**Ashvin Patel 11/13/23**

**Highlights of the project with below concepts in mind**

* Web API calls
* Encryption (Hashing)
* Object Oriented programming
* Use of Python Libraries (matplotlib, json, etc.
* Build modules, class, inheritance,
* Automated tools for documentation: pydoc
* Github for version control and collaboration
* Future expansion of this project:
  + Stock Analyzer more service methods and classes
  + Build Personal Portfolio and pull the automated generation of email alerts
  + Pandas

**ALPHA Vantage web-site:** <https://www.alphavantage.co/#about>

**Usage:**

* Alpha Vantage provides real-time and historical financial market data through a set of powerful and developer-friendly data APIs and spreadsheets. From traditional asset classes (e.g., stocks, ETFs, mutual funds) to economic indicators, from foreign exchange rates to commodities, from fundamental data to technical indicators, Alpha Vantage is your one-stop-shop for enterprise-grade global market data delivered through cloud-based APIs, Excel, and Google Sheets. Refer to <https://www.alphavantage.co/documentation> for Core Stock APIs

**Alphavantage:**

**Requirements to use alphavantage.com services:**

* API key: [Alpha Vantage Stock API ©](https://www.alphavantage.co/) requires you to register and use an API Key to validate your request. Provide email address and it generates 16-digit key.

**Project Demo:**

1. API keys are just like your passwords, hence applied hashing to my API Key for accessing <https://www.alphavantage.com> services. Using ‘bcrypt’

from <https://www.makeuseof.com/encrypt-password-in-python-bcrypt>

More reading on why use ‘bcrypt’: <https://nordvpn.com/blog/what-is-bcrypt>

1. How I applied hashing (encrypting), API key, <https://github.com/ashvinnj/alphavantage/blob/main/README.md>
   1. <https://github.com/ashvinnj/alphavantage>
      1. <https://github.com/ashvinnj/alphavantage/blob/main/README.md>
      2. <https://github.com/ashvinnj/alphavantage/blob/main/encrypt_alphavantage_apikey_using_bcrypt.py>
      3. <https://github.com/ashvinnj/alphavantage/blob/main/alphavantage_apikey_validate.py>

**alphavantage\_service**

**Alpha vantage API service utility:**

Python API for Alpha Vantage. The Alpha vantage service is relatively easy to use, but it still requires that you remember how the data is structured and to write the necessary JSON or CSV parsing code. If you plan to access the service frequently from a Python program, it’s best to write module of functions class of methods to make access convenient. My goal is to apply web API calls, learn all aspects of object-oriented programming and apply extensive libraries available to use in Python

1. <https://github.com/ashvinnj/alphavantage_service/blob/main/README.md>
2. <https://github.com/ashvinnj/alphavantage_service/blob/main/AlphavantagePrice.py>
3. <https://github.com/ashvinnj/alphavantage_service/blob/main/alphavantage_service.py>
4. Class Documentation (Note explored to use ‘pydoc -w AlphavantagePrice’ (in future explore: https://www.sphinx-doc.org/)
   1. <file://c:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html>
   2. <File://c:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\alphavantage_service.html>

**Execution:**

(base) c:\Users\ashvi\Documents\NYU\_Python\python\_data\_apy\session\_03\_working\_files\inclass\_exercises\alphavantage\_service>python alphavantage\_service.py

Enter Ticker Symbol: notme

Enter value in minutes for time interval [1, 5, 30, 60]: 60

Error: No valid data found in the response for ticket symbol: NOTME

(base) c:\Users\ashvi\Documents\NYU\_Python\python\_data\_apy\session\_03\_working\_files\inclass\_exercises\alphavantage\_service> python alphavantage\_service.py

