

# Adobe Summit

# Welcome to Adobe Summit 2024: *L120 - Driving Business Impact with Data Science: Customer Journey Analytics Lab*

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# Request to Lab Attendees

- Kindly refrain from using mobile phones during the session
- Kindly refrain from posting any photos or screenshots from the session on to social media

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# Purpose & Objectives of the L120 CJA Lab

- **Purpose:**

- Participants will gain hands-on experience in analyzing and visualizing CJA data by using data science methods in Python.

- **Objectives:**

- 1. How to use APIs and the CJA Postgres SQL
  - 2. Managing data in and out of Adobe Experience Platform
  - 3. Build propensity or cluster models using bulk CJA exports and feeding the results back into CJA

- **What You Will Leave With:**

- 1. All the code used in the CJA Lab
  - 2. New data science skills to apply with AEP & CJA

# Lab Co-Leads Introductions

**Adobe  
Summit**

The digital  
experience  
conference.

March  
25–28



**Brian Au**

Adobe

**Adobe  
Summit**

The digital  
experience  
conference.

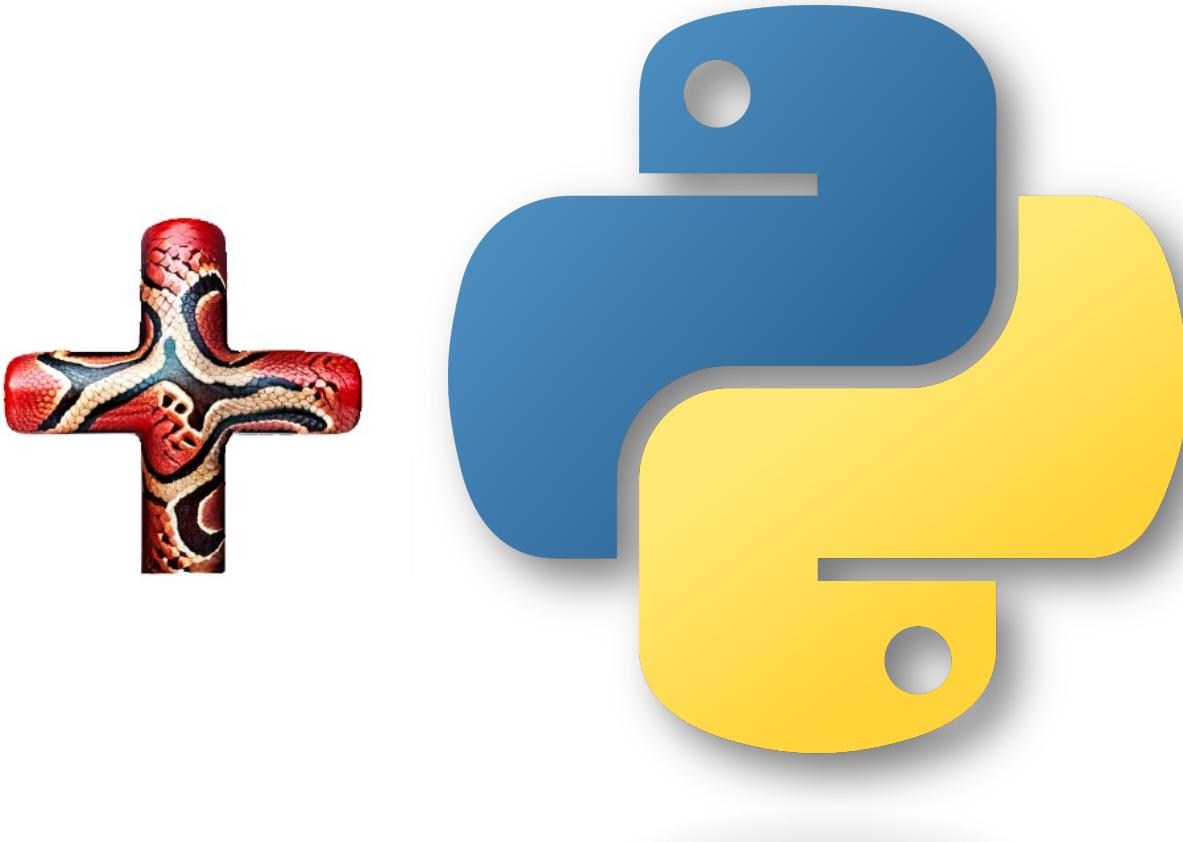
March  
25–28



**Trevor Paulsen**

Adobe

# Why CJA + Python?



# Jupyter Notebooks



- Jupyter Notebooks are great way to document and run code!
- Just click the “Play” button on each code block.A screenshot of a Jupyter Notebook cell is shown. The cell contains Python code:

```
# Thanks to Ju
import cjapy
...
For using
```

A large red arrow points from the text above to the "Run" button (indicated by a triangle icon) in the toolbar above the cell.
- Go at your own pace, but we recommend reading and experimenting
- For Python Environment (Kernel): Python 3.9.6

# Why CJA with Data Science?

- Data-Informed Decision Making
- Optimized Customer Journeys
- Identification of Audiences
- APIs and CJA Postgres SQL Connector
- Efficient Data Management
- Building Propensity or Cluster Models



## Hands-On Lab Guidance

1. Take your time
2. Explore – try changing the code in a separate file
3. Understand the data processes and flows
4. If you get stuck, our TAs will do their best to help

**Remember, the goal of this lab isn't to  
finish as quickly as possible. It's to  
hands-on learn and understand.**

**Happy Python coding & CJA exploring!**

# Notebook #1: Query Data

- **FILE NAME:** 01\_query\_data.ipynb

- **STEPS:**

1. Setup the essential connection credentials for CJA via the Reporting API or the PostgreSQL Connector.
