd0d0e952fb647fc1
18 2024-10-07T21:25:59.662372-0600 INFO Requested https://finance.yahoo.com/quote/CLK3DZF/ with status code 200
19 2024-10-07T21:25:59.851908-0600 INFO Crude oil price on 10/07/24 at 09:25 PM is $75.91
20 2024-10-07T21:26:00.215502-0600 INFO Message sent: SMfc64abdb7b61ff805907601b743c7ba6
21 2024-10-07T21:31:00.681891-0600 INFO Requested https://finance.yahoo.com/quote/CLK3DZF/ with status code 200
22 2024-10-07T21:31:00.877750-0600 INFO Crude oil price on 10/07/24 at 09:31 PM is $75.92
23 2024-10-07T21:31:01.247221-0600 INFO Message sent: SM8a8fab300eca03af51417137344a9ee5
24 2024-10-07T21:36:01.949870-0600 INFO Requested https://finance.yahoo.com/quote/CLK3DZF/ with status code 200
25 2024-10-07T21:36:02.192001-0600 INFO Crude oil price on 10/07/24 at 09:36 PM is $75.91
26 2024-10-07T21:36:03.052232-0600 INFO Message sent: SM58bc7e6729c52bedfe00ea5a6218ca9
27 2024-10-07T21:41:03.885961-0600 INFO Requested https://finance.yahoo.com/quote/CLK3DZF/ with status code 200
28 2024-10-07T21:41:04.065817-0600 INFO Crude oil price on 10/07/24 at 09:41 PM is $75.98
29 2024-10-07T21:41:05.055574-0600 INFO Message sent: SM58c85f036a26e5f1cde4b5d573c91901
30 2024-10-08T01:25:59.559197-0600 INFO Requested https://finance.yahoo.com/quote/CLK3DZF/ with status code 200
31 2024-10-08T01:25:59.761970-0600 INFO Crude oil price on 10/08/24 at 01:25 AM is $75.85
32 2024-10-08T01:26:00.699692-0600 INFO Message sent: SM4602785284203061941d6f4b963621d
33 2024-10-08T01:32:47.974464-0600 INFO Requested https://finance.yahoo.com/quote/CLK3DZF/ with status code 200
34 2024-10-08T01:32:48.153724-0600 INFO Crude oil price on 10/08/24 at 01:32 AM is $75.75
35 2024-10-08T01:32:48.777617-0600 INFO Message sent: SMf4cf56364279a052298a679c4a3c661
36 2024-10-08T01:33:27.375513-0600 INFO Requested https://finance.yahoo.com/quote/CLK3DZF/ with status code 200
37 2024-10-08T01:33:27.549275-0600 INFO Crude oil price on 10/08/24 at 01:33 AM is $75.73
38 2024-10-08T01:33:28.620183-0600 INFO Message sent: SMea98c648e662afb74103fdd10afac875
39 2024-10-08T09:20:12.253721-0600 INFO Requested https://finance.yahoo.com/quote/CLK3DZF/ with status code 200
40 2024-10-08T09:20:12.453168-0600 INFO Crude oil price on 10/08/24 at 09:20 AM is $73.72
41 2024-10-08T09:20:13.261682-0600 INFO Message sent: SM6a6ead8c5be8c9c4f6f971a9352e8b4
42 2024-10-10T12:29:50.500821-0600 INFO Requested https://finance.yahoo.com/quote/CLK3DZF/ with status code 200
43 2024-10-10T12:29:50.582113-0600 INFO Crude oil price on 10/10/24 at 12:29 PM is $75.72
```

The terminal output shows the following message:

```
2024-10-10 12:44:53.915 | INFO | __main__:send_message:24 - Message sent: SM67ab4620ed84f39a7570f26d25680d44
```



The screenshot shows a VS Code editor with a file named `oilprices.txt` open. The file contains a log of API requests and responses for crude oil prices. The log entries are as follows:

```
1 Crude oil price on 10/07/24 at 09:06 PM is $error, request failed
2 Crude oil price on 10/07/24 at 09:07 PM is $Price not found
3 Crude oil price on 10/07/24 at 09:10 PM is $75.79
4 Crude oil price on 10/07/24 at 09:15 PM is $75.88
5 Crude oil price on 10/07/24 at 09:20 PM is $75.86
6 Crude oil price on 10/07/24 at 09:25 PM is $75.91
7 Crude oil price on 10/07/24 at 09:31 PM is $75.92
8 Crude oil price on 10/07/24 at 09:36 PM is $75.91
9 Crude oil price on 10/07/24 at 09:41 PM is $75.98
10 Crude oil price on 10/08/24 at 01:25 AM is $75.85
11 Crude oil price on 10/08/24 at 01:32 AM is $75.75
12 Crude oil price on 10/08/24 at 01:33 AM is $75.73
13 Crude oil price on 10/08/24 at 09:20 AM is $73.72
14 Crude oil price on 10/10/24 at 12:29 PM is $75.72
15 Crude oil price on 10/10/24 at 12:34 PM is $75.80
16 Crude oil price on 10/10/24 at 12:39 PM is $75.84
17 Crude oil price on 10/10/24 at 12:44 PM is $75.86
18
```

The terminal output shows the following message:

```
2024-10-10 12:44:53.915 | INFO | __main__:send_message:24 - Message sent: SM67ab4620ed84f39a7570f26d25680d44
```



+91 57575109



Sent from your Twilio trial account - Crude oil price on 10/07/24 at 09:06 PM is \$error, request failed

Sent from your Twilio trial account - Crude oil price on 10/07/24 at 09:07 PM is \$Price not found

Sent from your Twilio trial account - Crude oil price on 10/07/24 at 09:10 PM is \$75.79

Sent from your Twilio trial account - Crude oil price on 10/07/24 at 09:15 PM is \$75.88

Sent from your Twilio trial account - Crude oil price on 10/07/24 at 09:20 PM is \$75.86

Sent from your Twilio trial account - Crude oil price on 10/07/24 at 09:25 PM is \$75.91

Sent from your Twilio trial account - Crude oil price on 10/07/24 at 09:31 PM is \$75.92

Sent from your Twilio trial account - Crude oil price on 10/07/24 at 09:36 PM is \$75.91

Sent from your Twilio trial account - Crude oil price on 10/07/24 at 09:41 PM is \$75.98



Text message