Enter Ticker Symbol: ibm

Enter value in minutes for time interval [1, 5, 30, 60]: 30

------------------------------------------------------------------

symbol: IBM

last refreshed: 2023-11-07 15:30:00

interval: 30min

-- daily stats --

open: 149.12

low: 148.65

high: 149.27

close: 148.84

volume: 534,549

------------------------------------------------------------------

-- Stock Price Information: --

symbol: IBM

last\_refreshed: 2023-11-07 15:30:00

interval: 30min

open: 149.12

low: 148.65

high: 149.27

close: 148.84

volume: 534,549

open\_series: ['149.1200', '148.9000', '148.7600', '148.7200', '148.7000']

close\_series: ['148.8400', '149.1200', '148.8830', '148.7700', '148.7200']

volume\_series: ['534549', '275221', '148567', '119436', '233844']

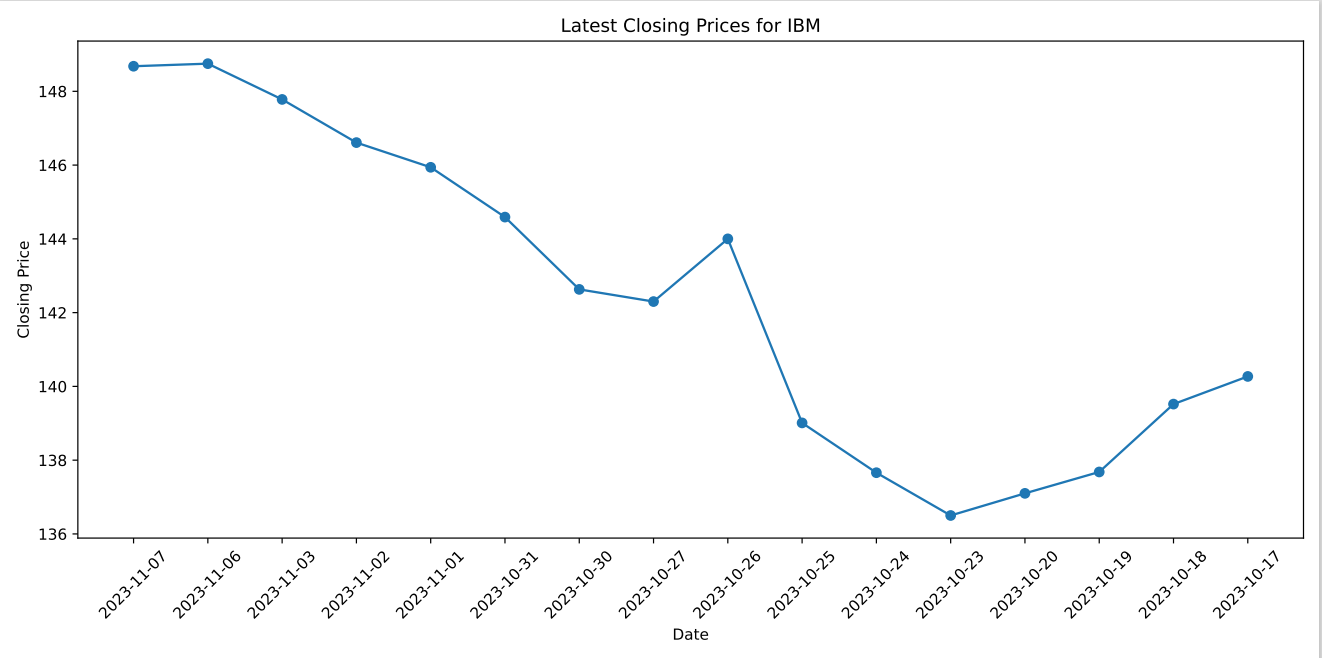
------------------------------------------------------------------