2. Identify the available Data Views in CJA and choose the one most relevant to your analysis goals.
3. Understand the metrics and dimensions available within your chosen Data View to effectively tailor your data queries.
4. Construct a report request to target a specific dimension and metric over a defined date range, using this to analyze product performance.
5. Use SQL for data retrieval, highlighting its familiarity and adaptability for comprehensive data analysis.

- **EXTRA THINGS TO TRY:**

- Experiment with different metrics and dimensions for your report requests.
- Try analyzing different date ranges to see how the results vary.
- If you're comfortable with SQL, try more complex queries.

# Notebook #2: Visualize Data

- **FILE NAME:** 02\_visualize\_data.ipynb
- **STEPS:**
  1. Set up the environment and initialize the CJA object. Import the necessary libraries (cjapy, plotly, datetime, json), load the configuration file, and specify the Data View ID for analysis.
  2. Retrieve and process the CJA data. Define a custom function to convert dates, select the dimension and metric for the report, retrieve the data, and prepare the dataframe.
  3. Visualize the trended orders with a line plot. Define the data for the plot, create the line plot, and show the plot.
  4. Visualize the orders with a bar plot. Define the data for the plot, create the bar chart, and show the plot.
  5. Visualize the orders with a scatter plot. Define the data for the plot, create the scatter plot, and show the plot.
- **EXTRA THINGS TO TRY:**
  - Experiment with different dimensions and metrics for the report.
  - Try different date ranges for data retrieval.
  - Try using different types of graphs for visualization.

# Notebook #3: Clustering & Propensity

- **FILE NAME:** 03\_clustering\_and\_propensity.ipynb
- **STEPS:**
  1. Import the necessary libraries and configure the CJA API.
  2. Define the report request, execute it, and load the data into a DataFrame for analysis.
  3. Apply the t-SNE model, DBSCAN clustering technique, and create a 3D visualization.
  4. Build a propensity model using Logistic Regression, predict probabilities of users making a purchase, and visualize the results.
  5. Export the cluster assignments and propensity scores into a JSON file.
- **EXTRA THINGS TO TRY:**
  - Experiment with different clustering techniques
  - Experiment with different machine learning models for propensity scoring
  - Customize the visualization styles and layouts for better readability and understanding.

