



Exploring Microsoft Azure

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Microsoft
Azure



Project and Presentation Outline

Step 1: Completed AZURE Trainings

Step 2: Identified our Dataset and Key Azure Trainings to use for Project

Step 3: Discovered and Uploaded Data to Microsoft Data Explorer

Step 4: Created Visualizations to better understand dataset and trends

Overview



Step 1: Completed AZURE Trainings

AZURE Trainings

Between the three of us completed trainings within; Understanding Data Concepts, Designing effective Power BI reports, Fundamentals of Microsoft Dynamic 365 Supply Chain Management, **Data visualization with Azure Data Explorer, Data analysis with Kusto Query Language, and Analyze monitoring data with Kusto Query Language**

*Used Chat GPT for additional reference on KQL code

*Azure Trainings that were more applicable to our final project are bolded



*Step 2: Identifying Dataset and AZURE
Trainings Needed*

Identified Our Dataset



USAID
FROM THE AMERICAN PEOPLE

- Obtained data from U.S. Agency for International Development
- This data provides supply chain health commodity shipment and pricing data from 2015
- This data is valuable for understanding ranges and trends in pricing, spending, and volumes delivered by country for specific health commodities
- Dataset has 33 Columns and 10335 rows



*Step 2: Identifying Dataset and Azure Trainings
Needed*

Taking What we Learned From AZURE Trainings

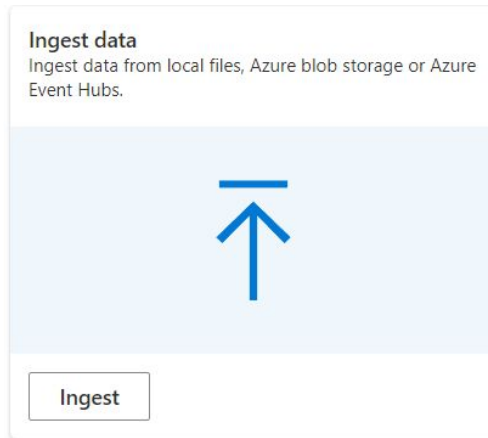
- Learning path: Data Analysis with Kusto Query Language
 - Taught us the fundamentals of query language and use of aggregate functions
 - count, dcount, countif, sum, min, max, avg, percentiles, and others
- Learning path: Data visualization with Azure Data Explorer
 - Taught us how make different graphs and charts



Step 3: Discovering and Uploading Using Microsoft Data Explorer

Uploading Our Data

- Uploaded data directly into Data Explorer
 - We discovered that we could upload our data without the use of a hot blob or VM
- We ingested our data set as a CSV file from our downloads
- Created a cluster
- Used cluster URI path to create a KQL database



Cluster details

🔗 **Cluster URI**
<https://kvc-kch3g9dbt3ev9cb7j0.southcentralus.kusto.windows.net>

🔗 **Data ingestion URI**
<https://ingest-kvc-kch3g9dbt3ev9cb7j0.southcentralus.kusto.win...>

📍 **Cluster location**
North America

📖 **Policies**
[Terms of service](#) and [Microsoft privacy policy](#)



Step 4: Creating Visualizations

Creating Visualisations within Data Explorer

- After uploading the data we were able to begin coding
- Using KQL we were able to narrow our data down into several queries to create different visualizations
 - Works by querying, logs, events, traces, and time series data
 - Uses advanced data statistics for efficient query planning and just-in-time compiled query execution
- After completing our first query to generate a result we selected a visualization type and format
- We used the interface to input the titles and adjust the X and Y scales

The image shows a screenshot of the 'Visual formatting' tab in the Data Explorer interface. The interface has a light gray background with white text. At the top, there are two tabs: 'Visual formatting' (selected) and 'Interactions'. Below the tabs, there is a 'Collapse all' button with an upward arrow icon. The 'Tile name' section has a text input field containing 'Brand Avg Cost for HIV Test'. Below this is a 'Hide tile name' toggle switch, which is currently turned off. The 'Tile description' section has a text input field containing 'Insert description'. Below this is a 'Visual type' section with a dropdown menu showing 'Bar chart'. Below the 'Visual type' section is a 'General' section with a 'Visual format' dropdown menu also showing 'Bar chart'. At the bottom right of the 'Visual formatting' tab is a 'Reset' button with a circular arrow icon. The entire interface is enclosed in a dark gray border.

