



**API Mania!**

**FinTech**  
**Lesson 5.2**



# Installation for Module 6 - PyViz

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- Please sign up for [Quandl](#) and [Plaid](#)
- Please install Alpaca before next class
  - Instructions can be found [here](#)
- Please install PyViz before we start Module 6 on June 30
  - Instructions can be found [here](#)

**NOTE:** Please sign up for free developer accounts. You should not have to pay for signing up for these services.

# Class Objectives

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By the end of today's class, you will be able to:



Register for an API key and use it to fetch authenticated requests using the requests library



Set/export environment variables in Windows and Mac, and retrieve them in Python.



Explain the difference between an API and a SDK.



Set authentication for the Plaid SDK.



Use a Python SDK to fetch data from Plaid.



Use SDKs to analyze personal financial data.



Retrieve historical stock information using the Quandl API.

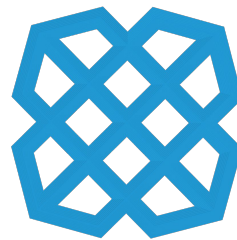
# The Rise of APIs

# APIs in FinTech

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A variety of FinTech APIs allow users to create and execute analytic pipelines on various forms of financial data.

Because APIs often offer practical services, they may require subscriptions or payment.



**PLAID**



**Alpaca**

# Canadian Regulations for FinTech

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- The Personal Information Protection and Electronic Documents Act (PIPEDA)
- Canada's Anti-Money Laundering and Anti-Terrorist Financing Regime (AML/CT)
- Canadian Securities Administrators (CSA) Staff Notice 46-308 about Securities Law Implications for Offerings of Tokens



# API Keys

# API Keys

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API keys are like the keys to a house or car: they're needed to get access to resources.

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A key must be provided with every request for an API that requires one.





# API Keys

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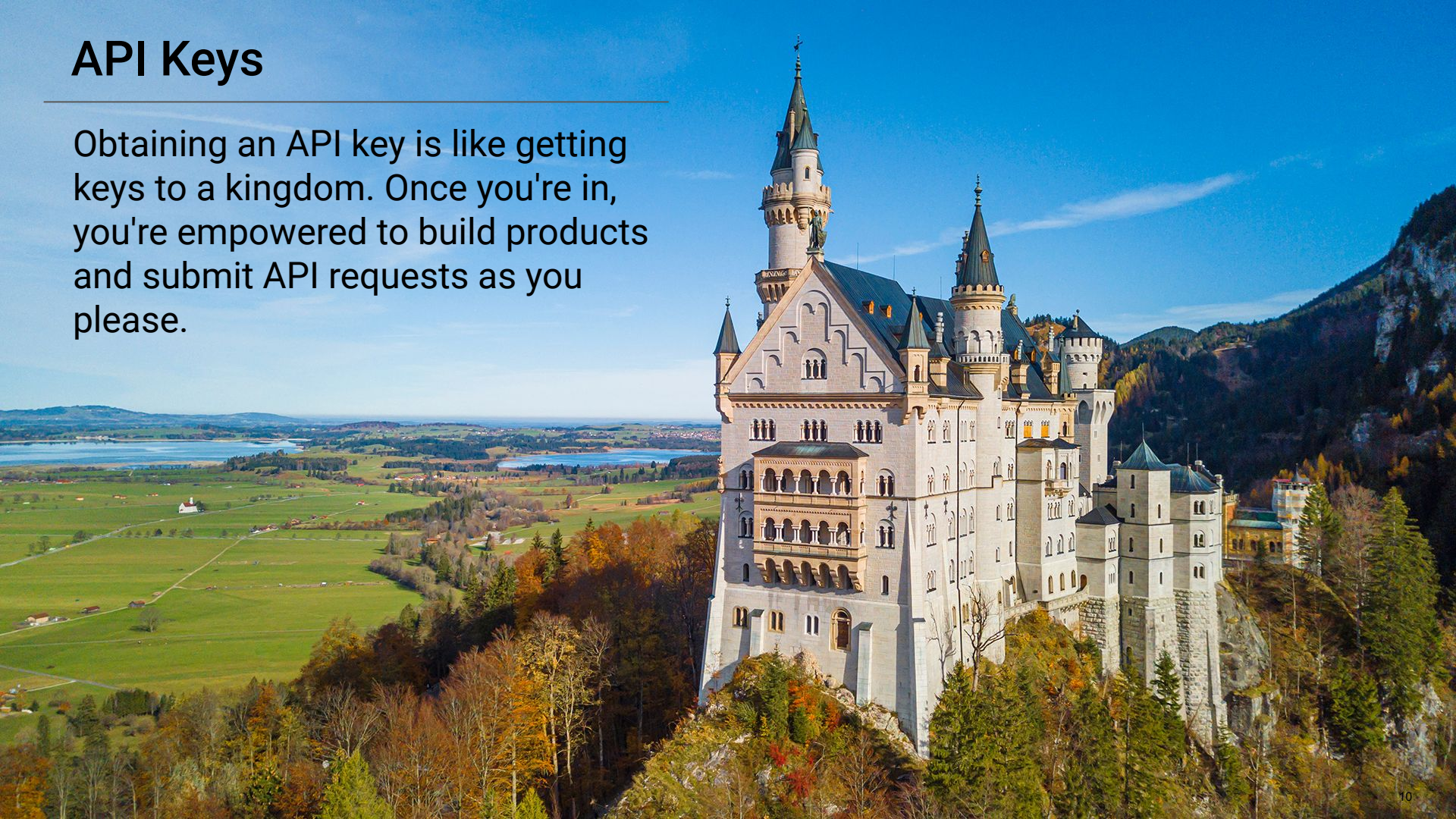
Companies use API keys to secure data and monitor traffic. Using keys in this manner allows companies to limit and block requests as needed.



