

# Automated Data Summary Script

## Introduction

This documentation provides an overview of an automated script developed in Python to send periodic data summaries to a Slack channel or an email address. The script utilizes Python's data manipulation libraries and Slack's webhooks to generate and deliver monthly trend analysis of COVID-19 deaths from the top 3 states.

## Functionality

The script performs the following tasks:

- Retrieves COVID-19 death data from a dataset.
- Analyses the data to determine the monthly trend analysis of deaths from the top 3 states.
- Sends periodic data summaries to Slack using a predefined webhook URL.
- Ensures the messages are sent at fixed intervals for the months of March, April, May, and June.

## Dependencies

The script requires the following Python packages:

- `time` : used to introduce a time delay or interval between sending messages to Slack.
- `requests`: Used for making HTTP requests to the Slack API.
- `pandas`: Used for data manipulation and analysis.
- `calendar`: Used for retrieving month names.
- `numpy`: Used for numerical calculations.

## Configuration

Before running the script, the user needs to perform the following configurations:

- Set up a Slack account and create a webhook URL to post messages to a desired channel.
- Install the necessary Python packages listed in the dependencies section.
- Ensure the dataset containing COVID-19 state-level data is available and provide the correct file path.

# covid\_data\_analysis

The 'Covid\_data\_analysis.ipynb' notebook provides insights into how the top 3 states' data on COVID-19 deaths is extracted from the original DataFrame. The notebook presents a step-by-step analysis, demonstrating the process of filtering and aggregating the data to determine the states with the highest number of COVID-19 deaths.

## Functions in main.py

### send\_slack\_message(message)

This function sends a message to Slack using the provided webhook URL. It takes a message as input, formats it, and sends a POST request to the webhook URL using the requests library. If the message fails to be sent, an appropriate error message is displayed.

### creating\_and\_sending\_message()

This function generates and sends periodic messages to Slack. It performs the following tasks:

1. Reads the COVID-19 state-level data from the dataset.
2. Filters the data for the months of March, April, May, and June.
3. Calculates the monthly trend analysis by summing the deaths and selecting the top 3 states for each month.
4. Calculates the percentage of total deaths for each state in a specific month.
5. Constructs a message string for each month, including the month name, top 3 states, number of deaths, and percentage of total deaths.
6. Sends the message to Slack using the send\_slack\_message function.
7. Waits for a fixed interval of 2 minutes before sending the next message.

## Execution

To run the script and send periodic data summaries:

1. Make sure the required Python packages are installed.
2. Update the WEBHOOK\_URL variable with the appropriate Slack webhook URL.
3. Provide the correct file path of the COVID-19 state-level data in the pd.read\_excel() function.
4. Execute the creating\_and\_sending\_message() function.

- The script will generate and send four messages, each containing the monthly trend analysis of COVID-19 deaths from the top 3 states for the months of March, April, May, and June.

## Result

Search avengers

# monthly\_trendsof-top3states

added an integration to this channel: trends\_from\_coviddata

Today

trends\_from\_coviddata APP 7:55 PM

Month - March

New York - 7943, 0.39%

Washington - 2377, 0.12%

New Jersey - 1165, 0.06%

7:57 Month - April

New York - 425198, 0.43%

New Jersey - 102708, 0.1%

Michigan - 59519, 0.06%

Month - May

New York - 854088, 0.32%

New Jersey - 308935, 0.11%

Massachusetts - 170827, 0.06%

vinith 8:01 PM

okay

trends\_from\_coviddata APP 8:02 PM

Month - June

Message #monthly\_trendsof-top3states

Search avengers

# monthly\_trendsof-top3states

+ Add a bookmark

Today

Month - April

New York - 425198, 0.43%

New Jersey - 102708, 0.1%

Michigan - 59519, 0.06%

7:59 Month - May

New York - 854088, 0.32%

New Jersey - 308935, 0.11%

Massachusetts - 170827, 0.06%

vinith 8:01 PM

okay

trends\_from\_coviddata APP 8:02 PM

Month - June

New York - 918476, 0.26%

New Jersey - 388821, 0.11%

Massachusetts - 228975, 0.07%

Message #monthly\_trendsof-top3states

## Conclusion

The automated script described in this documentation simplifies the process of generating and delivering periodic data summaries to a Slack channel or an email address. By utilising Python's data manipulation capabilities and Slack's webhooks, the script provides a convenient solution for monitoring important metrics, such as the monthly trend analysis of COVID-19 deaths from the top 3 states.