Visual formatting Interactions

↑ Collapse all

Tile name

Brand Avg Cost for HIV Test

Hide tile name

Tile description

Insert description

Visual type

Bar chart

General

Visual format

Bar chart

Reset

Data Explorer Interface



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Step 4: Creating Visualizations

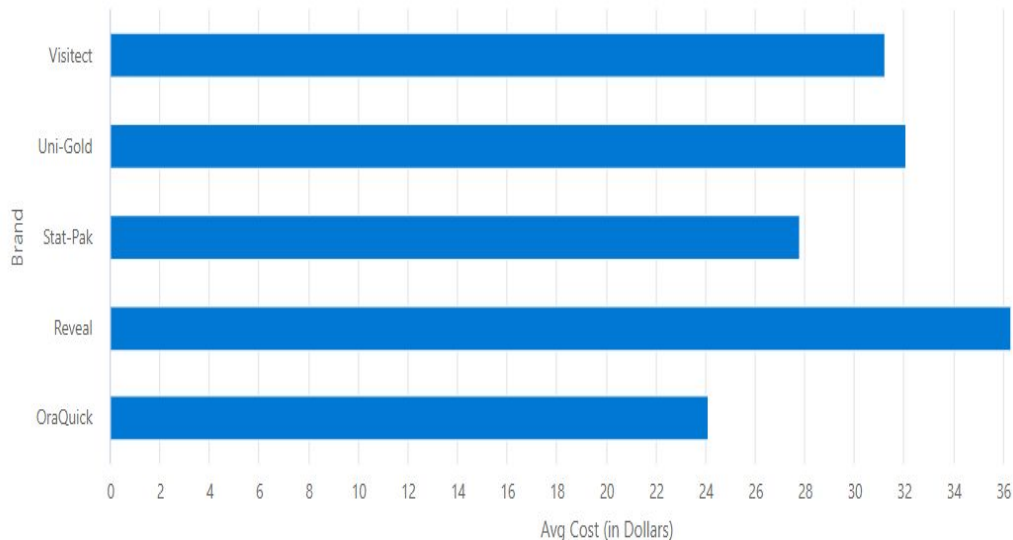
Our First Visualisation

Displays Top 5 Brands Avg Cost for HIV test kits.

From here we created a dashboard where we would combine all of our future visualizations on one page.

Brand Avg Cost for HIV Test

As of 11 m





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Step 4: Creating Visualizations

Vis 2: Top 5 Countries AVG Cost for HIV/AIDS Health Care

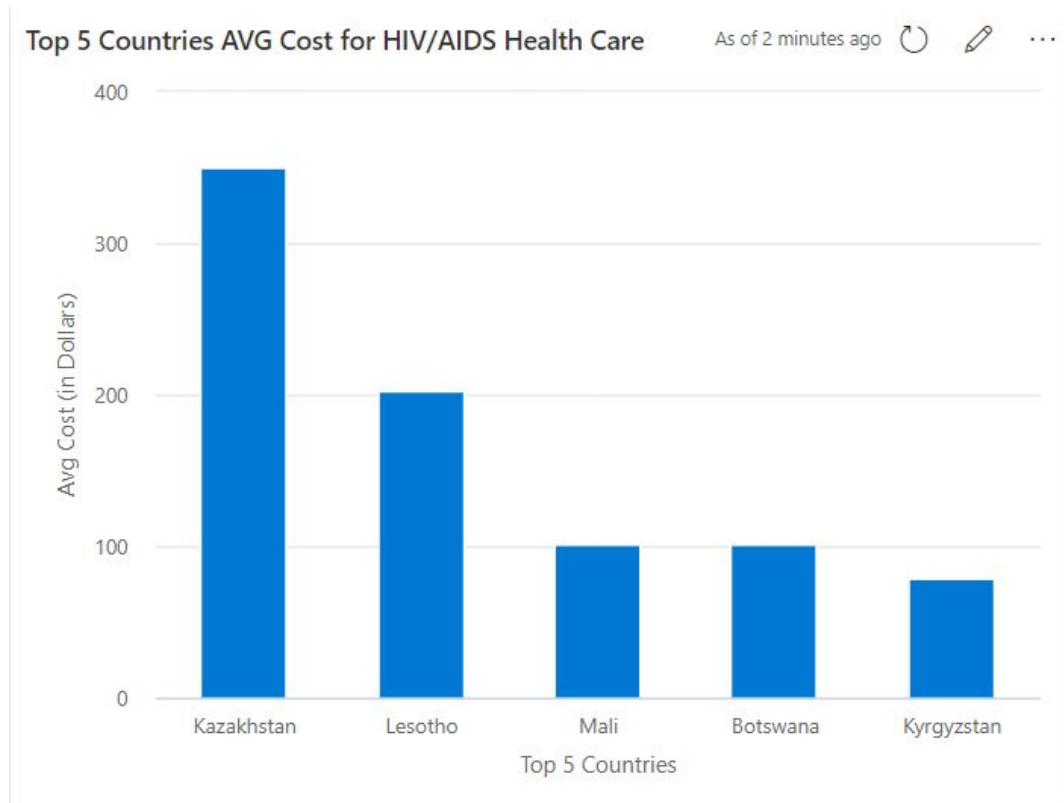
```
1 ['sales data']
2 |where ['Pack Price'] > 0
3 |summarize
4     AvgCost = avg(['Pack Price'])
5     by Country
6 |sort by AvgCost desc
7 |top 5 by AvgCost
```