# API Keys

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Obtaining an API key is like getting keys to a kingdom. Once you're in, you're empowered to build products and submit API requests as you please.



# Environment Variables



# Environment Variables

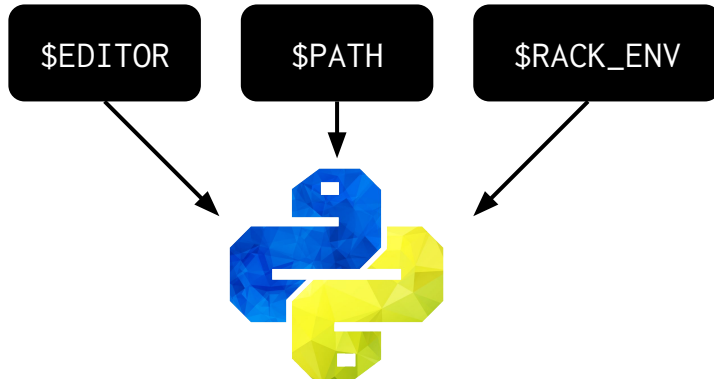
API keys are accessed when stored as environment variables.

## Environment Variables

Child process gets copies of parent's environment variables



Terminal



## Local Variables



Child process doesn't get any copies of local variables



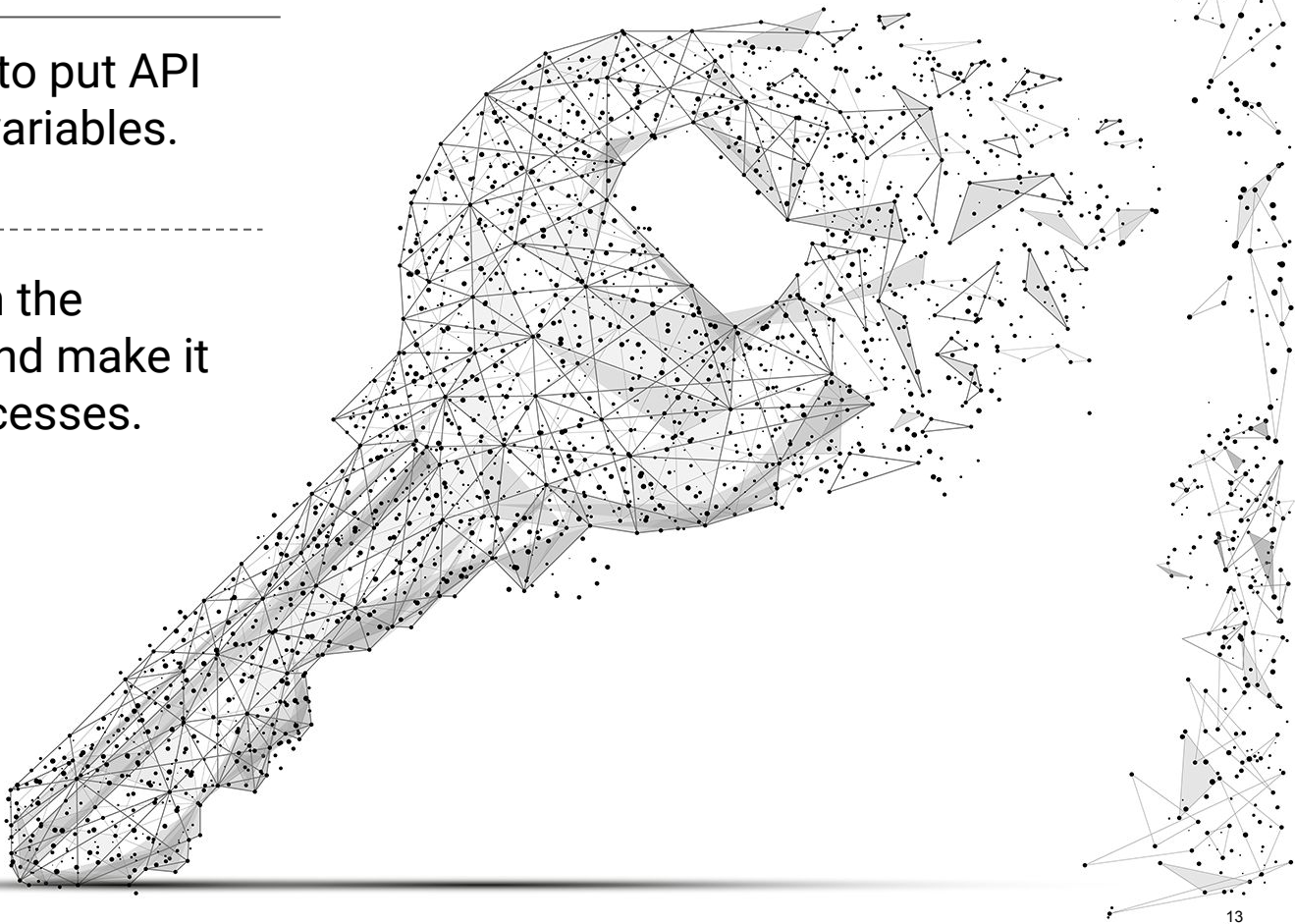
# Environment Variables

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A `.env` file can be used to put API keys into environment variables.

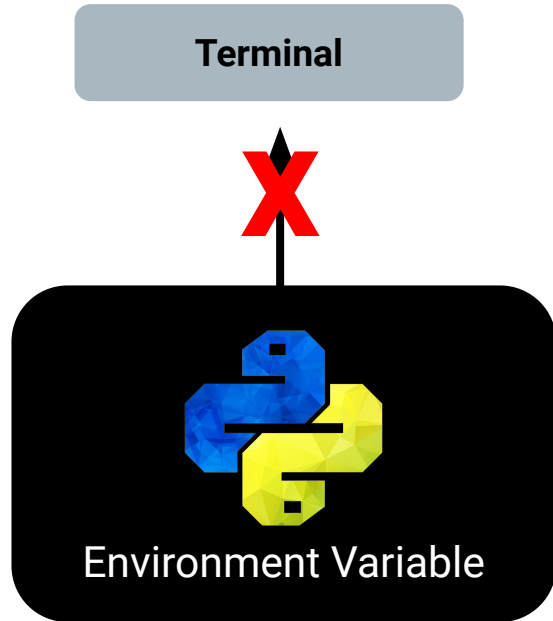
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The `.env` file will contain the environment variable, and make it accessible by child processes.

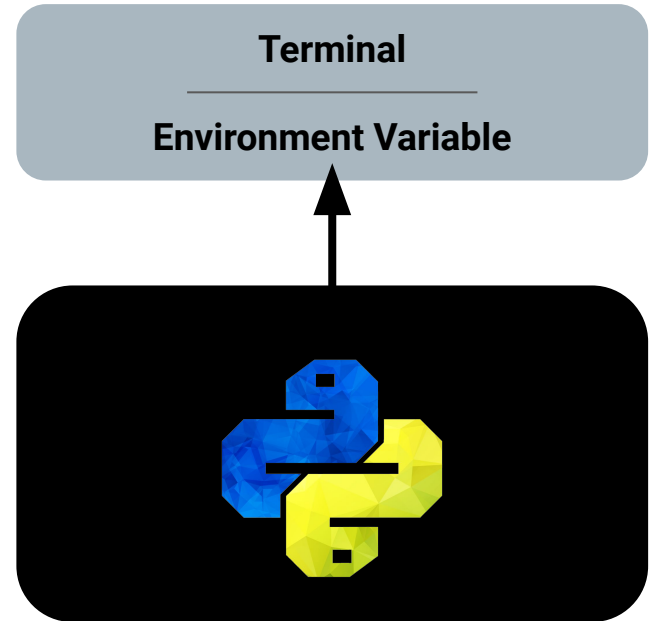


# Environment Variables

An environment variable created in Python **cannot** be accessed by a terminal.



