

GETTING STARTED WITH PYTHON

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INTRODUCTION

About Me & What We're Doing Today

MY BACKGROUND

- **Work & Comp Sci:**

- Interests started in middle school & through high school
- Last job: Development & Operations Engineer in FinTech
- Previous: Marketing & Sales Analytics in Alternative Finance / Non-Bank Lending

- **Technical & Interests:**

- Python, R, SQL, Node.js, HTML/CSS, Angular, APIs, Git, CLIs, Docker
- Continuous Integration & Delivery (CI/CD) Pipelines, Infrastructure as Code
- Coffee, Photography, Art Museums, Tech

TODAY'S AGENDA

- **Data Science Toolkit**
- **Why Python?**
- **Learning Python**

DATA SCIENCE TOOLKIT

What to Use and When.

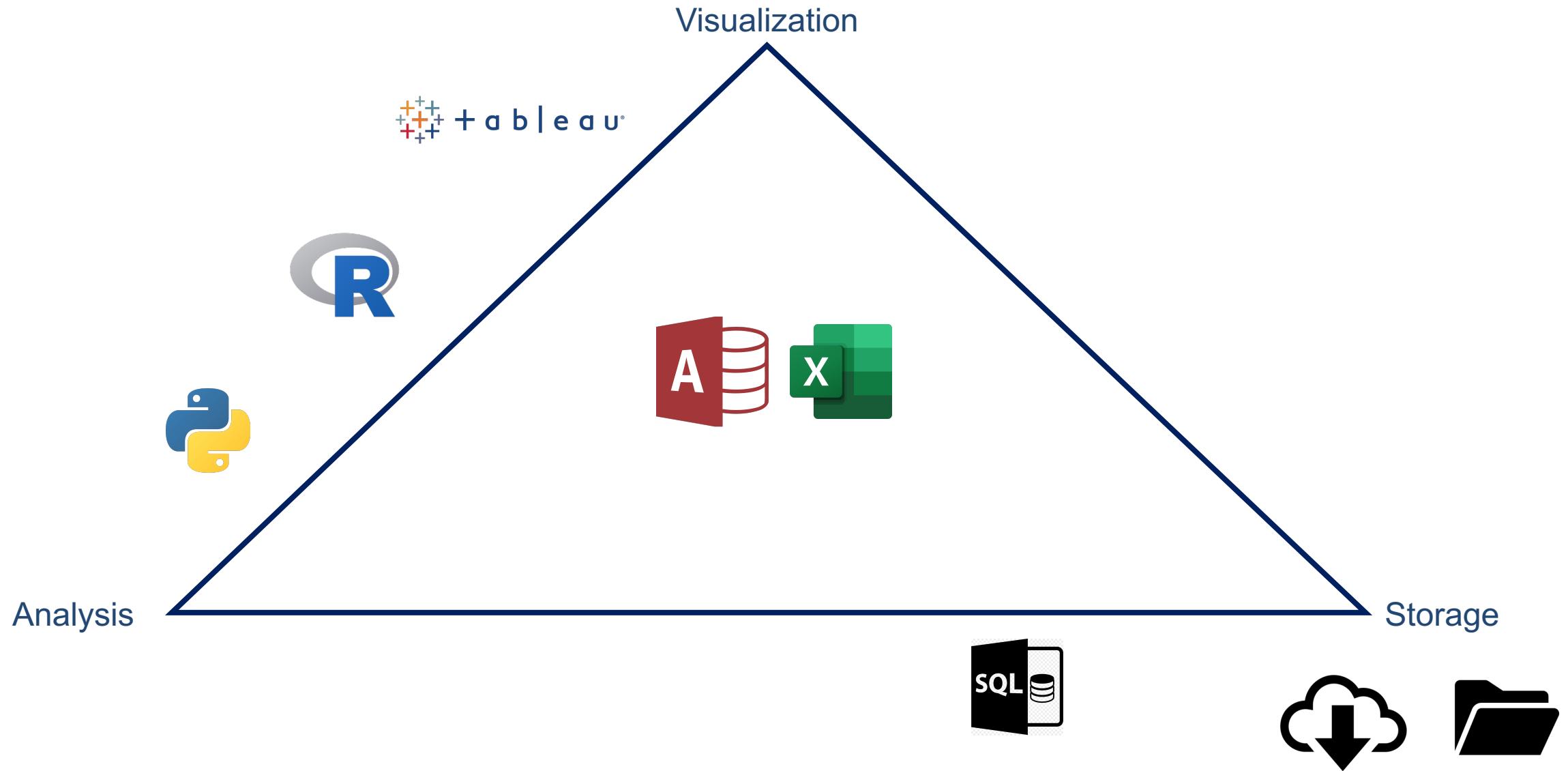
3 CORNERS OF DATA SCIENCE

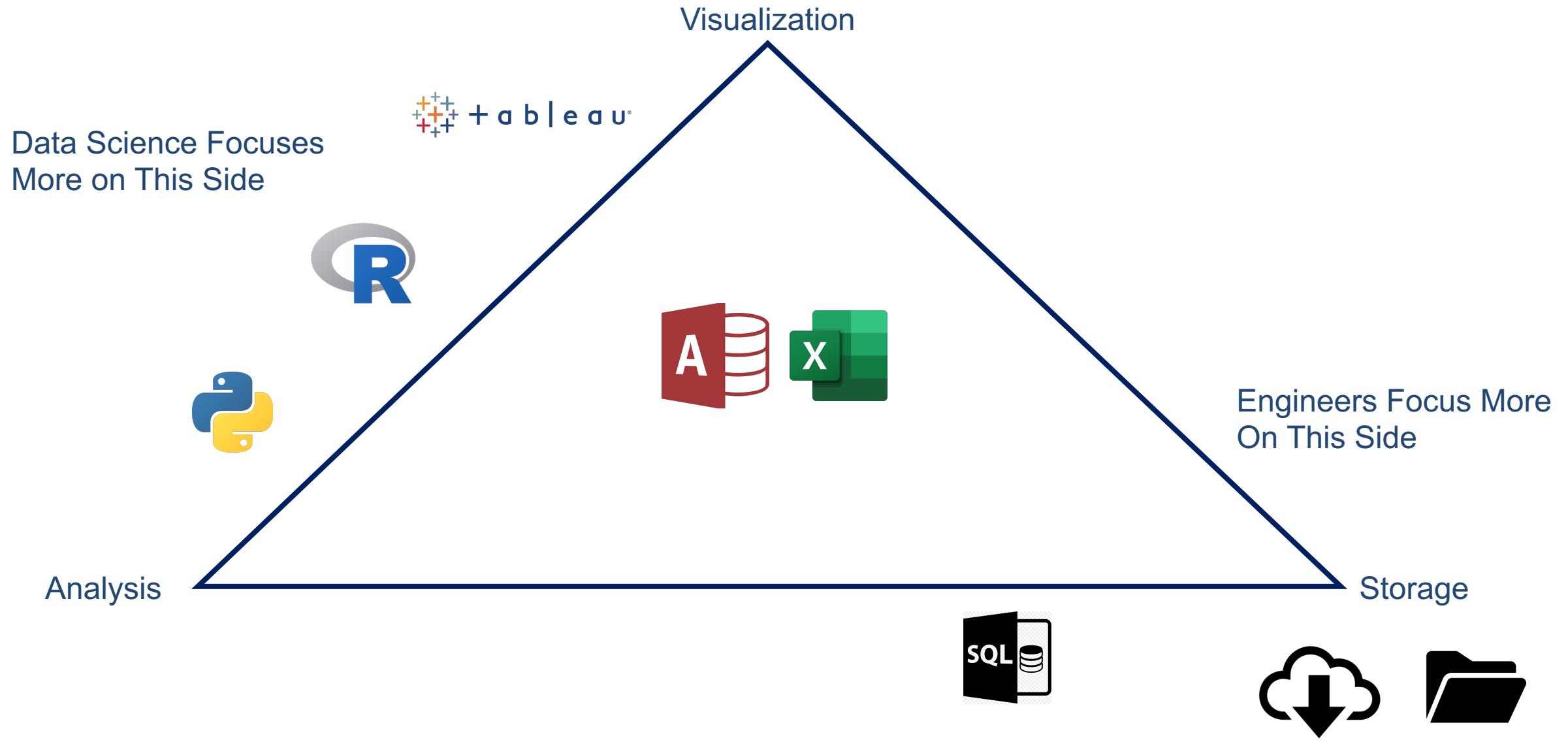
- 1. Storage & Persistence of Data**
- 2. Processing & Analysis of Data**
- 3. Visualization & Reporting of Data**

WHAT'S THE MOST USED DATA SCIENCE TOOL?