# Notebook #4: Ingesting Data to AEP

- **FILE NAME:** 04\_writing\_data\_to\_aep.ipynb

- **STEPS:**

1. Set up the initial environment: Import necessary Python libraries, define global variables, set up credentials, and generate an access token for API authentication.
2. Create a schema and dataset in Adobe Experience Platform (AEP): Define the structure of your data, add the necessary fields, and create a dataset from this schema.
3. Add the dataset to your CJA Connection for Analysis: Incorporate the dataset into CJA and configure the data in your CJA data view.
4. Prepare and upload the JSON file: Use an API call to create a new batch for the dataset and upload the JSON file to this batch.
5. Review the results in Analysis Workspace: Access the linked shared project and explore the data for actionable insights.

- **EXTRA THINGS TO TRY:**

- Analyze the ingested data via freeform tables and visualizations in the Analysis Workspace.

# BONUS Notebook: CJA Data View Solution Design Reference Generator

- **FILE NAME:** 05\_cja\_dataview\_solution\_design\_reference\_generator.ipynb
- **STEPS:**
  1. Import required modules (cjapy and pandas), instantiate CJA with the configuration file, and set the desired Data View id.
  2. Retrieve all metrics and dimensions from CJA, and perform a Data View lookup.
  3. Ensure lookup data is iterable and arrays are uniform in length, and then convert it to a pandas DataFrame.
  4. Create an Excel writer object, write lookup data, metrics, and dimensions to separate tabs in the Excel file.
  5. Define and apply row color formatting in 'Metrics' and 'Dimensions' sheets, then save the Excel file.
- **EXTRA THINGS TO TRY:**
  - Try using different Data Views.
  - Experiment with different formatting for the Excel file.
  - Try retrieving different sets of metrics and dimensions.
  - Experiment with different ways of manipulating the data.

# closing remarks

- Steps to clone the ‘L120 - Driving Business Impact with Data Science: Customer Journey Analytics Lab’ GitHub repository Jupyter notebooks
  - <https://github.com/admoseremic/summit2024>
- CJA resources for further learning and exploration:
  - <https://experienceleague.adobe.com/docs/analytics-platform/using/cja-landing.html?lang=en>
  - <https://experienceleaguecommunities.adobe.com/t5/adobe-analytics-blogs/navigating-the-learning-path-of-adobe-customer-journey-analytics/ba-p/623972>
- Q&A to address any questions or follow up items
- Our Social Links:
  - <https://www.linkedin.com/in/brianau/>
  - <https://www.linkedin.com/in/trevorpaulsen/>

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\$15 Starbucks gift card



**Grand prize** (one per day)  
Apple Airpod MAX headphones

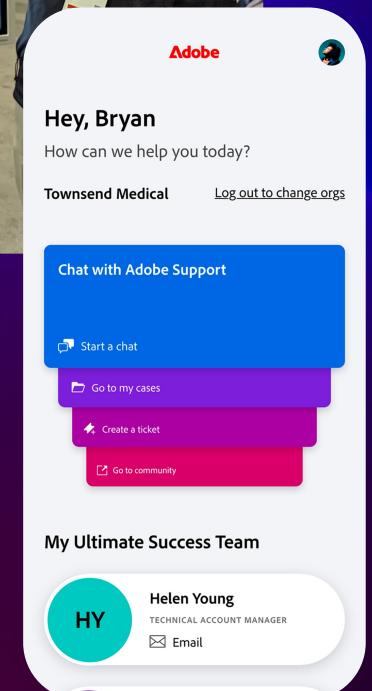


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- Calculate use case ROI
- Demo the new Ultimate Success mobile app
- Build a learning plan



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