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CIS 9760

Project 03 – Streaming Finance Data with AWS Lambda

The goal of this project is to provision a Lambda function to generate near real-time finance data records via yfinance for interactive querying.

There are three main parts to this project:

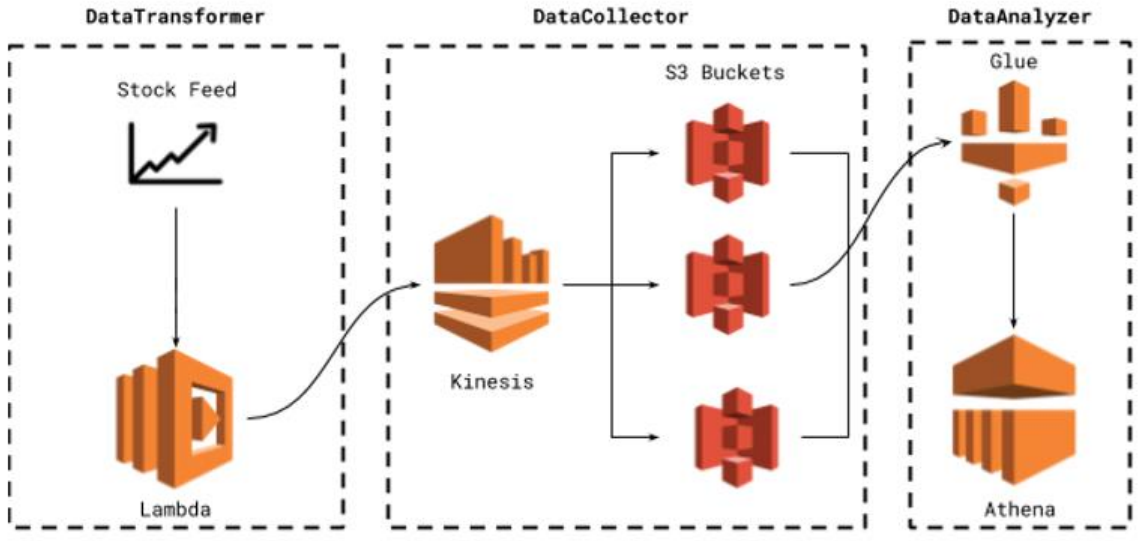
1. Setting up the infrastructure.
2. Collecting the data.
3. Performing data analysis.

The infrastructure has four components:

1. A DataTransformer which will be a Lambda function that gathers our data.
2. A DataCollector which will be a Kinesis stream that will hold our data.
3. A DataAnalyzer that will be a serverless process that will allow us to query our S3 data. Wee will be using AWS Athena.
4. A means of doing DataVisualization. We will be using Jupyter Notebook.

Basically, we will pull data from yfinance via the Lambda function and store it in our Kinesis stream. We will then use AWS Athena to run queries on this data. We will then download this data as a CSV file and then create visualizations and conduct analysis using tools such as Matplotlib, Numpy, Pandas, and Seaborn.

Below is an image of the infrastructure:




We will be pulling pricing information about the following stocks from yfinance:

- Facebook (FB)

- Shopify (SHOP)
- Beyond Meat (BYND)
- Netflix (NFLX)
- Pinterest (PINS)
- Square (SQ)
- The Trade Desk (TTD)
- Okta (OKTA)
- Snap (SNAP)
- Datadog (DDOG)

We will be getting the high and low price for a full day as well as timestamps and storing the data in the following format:


{

"high": 67.5,

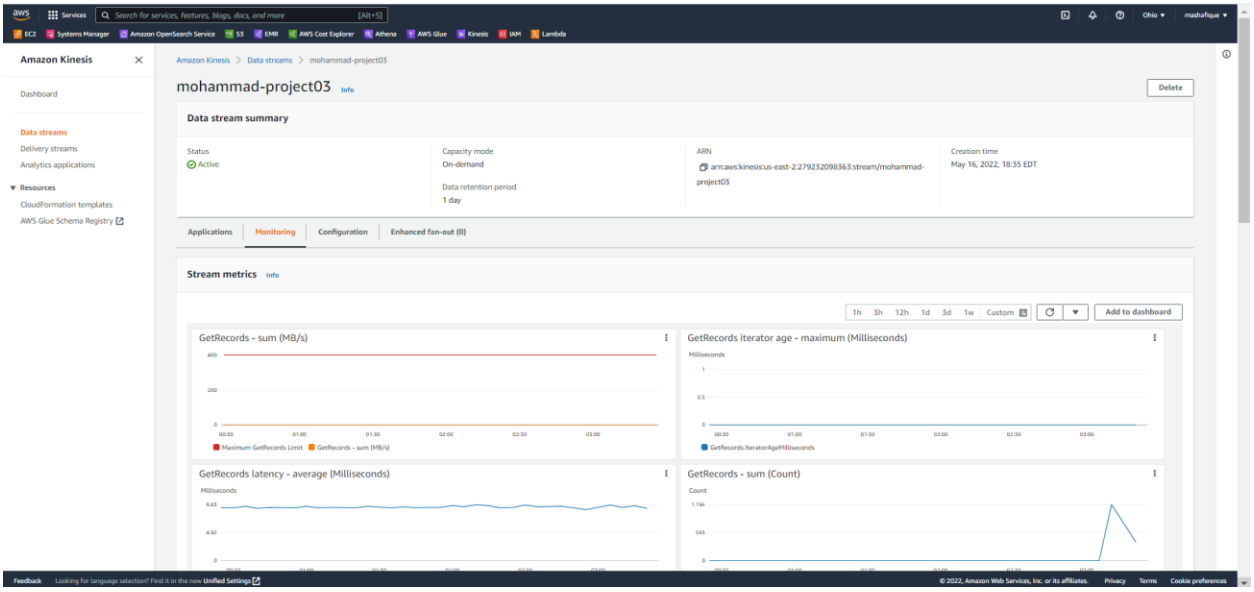
"low": 64.61,

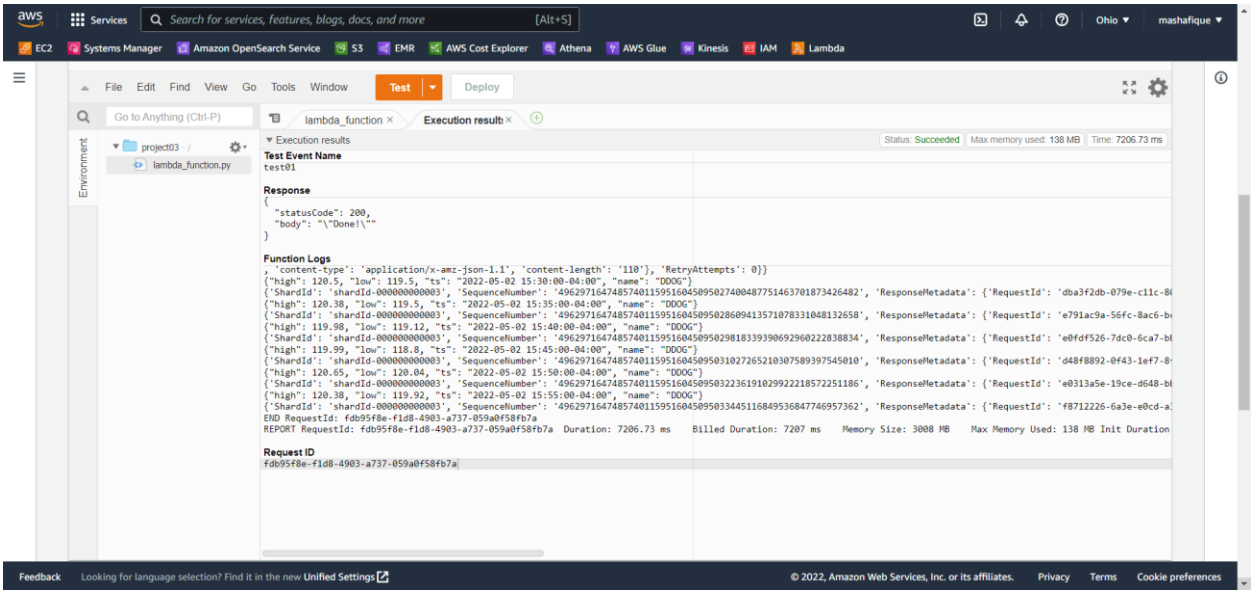
"ts": "2020-05-13 09:30:00-04:00",

"name": "DDOG"

}


Below are images of the AWS Kinesis configuration page and Execution Results in AWS Lambda Management Console for reference:




aws
Services
Search for services, features, blogs, docs, and more
[Alt+S]
Ohio
mashafique
EC2
Systems Manager
Amazon OpenSearch Service
S3
EMR
AWS Cost Explorer
Athena
AWS Glue
Kinesis
IAM
Lambda
File Edit Find View Go Tools Window
Test
Deploy
Go to Anything (Ctrl-P)
lambda_function
Execution result
Environment
project03
lambda_function.py
Execution results
Status: Succeeded
Max memory used: 138 MB
Time: 7206.73 ms
Test Event Name
test01
Response
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"statusCode": 200,
"body": "\"Done!\""
}
Function Logs
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Request ID
fdb95f8e-f1d8-4903-a737-059a0f58fb7a
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