-- Stock Data Analyzer --

Average Closing Price for the last 16 days: 142.44

Highest volume of stock for ibm, volume: 14,730,706 on date: 2023-10-26

Plot saved as IBM\_latest\_closing\_prices.pdf



|  |  |  |
| --- | --- | --- |
| **Classes** | | |
|  |  | [builtins.object](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\builtins.html#object)  [Price](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#Price)  [PriceExtended](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#PriceExtended)  [StockDataAnalyzer](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#StockDataAnalyzer)   |  |  |  | | --- | --- | --- | | class **Price**([builtins.object](file:///C:\\Users\\ashvi\\Documents\\NYU_Python\\python_data_apy\\session_03_working_files\\inclass_exercises\\alphavantage_service\\builtins.html" \l "object)) | | | |  | [Price](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#Price)(in\_symbol, minutes, apikey)   build instance of a [Price](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#Price) class | | |  | Methods defined here:  **\_\_init\_\_**(self, in\_symbol, minutes, apikey)  Initialize self.  See help(type(self)) for accurate signature.  **close**(self)  **download\_data**(self)  connect with Apivantage service and reteive Json for given ticker symbol  **get\_data\_for\_last\_refreshed**(self)  get data from timeseries tag for the interval specified  **get\_data\_for\_timestamp**(self, timestamp)  Get data for a specific timestamp from the time series data.  **get\_interval**(self)  retrieved the delta of APIservice call  **get\_json**(self)  helper method to review json data retrieved and for debugging  **get\_last\_refreshed**(self)  date and time when service was consulted  **get\_metadata**(self)  retrieve metadata from Json  **get\_symbol**(self)  stock symbol of interest  **get\_timestamps**(self)  Get timestamps from the time series data.  **high**(self)  stock's highest price for the day  **low**(self)  stock's lowest price for the day  **open**(self)  stock open price  **series**(self, parameter)  retrieve historical series data for a given attribute (parameter)  **volume**(self)  retrieve volume data  Data descriptors defined here:  **\_\_dict\_\_**  dictionary for instance variables (if defined)  **\_\_weakref\_\_**  list of weak references to the object (if defined) |  |  |  |  | | --- | --- | --- | | class **PriceExtended**([Price](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#Price)) | | | |  | [PriceExtended](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#PriceExtended)(symbol, interval, api\_key) | | |  | Method resolution order:  [PriceExtended](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#PriceExtended)  [Price](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#Price)  [builtins.object](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\builtins.html#object)  Methods defined here:  **\_\_init\_\_**(self, symbol, interval, api\_key)  Initialize self.  See help(type(self)) for accurate signature.  **get\_price\_info**(self)  Get detailed price information  Methods inherited from [Price](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#Price):  **close**(self)  **download\_data**(self)  connect with Apivantage service and reteive Json for given ticker symbol  **get\_data\_for\_last\_refreshed**(self)  get data from timeseries tag for the interval specified  **get\_data\_for\_timestamp**(self, timestamp)  Get data for a specific timestamp from the time series data.  **get\_interval**(self)  retrieved the delta of APIservice call  **get\_json**(self)  helper method to review json data retrieved and for debugging  **get\_last\_refreshed**(self)  date and time when service was consulted  **get\_metadata**(self)  retrieve metadata from Json  **get\_symbol**(self)  stock symbol of interest  **get\_timestamps**(self)  Get timestamps from the time series data.  **high**(self)  stock's highest price for the day  **low**(self)  stock's lowest price for the day  **open**(self)  stock open price  **series**(self, parameter)  retrieve historical series data for a given attribute (parameter)  **volume**(self)  retrieve volume data  Data descriptors inherited from [Price](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#Price):  **\_\_dict\_\_**  dictionary for instance variables (if defined)  **\_\_weakref\_\_**  list of weak references to the object (if defined) |  |  |  |  | | --- | --- | --- | | class **StockDataAnalyzer**([Price](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#Price)) | | | |  | [StockDataAnalyzer](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#StockDataAnalyzer)(symbol, interval, api\_key) | | |  | Method resolution order:  [StockDataAnalyzer](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#StockDataAnalyzer)  [Price](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#Price)  [builtins.object](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\builtins.html#object)  Methods defined here:  **\_\_init\_\_**(self, symbol, interval, api\_key)  Initialize self.  See help(type(self)) for accurate signature.  **average\_closing\_price**(self)  Calculate the average closing price for the last 'xx' days.  Methods inherited from [Price](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#Price):  **close**(self)  **download\_data**(self)  connect with Apivantage service and reteive Json for given ticker symbol  **get\_data\_for\_last\_refreshed**(self)  get data from timeseries tag for the interval specified  **get\_data\_for\_timestamp**(self, timestamp)  Get data for a specific timestamp from the time series data.  **get\_interval**(self)  retrieved the delta of APIservice call  **get\_json**(self)  helper method to review json data retrieved and for debugging  **get\_last\_refreshed**(self)  date and time when service was consulted  **get\_metadata**(self)  retrieve metadata from Json  **get\_symbol**(self)  stock symbol of interest  **get\_timestamps**(self)  Get timestamps from the time series data.  **high**(self)  stock's highest price for the day  **low**(self)  stock's lowest price for the day  **open**(self)  stock open price  **series**(self, parameter)  retrieve historical series data for a given attribute (parameter)  **volume**(self)  retrieve volume data  Data descriptors inherited from [Price](file:///C:\Users\ashvi\Documents\NYU_Python\python_data_apy\session_03_working_files\inclass_exercises\alphavantage_service\AlphavantagePrice.html#Price):  **\_\_dict\_\_**  dictionary for instance variables (if defined)  **\_\_weakref\_\_**  list of weak references to the object (if defined) | |