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Step 4: Creating Visualizations

Vis 2: Result





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Step 4: Creating Visualizations

Vis 3: Number of Shipments Per Country

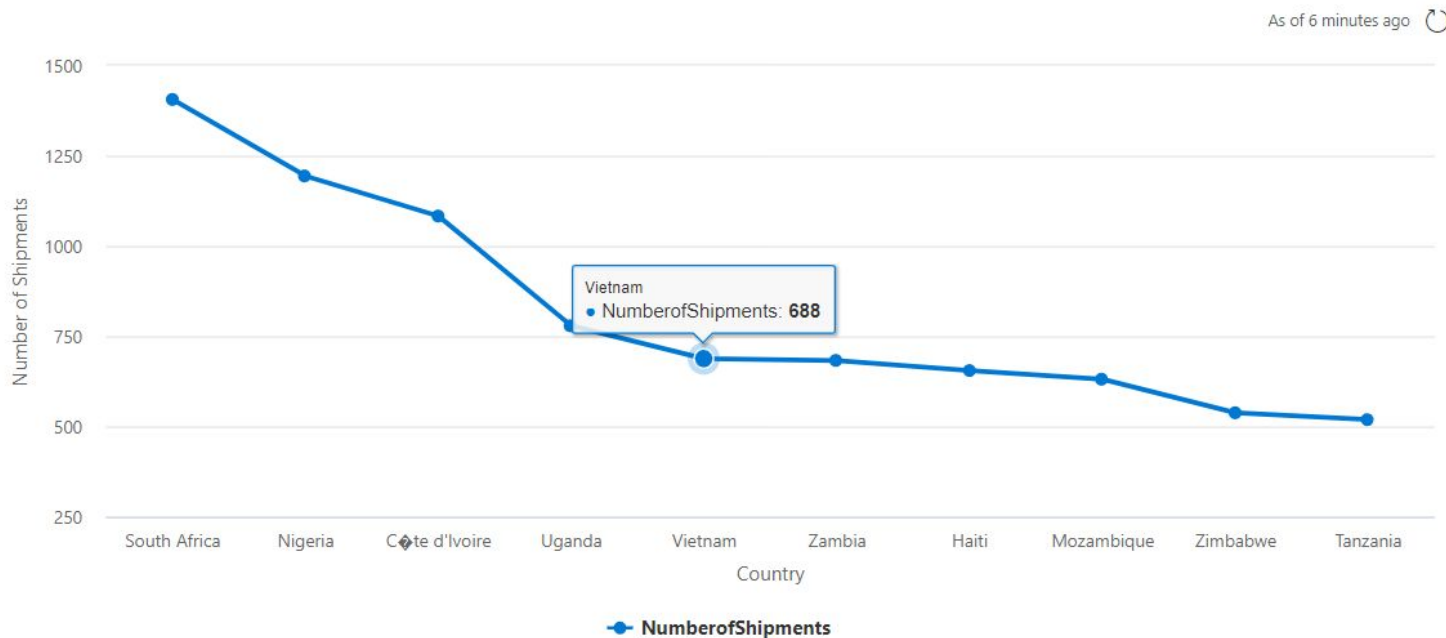
```
1 ['sales data']  
2 | summarize NumberofShipments = count(['Shipment Mode']) by Country  
3 | top 10 by NumberofShipments
```



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Step 4: Creating Visualizations

Vis 3: Result





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Step 4: Creating Visualizations

Vis 4: Percentage Modes of Shipment

```
1  ['Sales Data']
2  | summarize
3  |     COUNTCOST= count(['Pack Price'])
4  |     by ['Shipment Mode']
5  | sort by COUNTCOST asc
6  | top 5 by COUNTCOST
```

