Deploy Flask Application on AWS EC2

02th January 2024

OVERVIEW

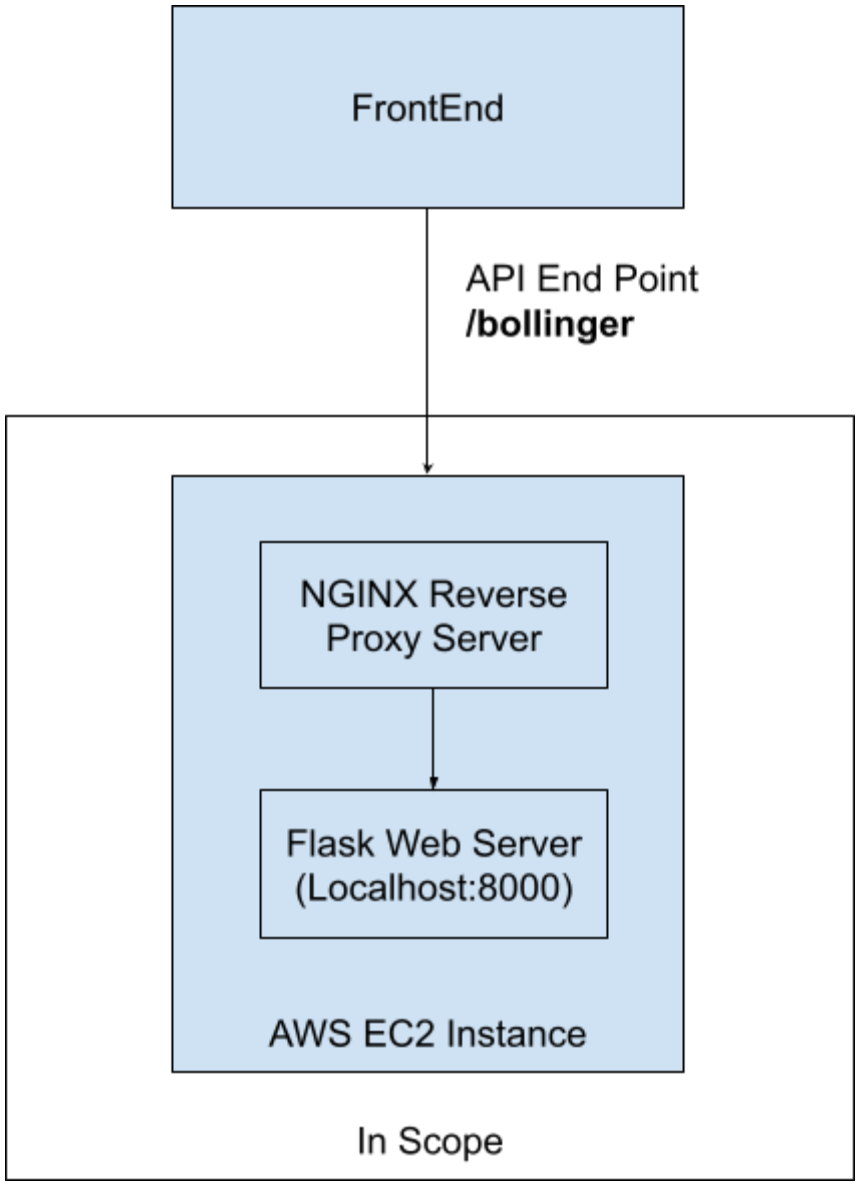
Deploy Flask application to AWS EC2, this is considered as first milestone to create stock indicator application on Flask

GOALS

1. Deploy test Flask Application with Bollinger Formula on AWS EC2
2. Expose API Endpoint /bollinger to the internet to be used by Frontend team in order to consume in order to build the bollinger chart