(base) c:\Users\ashvi\Documents\NYU\_Python\python\_data\_apy\session\_03\_working\_files\inclass\_exercises\alphavantage\_service>py alphavantage\_service.py

Enter Ticker Symbol: xxx

Enter value in minutes for time interval [1, 5, 30, 60]: 30

Error: No valid data found in the response.

(base) c:\Users\ashvi\Documents\NYU\_Python\python\_data\_apy\session\_03\_working\_files\inclass\_exercises\alphavantage\_service>py alphavantage\_service.py

Enter Ticker Symbol: ms

Enter value in minutes for time interval [1, 5, 30, 60]: 5

------------------------------------------------------------------

symbol: MS

last refreshed: 2023-11-06 15:55:00

interval: 5min

-- daily stats --

open: 75.82

low: 75.81

high: 75.95

close: 75.94

volume: 457,435

------------------------------------------------------------------

-- Stock Price Information: --

symbol: MS

last\_refreshed: 2023-11-06 15:55:00

interval: 5min

open: 75.82

low: 75.81

high: 75.95

close: 75.94

volume: 457,435

open\_series: ['75.8200', '75.8600', '75.7650', '75.7100', '75.7500']

close\_series: ['75.9400', '75.8100', '75.8550', '75.7650', '75.7200']

volume\_series: ['457435', '187769', '129401', '119691', '105263']

------------------------------------------------------------------

-- Stock Data Analyzer --

Average Closing Price for the last 16 days: 72.89

Highest volume of stock for ms, volume: 45,315,084 on date: 2023-10-18

Plot saved as MS\_latest\_closing\_prices.pdf

(base) c:\Users\ashvi\Documents\NYU\_Python\python\_data\_apy\session\_03\_working\_files\inclass\_exercises\alphavantage\_service>

'''  
sample .json data for convenience only displayed here later will take it out  
{  
 "Meta Data": {  
 "1. Information": "Intraday (30min) open, high, low, close prices and volume",  
 "2. Symbol": "IBM",  
 "3. Last Refreshed": "2023-11-03 19:30:00",  
 "4. Interval": "30min",  
 "5. Output Size": "Full size",  
 "6. Time Zone": "US/Eastern"  
 },  
 "Time Series (30min)": {  
 "2023-11-03 19:30:00": {  
 "1. open": "147.7800",  
 "2. high": "147.7800",  
 "3. low": "147.7800",  
 "4. close": "147.7800",  
 "5. volume": "75"  
 },  
 "2023-11-03 19:00:00": {  
 "1. open": "147.9000",  
 "2. high": "148.0000",  
 "3. low": "147.7800",  
 "4. close": "147.8900",  
 "5. volume": "387981"  
 }  
 }  
}

Top of Form

Bottom of Form

Inserted suggestion opportunity with you

Conversation opened. 1 read message.