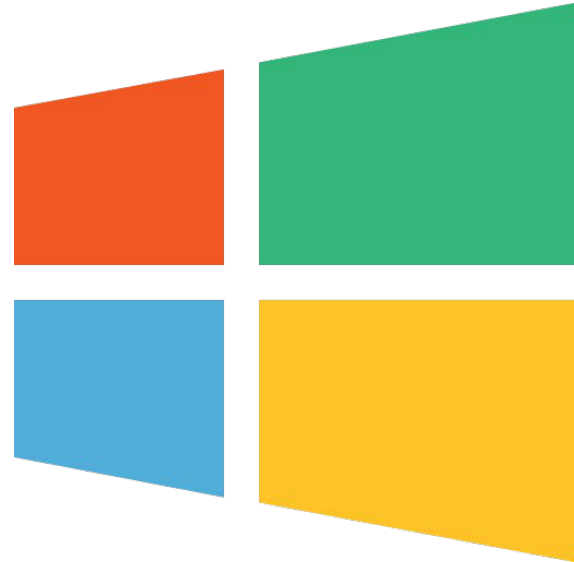
An environment variable created in a terminal **can** be accessed by Python.



# Environment Variables

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Because environment variables are at the **operating system level**, variables can be passed down from parent processes to child processes.





# Instructor Demonstration

## Calling Environment Variables



# Calling Environment Variables

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In order to make environment variables inheritable, they have to be exported and sourced.

```
Api_key = os.getenv()
```



## Activity: Under Lock and Key

In this activity, you will create a Python code that retrieves the environment variable and passes the key with the request URL.  
(Instructions sent via Slack.)

**Suggested Time:**  
20 minutes





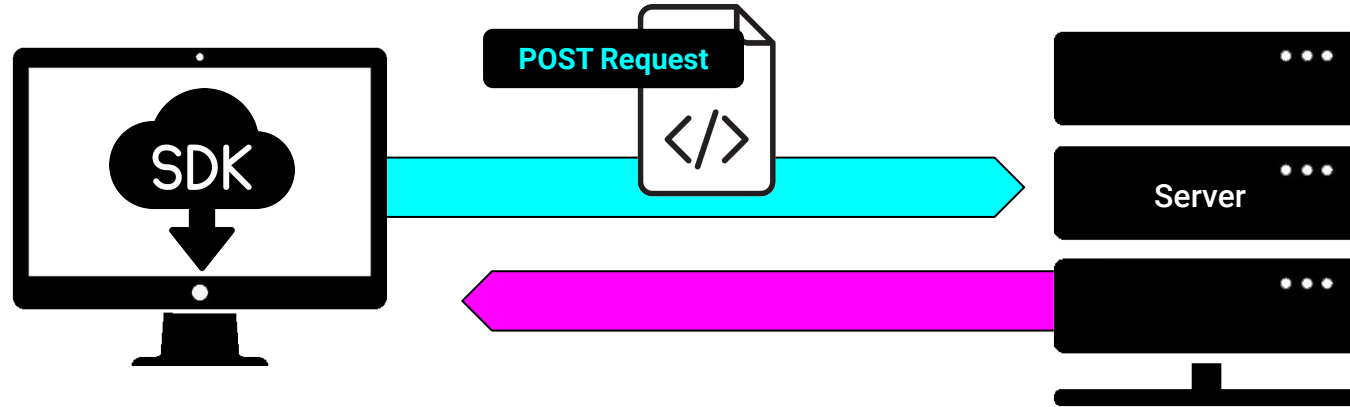
**Time's Up!** Let's Review.