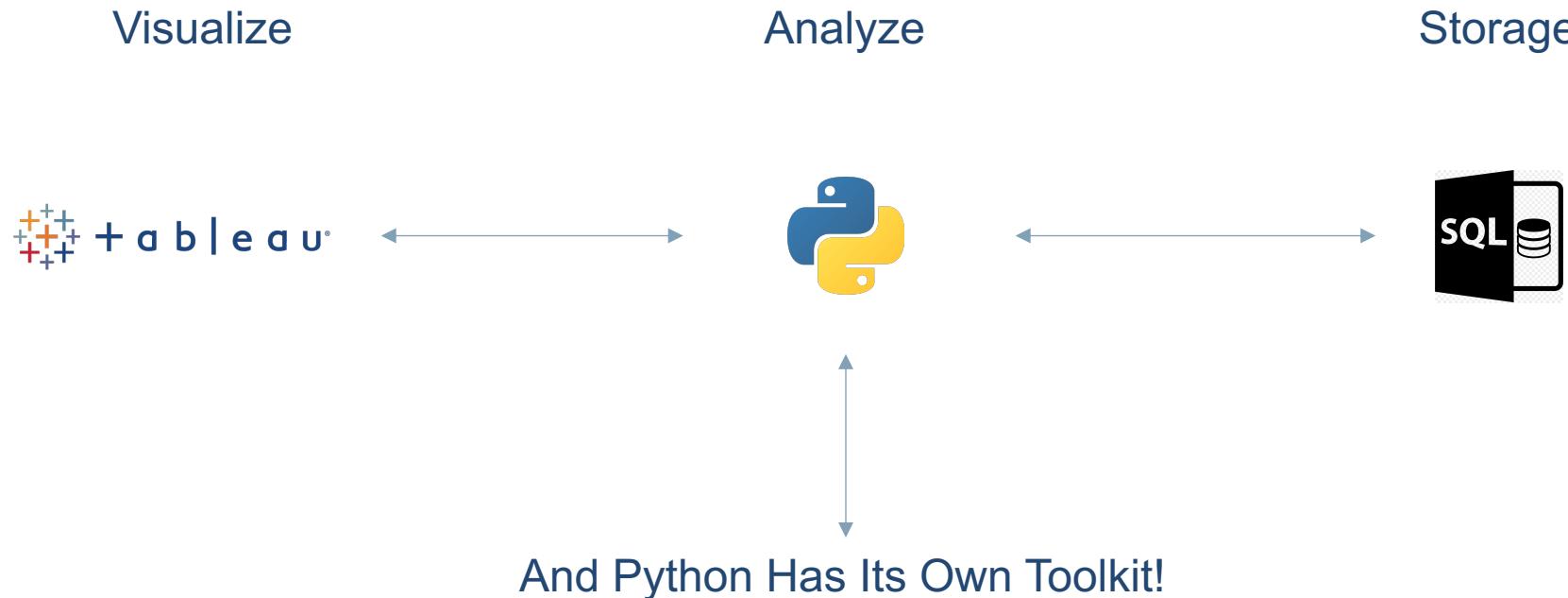
WHAT'S THE MOST USED DATA SCIENCE TOOL?

- Microsoft Excel and Spreadsheets!**
- Beats out any programming language by factor of at least 100!**
- Let's Look at the Data Science Toolkit:**