[Skip to content](https://mail.google.com/mail/u/0/)  
[Using Gmail with screen readers](https://mail.google.com/mail/u/0/)

[](https://mail.google.com/mail/u/0/#inbox)

Top of Form

## Search

|  |  |
| --- | --- |
| |  | | --- | |  | |

Bottom of Form

[[](https://accounts.google.com/SignOutOptions?hl=en&continue=https://mail.google.com/mail/data&service=mail&ec=GBRAFw)](https://accounts.google.com/SignOutOptions?hl=en&continue=https://mail.google.com/mail/data&service=mail&ec=GBRAFw)

Compose

## Labels

[Inbox](https://mail.google.com/mail/u/0/#inbox)

[Starred](https://mail.google.com/mail/u/0/#starred)

[Snoozed](https://mail.google.com/mail/u/0/#snoozed)

[Important](https://mail.google.com/mail/u/0/#imp)

[Chats](https://mail.google.com/mail/u/0/#chats)

[Sent](https://mail.google.com/mail/u/0/#sent)

[**Drafts**](https://mail.google.com/mail/u/0/#drafts)

1

[All Mail](https://mail.google.com/mail/u/0/#all)

[**Spam**](https://mail.google.com/mail/u/0/#spam)

170

[Trash](https://mail.google.com/mail/u/0/#trash)

[**Categories**](https://mail.google.com/mail/u/0/)

More

Labels

## Labels

[[Imap]/Drafts](https://mail.google.com/mail/u/0/#label/%5BImap%5D/Drafts)

[0 Ameritrade](https://mail.google.com/mail/u/0/#label/0+Ameritrade)

[0 Career](https://mail.google.com/mail/u/0/#label/0+Career)

[**0 Marcus**](https://mail.google.com/mail/u/0/#label/0+Marcus)

57

[0 NaagP](https://mail.google.com/mail/u/0/#label/0+NaagP)

[00 SRS (Broker)](https://mail.google.com/mail/u/0/#label/00+SRS+%28Broker%29)

[**17 woodfield**](https://mail.google.com/mail/u/0/#label/17+woodfield)

7

[**17 woodfield Mortgage**](https://mail.google.com/mail/u/0/#label/17+woodfield+Mortgage)

1

[**36 Keith Ct**](https://mail.google.com/mail/u/0/#label/36+Keith+Ct)

20

[**42 Potomac**](https://mail.google.com/mail/u/0/#label/42+Potomac)

1

[2019\_Anuj\_Tax](https://mail.google.com/mail/u/0/#label/2019_Anuj_Tax)

[A and S Patel LLC](https://mail.google.com/mail/u/0/#label/A+and+S+Patel+LLC)

[Abhishek](https://mail.google.com/mail/u/0/#label/Abhishek)

[address change](https://mail.google.com/mail/u/0/#label/address+change)

[**Amazon**](https://mail.google.com/mail/u/0/#label/Amazon)

1

[American Express Personal Savings](https://mail.google.com/mail/u/0/#label/American+Express+Personal+Savings)

[Anuj Health Insurance](https://mail.google.com/mail/u/0/#label/Anuj+Health+Insurance)

[Anuj Wedding](https://mail.google.com/mail/u/0/#label/Anuj+Wedding)

[Apple computer](https://mail.google.com/mail/u/0/#label/Apple+computer)

[Appple Crap](https://mail.google.com/mail/u/0/#label/Appple+Crap)