# Software Development Kits

# Software Development Kits

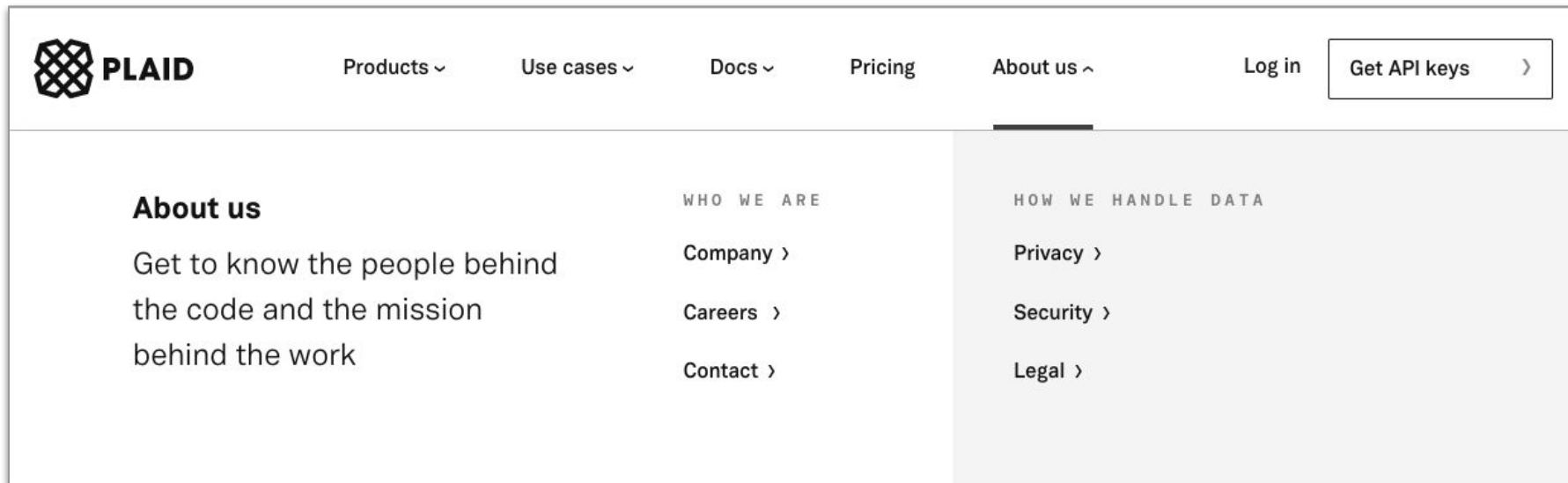
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Software Development Kits (SDKs) work in the same fashion as the Python requests library: they provide functions to submit GET and POST API requests.



# Software Development Kits

Some companies, like Plaid, offer Software Development Kits as a means to submit requests to their APIs.



The screenshot shows the Plaid website's navigation bar and 'About us' section. The navigation bar includes the Plaid logo, links for Products, Use cases, Docs, Pricing, and About us (with a caret icon), a Log in link, and a 'Get API keys' button. The 'About us' section is divided into two columns. The left column, titled 'About us', contains the text 'Get to know the people behind the code and the mission behind the work'. The right column is split into two sub-sections: 'WHO WE ARE' with links for Company, Careers, and Contact; and 'HOW WE HANDLE DATA' with links for Privacy, Security, and Legal.

**PLAID** Products ▾ Use cases ▾ Docs ▾ Pricing About us ^ Log in [Get API keys](#) >

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**About us**

Get to know the people behind the code and the mission behind the work

WHO WE ARE

- [Company](#) >
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HOW WE HANDLE DATA

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- [Legal](#) >

# Software Development Kits

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In addition to the generic GET and POST functions, SDKs offer functions that are specific to their services/API. For example, the Plaid SDK lets you execute a function that returns bank transactions.

```
response = client.Transactions.get(  
    access_token,  
    start_date="2018-01-01",  
    end_date="2018-02-01"  
)  
  
transactions = response["transactions"]
```

```
quandl.get("WIKI/AAPL", rows=5)
```

vs.

```
requests.get("https://www.quandl.com/api/v3/datasets/WIKI/AMD")
```





Countdown timer

**15:00**

(with alarm)



# Plaid SDK

# Plaid SDK

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Plaid is an API that unifies financial information across bank accounts and offers a platform for data extraction and analysis. It comes with a Python SDK called `plaid-python` that streamlines financial analysis.

This SDK can be downloaded using pip-install:

```
pip install plaid-python
```



# Plaid SDK

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Plaid is an API made by developers, for developers.

01

Plaid is democratizing financial analysis.

02

Plaid allows developers to create applications that provide consumers with access to FinTech tools.

03

The Plaid SDK gives developers access to financial functions and data that previously have only been in the domain of financial advisors.

# Plaid SDK

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The Plaid API allows users to:

- Connect multiple bank accounts to the Plaid platform
- Get account balances
- Extract data from Plaid at the institution and account level
- Create an asset report





# Instructor Demonstration

## Plaid Demo



## Activity: Sporting Plaid (Part 1)

In this activity, you will create environment variables for Plaid API keys and install the Plaid SDK, which will be used in the next activity to extract transaction data.

(Instructions sent via Slack.)

**Suggested Time:**  
20 minutes





**Time's Up!** Let's Review.



## Challenge: Sporting Plaid (Part 2)

In this activity, you will extract financial data from the Plaid sandbox. You can work with a partner on the activity; but each student will need to complete the assignment.

(Instructions sent via Slack.)

**Suggested Time:**  
25 minutes







**Time's Up!** Let's Review.



Questions?

*The  
End*