Deliverables Details

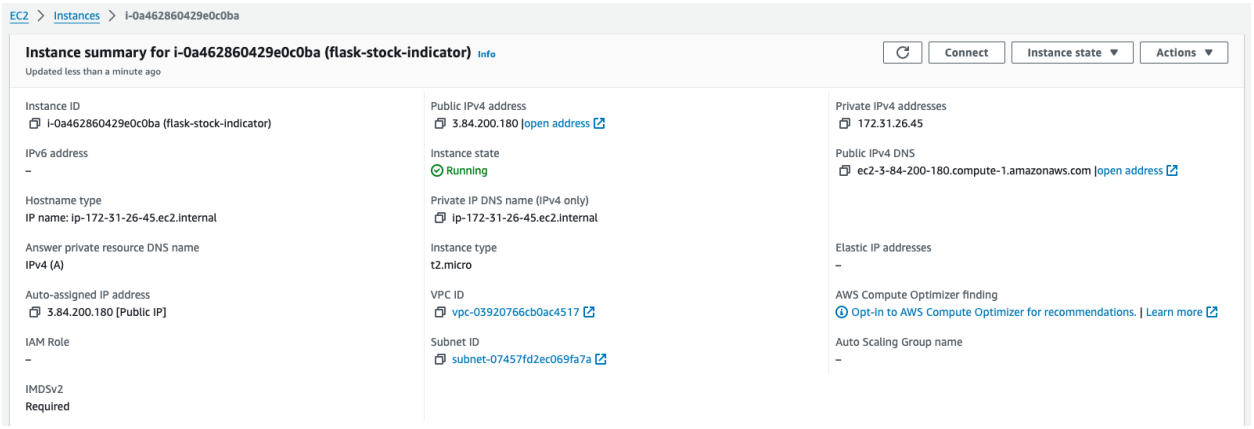
Below diagram show the deliverable architecture



EC Instance Details

EC2 instance is created in N.Virginia Region with the below mentioned details and IP:

IP: 3.84.200.180



Code is deployed in the below path:

/home/ubuntu/flask-stock-indicator-render

Below are the details of the Code:

-rw-rw-r-- 1 ubuntu ubuntu 509 Dec 20 18:49 requirements.txt

-rw-rw-r-- 1 ubuntu ubuntu 1574 Dec 20 18:49 app.py

-rw-rw-r-- 1 ubuntu ubuntu 347 Dec 20 18:49 README.md

-rw-rw-r-- 1 ubuntu ubuntu 1074 Dec 20 18:49 LICENSE

drwxrwxr-x 5 ubuntu ubuntu 4096 Dec 20 18:49 venv

drwxrwxr-x 2 ubuntu ubuntu 4096 Dec 20 18:51 __pycache__

Instructions to Frontend Team

API Description

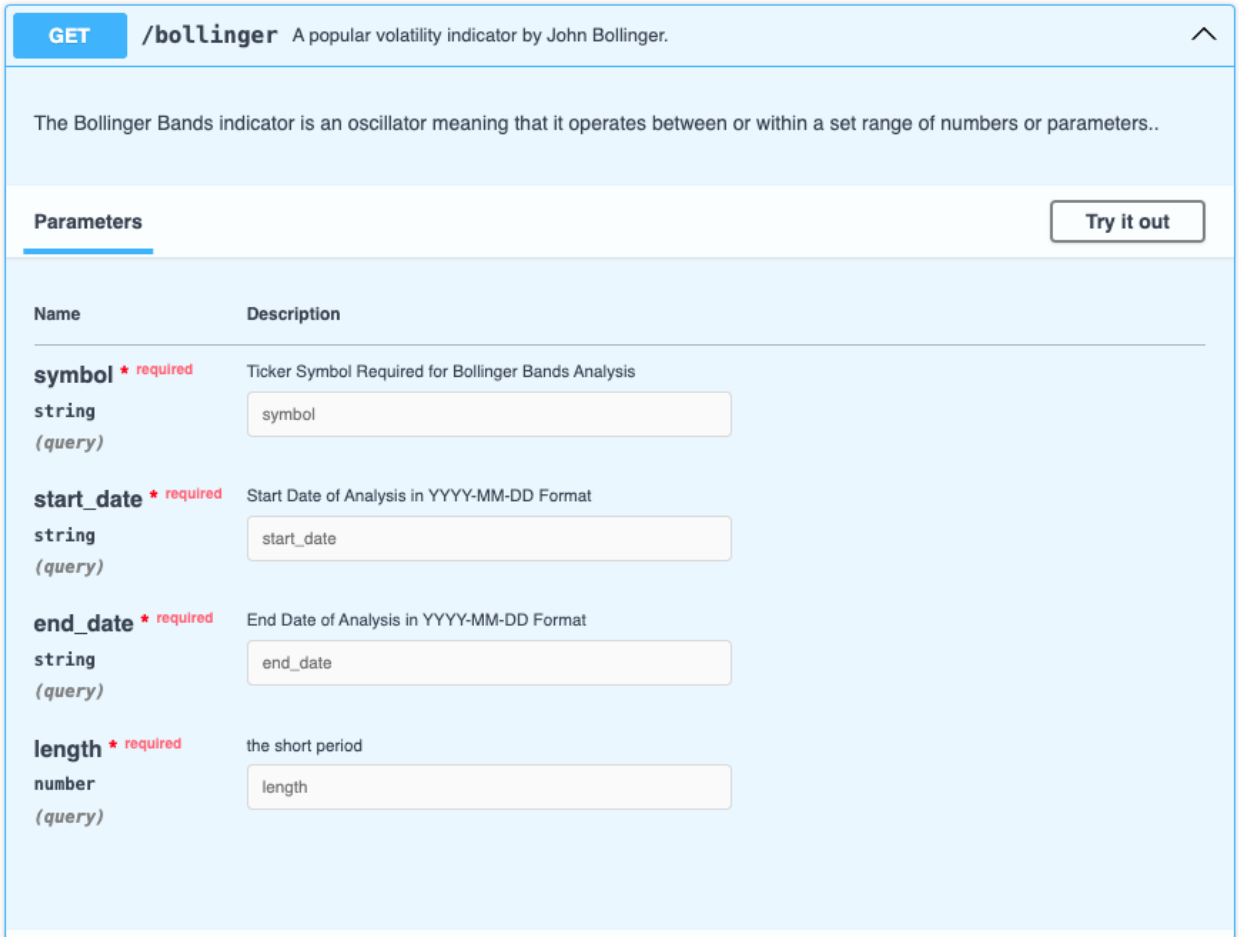
Stock Indicator Analysis Open API 0.0.1 OAS 3.0