[**Aptive**](https://mail.google.com/mail/u/0/#label/Aptive)

1

[Banana Republic](https://mail.google.com/mail/u/0/#label/Banana+Republic)

[Bhumi Wedding](https://mail.google.com/mail/u/0/#label/Bhumi+Wedding)

[Blood Reports](https://mail.google.com/mail/u/0/#label/Blood+Reports)

[Blue Grass](https://mail.google.com/mail/u/0/#label/Blue+Grass)

[BOB's Furniture](https://mail.google.com/mail/u/0/#label/BOB%27s+Furniture)

[Boris Generator](https://mail.google.com/mail/u/0/#label/Boris+Generator)

[Codecademy](https://mail.google.com/mail/u/0/#label/Codecademy)

[cognixia](https://mail.google.com/mail/u/0/#label/cognixia)

[Corbin Electric Generator Boris](https://mail.google.com/mail/u/0/#label/Corbin+Electric+Generator+Boris)

[Cornell](https://mail.google.com/mail/u/0/#label/Cornell)

[**Costco**](https://mail.google.com/mail/u/0/#label/Costco)

12

[Costco Warranty](https://mail.google.com/mail/u/0/#label/Costco+Warranty)

[**Covid Vaccine**](https://mail.google.com/mail/u/0/#label/Covid+Vaccine)

1

[**CreditFreeze**](https://mail.google.com/mail/u/0/#label/CreditFreeze)

3

[**CSC**](https://mail.google.com/mail/u/0/#label/CSC)

43

[**CSCHR**](https://mail.google.com/mail/u/0/#label/CSCHR)

3

[**CVS**](https://mail.google.com/mail/u/0/#label/CVS)

1

[Daniel](https://mail.google.com/mail/u/0/#label/Daniel)

[**Dr. Leonard's**](https://mail.google.com/mail/u/0/#label/Dr.+Leonard%27s)

3

[dropbox](https://mail.google.com/mail/u/0/#label/dropbox)

[**edureka**](https://mail.google.com/mail/u/0/#label/edureka)

2

[**Empower**](https://mail.google.com/mail/u/0/#label/Empower)

5

[EmpowerRetirement](https://mail.google.com/mail/u/0/#label/EmpowerRetirement)

[EMS](https://mail.google.com/mail/u/0/#label/EMS)

[Expedia](https://mail.google.com/mail/u/0/#label/Expedia)

[**Fi.com**](https://mail.google.com/mail/u/0/#label/Fi.com)

3

[Fidelity](https://mail.google.com/mail/u/0/#label/Fidelity)

[Fisher Investments](https://mail.google.com/mail/u/0/#label/Fisher+Investments)

[Fisker](https://mail.google.com/mail/u/0/#label/Fisker)

[Franklin Township](https://mail.google.com/mail/u/0/#label/Franklin+Township)

[GAF\_Roof\_Warranty](https://mail.google.com/mail/u/0/#label/GAF_Roof_Warranty)

[**GENERAC**](https://mail.google.com/mail/u/0/#label/GENERAC)

1

[GitHub](https://mail.google.com/mail/u/0/#label/GitHub)

[**Global Entry**](https://mail.google.com/mail/u/0/#label/Global+Entry)

1

[goodhomes2](https://mail.google.com/mail/u/0/#label/goodhomes2)

[googlejobalerts](https://mail.google.com/mail/u/0/#label/googlejobalerts)

[Health Records](https://mail.google.com/mail/u/0/#label/Health+Records)

[healthybenefits paymnets](https://mail.google.com/mail/u/0/#label/healthybenefits+paymnets)

[HelloFresh](https://mail.google.com/mail/u/0/#label/HelloFresh)

[**HomeDepot**](https://mail.google.com/mail/u/0/#label/HomeDepot)

4

[HondaCR-V](https://mail.google.com/mail/u/0/#label/HondaCR-V)