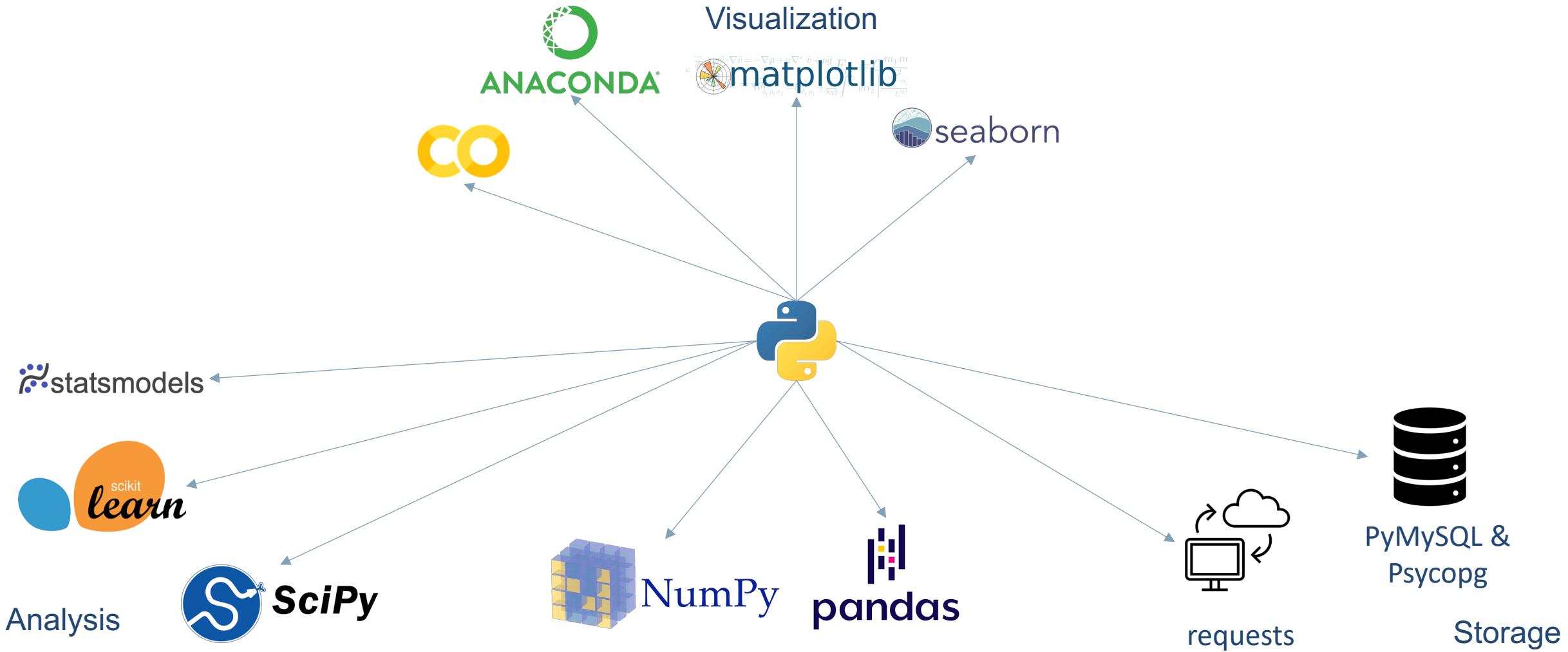




IN ONE PROJECT, WE COULD...



PYTHON'S TOOLKIT



SO WHY LEARN PYTHON?

It Looks Like a Lot!

MORE FUNCTIONALITY!

- **Highly Popular Data Science Tool**
 - Large Community, Feature-Rich Packages, Rarely Have to “Reinvent the Wheel”
 - Rich Documentation w/ Lots of Examples
- **Allows Us to Automate Workflows**
 - Think About Running CAPM Regressions on a Portfolio of 1000 Stocks!
- **Free and Open Source!**
 - Paid Platforms Can Price You Out & Remove Features
 - Tableau — No More Perpetual Licensing¹

¹ <https://www.tableau.com/about/blog/2020/9/perpetual-license-end-of-sale>

WHY PYTHON SPECIFICALLY?

- **And not a Tool like R?**
 - R is a Functional Language
 - Python is an Object-Oriented Language
- **Python's Community Extends Beyond Data Science**
- **However, They're Both Really Similar!**
 - If you know R, you will pick up Python quickly
 - Same goes the other way

THE BEST PART?

- You **NEVER** need to memorize anything!!
 - Documentation & examples are easily available online
 - Focus on the process & **why** we're doing something
- My BXDS Engineering Interview
 - Allowed to look up documentation!

HOWEVER, THERE ARE CHALLENGES TO OVERCOME

- **Need to turn a process into a set of computer-executable instructions**
- **Lack of Visual feedback, Unless Requested**
 - However, many more feedback tools today than 10 years ago!
- **Need to Learn Programming Fundamentals**
 - Good part: fundamentals same between any language
 - Just need to learn specific syntax

PYTHON FUNDAMENTALS

What I'm Covering Today.

TODAY'S CONTENT

- **Module 1: Fundamentals**
 - Mathematical Operations
 - Getting Output
 - Variables
 - Jupyter Notebooks
- **Module 2: Built-In Data Types & Structures**
 - Strings
 - Numbers
 - Boolean
 - Lists

TODAY'S CONTENT CON'T

- **Module 3: Functions & Program Flow**

- Functions
- Loops
- Conditional Statements
- Control Flow

- **Module 4: Arrays, DataFrames, Indexing**

- NumPy Arrays
- Pandas DataFrame
- **Indexing In Depth**

WHAT SHOULD YOU TAKE AWAY?

- 1. The Basic Building Blocks of a Program**
- 2. Numbers & Storing Them in Linear Structures**
 - Lists, Arrays, DataFrames
- 3. Indexing!!**

WHY IS INDEXING BOLDED?

- **Unlike Excel, Can't Simply Click a Box!**
- **Need to Know How to Access Values within Data Structures!**
- **We do this with Indexing!**
- **Mastering Indexing & Linear Data Structures will Get You VERY FAR in Technical Interviews**

2 LEARNING STYLES

1. Programming & Coding Along

- Easier with Multiple Monitors

2. Listening & Absorbing

- Easier with Just Laptop
- Everything will be Available Afterwards + Recording!

LET'S GET STARTED!

Open Google Colab & Our First Notebook



MELIORA