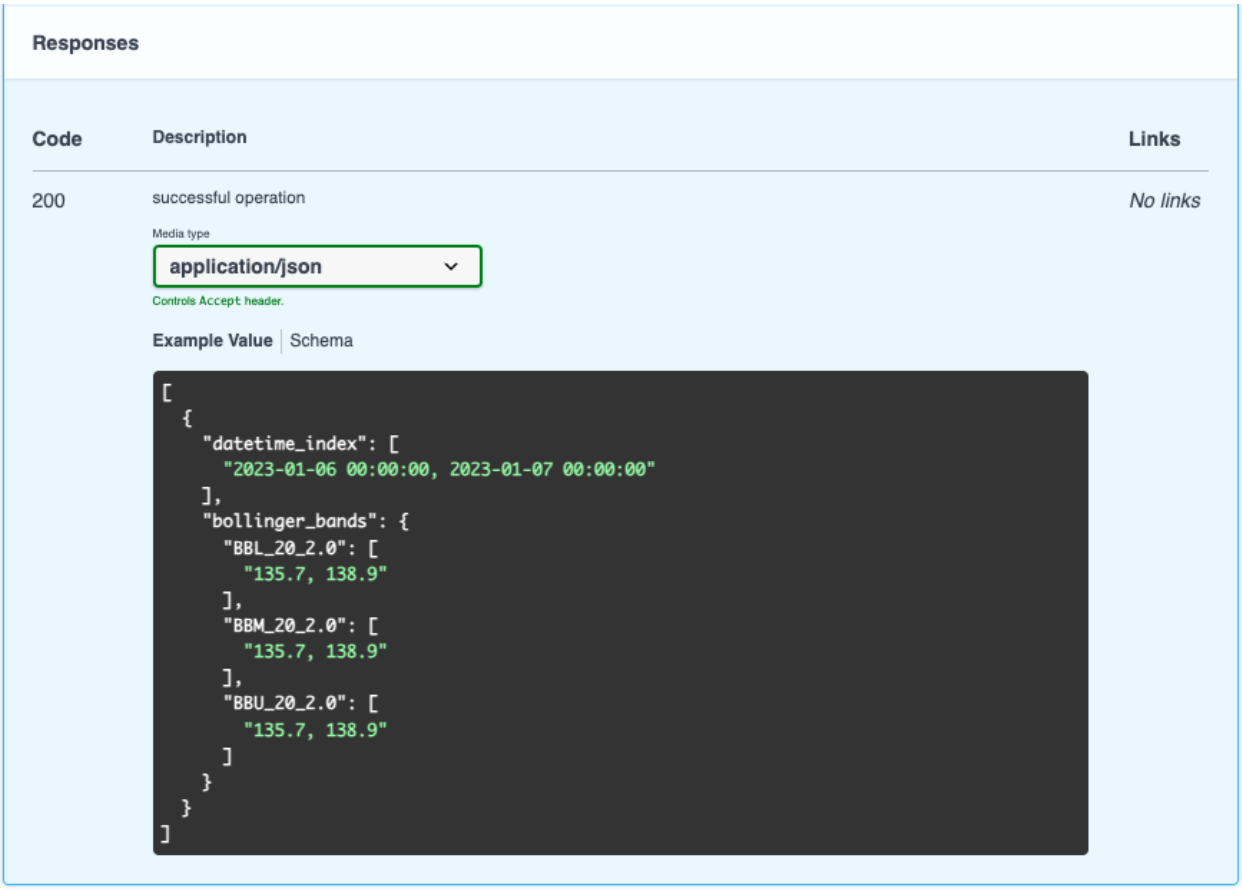
Stock Indicator Analysis API is used to get various stock indicator results based on the test required to be performed The API is to be consumed by the frontend team to display the charts required for the stock analysis and indicators

Servers

http://3.84.200.180/

Bollinger Bollinger Bands consist of a band of three lines which are plotted in relation to security prices. The line in the middle is usually a Simple Moving Average (SMA) set to a period of 20 days (The type of trend line and period can be changed by the trader; however a 20 day moving average is by far the most popular). The SMA then serves as a base for the Upper and Lower Bands. The Upper and Lower Bands are used as a way to measure volatility by observing the relationship between the Bands and price.


GET
/bollinger
A popular volatility indicator by John Bollinger.
The Bollinger Bands indicator is an oscillator meaning that it operates between or within a set range of numbers or parameters..
Parameters
Try it out
Name
Description
symbol * required
string
(query)
Ticker Symbol Required for Bollinger Bands Analysis
symbol
start_date * required
string
(query)
Start Date of Analysis in YYYY-MM-DD Format
start_date
end_date * required
string
(query)
End Date of Analysis in YYYY-MM-DD Format
end_date
length * required
number
(query)
the short period
length



Sample from Production environment:

URL:

http://3.84.200.180/bollinger?symbol=AAPL&start_date=2023-01-01&end_date=2023-02-01&length=20