[**Iceland**](https://mail.google.com/mail/u/0/#label/Iceland)

1

[Incubator](https://mail.google.com/mail/u/0/#label/Incubator)

[**Intellipaat**](https://mail.google.com/mail/u/0/#label/Intellipaat)

1

[InterviewKickstart](https://mail.google.com/mail/u/0/#label/InterviewKickstart)

[Jingeshkumar](https://mail.google.com/mail/u/0/#label/Jingeshkumar)

[Jobleads](https://mail.google.com/mail/u/0/#label/Jobleads)

[**Jobscan**](https://mail.google.com/mail/u/0/#label/Jobscan)

2

[**JobSearchApplications**](https://mail.google.com/mail/u/0/#label/JobSearchApplications)

9

[jobsearchdenials](https://mail.google.com/mail/u/0/#label/jobsearchdenials)

[JobSearcher Resumes](https://mail.google.com/mail/u/0/#label/JobSearcher+Resumes)

[JSON](https://mail.google.com/mail/u/0/#label/JSON)

[**Kamlaben**](https://mail.google.com/mail/u/0/#label/Kamlaben)

3

[LastPass](https://mail.google.com/mail/u/0/#label/LastPass)

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We use Zoom for our interviews (download it [here](http://email.mail.thedataincubator.com/c/eJwczEFOxSAQANDTwLKZgU-BBQs3vYaZD6Pw04Ip05p4eqMHeK8k8AFL1pxwjSG64KzXNXkbMgBldD7Q05WPTC4yMiETR151SwaMRQRjwDnrF0BY0UQ0EWIMNqgHHNT2RSoXEmo9X0-ScS55HHpPVeRrKvumzKbM9jPGsVxTme01Wtdnolnv1vtLPeDzv_lTkuSkPilLG512Lal14fNu_P0-c-Vy7Vx-AwAA__-nc0IQ)). [**This is your link to join**](http://email.mail.thedataincubator.com/c/eJwcztFKwzAUANCvSR_LvTfJkjzkQRxFFBkKDnySuySumW060myDfb3oF5wTPRiLMXTJ48ZZp62Wphu9cozBKkqATjsVUzQHHYAYMX1vDqrLnoAkIhCB1tL0gLBBckgOnLPSCgUz56lvY4rcOJdwOXBbah-WuZv82Np5FfJB0CBoOFc-ztxymLn-pJbLsb8vy9xfVkHDSdDg0GglrVbGCDmcb1HI7evT9LbbPtML4Dvjvu4fXf3EYbv7mK7xDq6rntfxmks5CQXH_80f3nyrXFYOLS-Fp675XFqq15xuX2sYU7xMKf4GAAD__yZ7Vvs)**.** You can also find this link on your [Application Dashboard](http://email.mail.thedataincubator.com/c/eJxszbFuwyAQgOGngdGCAwcYGLr4NaILhwsVxpY5J69fpV2z_78-isp5TUnmqG_Bh9nPxskSnU3GW0p5tTMRBosEliBl7wDXB8gaQYHRWgGoeTZuUlrdNAQNQYXgjRdWbVjbxCUTMtaergfyfk5p32SLhfkYwnwJWAQseBwfQwHLmlvbX6PU479rNSHXvd8HI19jKrw1eUYc5Vl7_xFWff-5b4Yjn9gHpveATXKsnfP5rPl1H6lkulqm3wAAAP__XVZVXA).  **Your interview is scheduled for Monday, 13 November 2023, at 10:20 Eastern**.  This interview is the opportunity for you to shine. You are here to discuss the following prompts:   1. We want to hear about a project you worked on. This could be a research project, a school project, a project from work, or a personal project. Tell us about the results, but we're definitely interested in hearing about how the entire project was organized and the role you played in it. Can you think and communicate about the project beyond the nuts and bolts of data analysis and technical details? 2. You'll be asked to walk us through code that you're proud of writing.    1. This code can be related to any past project you've worked on and can be entirely unrelated to the project you decided to talk about in the previous point.    2. In case you do not have any past project code handy, but you opted into taking the technical challenge of the application, you can show the code you've written to solve the coding challenge.    3. If you don't have any past project code or the coding challenge code, feel free to write solution code to any of the first ten questions from [Project Euler](http://email.mail.thedataincubator.com/c/eJwczEFyrCAQANDTwNKCblBYsPgbr_GrhTYw5eAUtub6qeQCrySzBFuy5mTnGKIPHhddE-PmGN2OmTwXh2EGz3nb9y2gW5h1S2AArTUAxntcJmPNbCFaiCbGgEE586Z2TFK5kFDr-d5IzjHl862PVEU-l8J_ClYF62ecL87C98Fj6iwKVhq5tocvPRJd9Wm9v5QzX3_mLyFJBvWLsrSz06EltS48nsbf_69cudwHl58AAAD__1GaR24).    4. This code can be in any language. We are not looking for volume - 20 lines of code is good, but 50 is too much. Try not to pick something overly complicated; your task will be to explain it to us, so the more complicated the code the more difficult you will make the interview for yourself. We're interested in your coding skills, and would prefer code that has structure (for example: loops or functions or classes) rather than a sequence of calls to a package like pandas.    5. You will be asked to screen-share your code with us but ensure the code is available online in case of technical difficulties. Any hosting service is fine (please check that we don't need special permissions to view it). If your code is not currently hosted on the web, we would recommend creating a secret [Gist](http://email.mail.thedataincubator.com/c/eJwczDFuxCAQQNHTQGkNwxqYgiKNrxGNARsiL47MeHP9aLf--i9H8MHkpEs0jgLNYbZe18ib5XUj450LmSglBktYcHYlbH41ukUEtMYAIsyz9RMYcAbJIAFRsEE94MntmKSWzMKtp3tlOa8pnU99xCryO5T9UrgoXPY2ZNqb1Ht9d4WLviKP-mq9_6gH7B_qfUqUi_vgJO3sfGiJrUu5Xq38fY9US76Pkv8DAAD__14HQt4).   **Put your best foot forward. You've got this!**  In the meantime, we have some great tips to help you stand out. Take a peek at our top best practices to nail your interview:   1. **Have a clear business objective in mind.** We want to know what makes you tick, so it's important to share the who/what/when/where/why and how of you and your work. We also want to hear more about the business implications of your projects. 2. **Practice makes perfect.** Practice sharing your story in advance - in a mirror, to a friend - even recording yourself giving your pitch can help you perfect it. This process helps to make you a coherent and confident speaker. Don't read off a paper and have a clear structure to your presentation. 3. **Active listening is key.** Answer the questions being asked of you openly and honestly. It's alright to ask for a moment to consider the question carefully so you can respond clearly and concisely. 4. **Take a deep breath!** No, we're not joking. It's proven that deep breathing helps to soothe nerves so you come off calm and collected – a vital part of interviewing.   Need some additional help or have questions before the interview? We're here to help set you up for success, so [schedule a chat with our admissions team](http://email.mail.thedataincubator.com/c/eJwczTFywyAQQNHTQIcHFstAQZHG18isYR3wYMiglZTcPqMUv_rFy1E7b3KSFM0t-LD4xTpZ4hOeFLJ5WOMSeMwekjUGtKdsnb5dZY2gwRqjAfSyWHfRRt8MBANBh-CtF1f9xtouXCgjY-1peyCPeUnjLVsszN-rsB8C7gLuCRv13H7PKeCezx7zpXb3c5y7IKujclGoOFdFfY7W3tRZpbH1ldqYckZcy157f4mr_vq3T4ojT-wrJq6jY5Mca2eae6Xjc02F8tYo_wUAAP__N2RUSw).  Good luck and see you soon!  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