Response:


```
{"bollinger_bands":{"BBL_20_2.0":[NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,122.84327823800098,124.19226229344662,124.9647615434922,125.99338475855767,126.8946534705796,127.70128635103782,129.07309076682668,130.23166919047537,131.63815154054112,132.83143521947747,134.09277746881645,135.65969747729457,137.70688576201968,139.46248064946514,140.54502082908812,141.44257215326044,142.64696851035575,143.15212909219744,143.4453631654598,144.37520805916265,144.62020189552305,144.72430726823148,144.73333166970016,144.77782419335065,144.77564595494854,144.87814101481558,144.8441986902527,144.66095880820873,144.6404953173875,144.70505621472822,144.71543579082004,144.64420741692993,144.53044153682842,144.0770370522866,143.70256100535363,143.6927107828767,143.63403889955836,143.98454793726523,144.48771612739543,145.2406339245932,146.44095499900317,147.61763800323493,147.55843671134525,147.19299594947347,147.4480751596195,147.85644414199547,
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148.75306073255587,150.50860616744453,152.00682652609348,153.12532644778287,154.21873953480568,154.84779641607864,155.841054596566,156.3345282055761,156.49074800146,157.13104302709078,157.7107317093193,158.10679934921964,158.96477134710568,160.19012939946418,160.53189310625157,160.50481829142137],"BBM_20_2.0":[NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,135.77899932861328,136.79699897766113,138.0199993133545,139.49399948120117,140.59949951171876,141.82449951171876,142.88399963378907,143.75299911499025,144.63299865722655,145.58749923706054,146.45049896240235,147.4564987182617,148.37849884033204,149.11249923706055,149.48099899291992,149.79999923706055,150.1769989013672,150.3144989013672,150.41399917602538,150.63449935913087,150.6854995727539,150.70950012207032,150.71999969482422,150.68649978637694,150.68000030517578,150.59100036621095,150.5245002746582,150.40600051879883,150.37900085449218,150.31600036621094,150.30550079345704,150.33150100708008,150.39600067138673,150.63850021362305,151.17850036621093,151.6245002746582,152.10100021362305,152.7779998779297,153.29599990844727,153.80799942016603,154.58099975585938,155.40349960327148,156.09699935913085,156.7139991760254,157.41549911499024,157.95999908447266,158.6634994506836,159.33999938964843,159.85649948120118,160.23199996948242,160.8604995727539,161.3284996032715,161.83999938964843,162.2934997558594,162.71100006103515,163.15199966430663,163.4565002441406,163.71050033569335,163.98500061035156,164.29050064086914,164.67250061035156,165.03850021362305],"BBU_20_2.0":[NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,NaN,148.71472041922559,149.40173566187565,151.0752370832168,152.9946142038447,154.30434555285794,155.9477126723997,156.69490850075147,157.27432903950512,157.627845773912,158.3435632546436,158.80822045598825,159.25329995922885,159.0501119186444,158.76251782465596,158.41697715675173,158.15742632086065,157.70702929237865,157.47686871053693,157.38263518659096,156.8937906590991,156.75079724998477,156.69469297590916,156.70666771994829,156.59517537940323,156.58435465540302,156.30385971760631,156.2048018590637,156.15104222938893,156.11750639159686,155.92694451769367,155.89556579609405,156.01879459723023,156.26155980594504,157.19996337495948,158.65443972706822,159.5562897664397,160.56796152768774,161.57145181859414,162.1042836894991,162.37536491573886,162.72104445127156,163.18936120330804,164.63556200691644,166.23500240257732,167.382923070361,168.06355402694984,168.5739381688113,168.17139261185233,167.7061724363089,167.33867349118196,167.5022596107021,167.80920279046435,167.83894418273084,168.25247130614267,168.9312521206103,169.17295630152248,169.20226877896192,169.31420132216707,169.00522987359744,168.3908718822741,168.81310811445155,169.57218213582473]},"datetime_index":["2023-01-03 00:00:00","2023-01-04 00:00:00","2023-01-05 00:00:00","2023-01-06 00:00:00","2023-01-09 00:00:00","2023-01-10 00:00:00","2023-01-11 00:00:00","2023-01-12 00:00:00","2023-01-13 00:00:00","2023-01-17 00:00:00","2023-01-18 00:00:00","2023-01-19 00:00:00","2023-01-20 00:00:00","2023-01-23 00:00:00","2023-01-24 00:00:00","2023-01-25 00:00:00","2023-01-26 00:00:00","2023-01-27 00:00:00","2023-01-30

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00:00:00","2023-02-03 00:00:00","2023-02-06 00:00:00","2023-02-07
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00:00:00","2023-04-27 00:00:00","2023-04-28 00:00:00"]}
```


BBL Refer to the Lower Band

BBM Refer to the Middle Band

BBU Refer to the Upper Band

Frontend team should parse the API and draw the chart for the Lower/Middle/Upper Bands based on the provided time index

Below example of the graph to be plotted