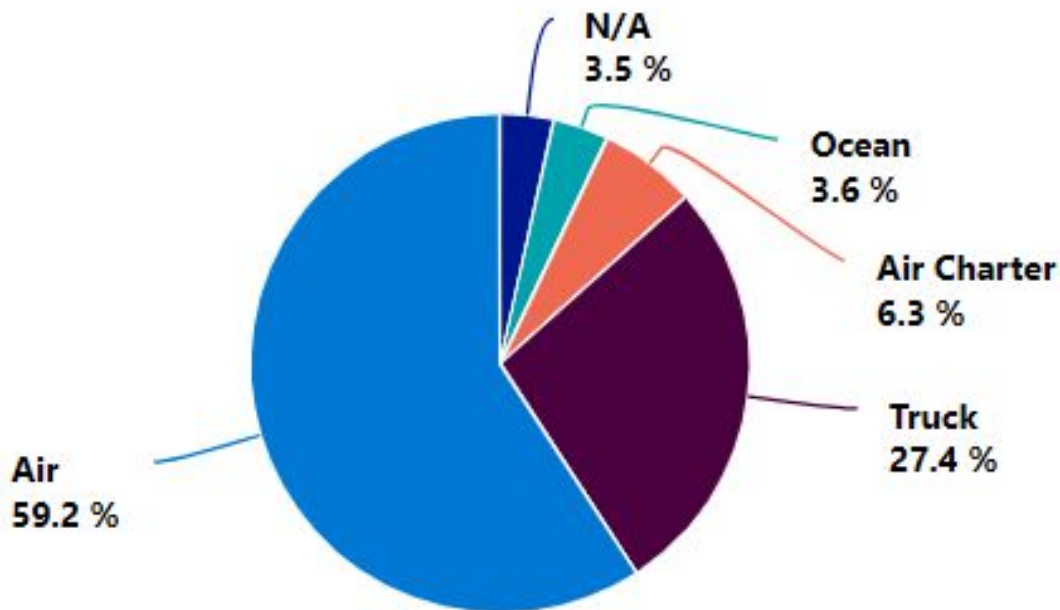


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Step 4: Creating Visualizations

Vis 4: Result

As you can see Air travel made up more than half of the total shipment methods, followed by trucking with slightly over a quarter.





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Step 4: Creating Visualizations

Vis 5: 5 Most Expensive and least Expensive Dosages By Package Prices

Top 5 Code

```
1 ['Sales Data']
2 | summarize
3 |     COUNTCOST= count(['Pack Price'])
4 |     by ['Dosage Form']
5 | sort by COUNTCOST asc
6 | top 5 by COUNTCOST
```

Bottom 5 Code

```
1 ['Sales Data']
2 | summarize
3 |     COUNTCOST= count(['Pack Price'])
4 |     by ['Dosage Form']
5 | sort by COUNTCOST desc
6 | top 5 by COUNTCOST asc
```

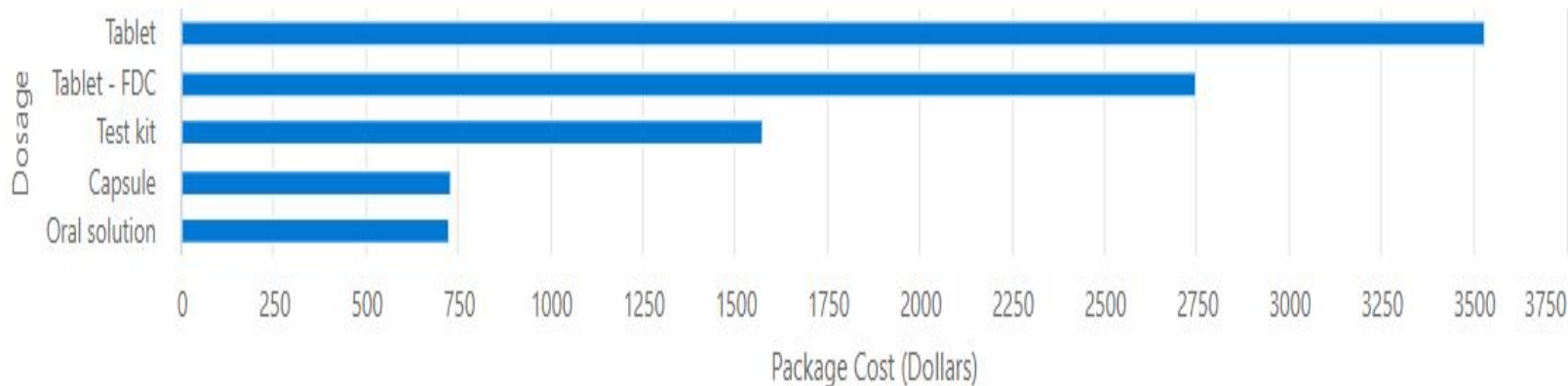


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Step 4: Creating Visualizations

Vis 5: Most Expensive Results

Tablet dosage form is the most expensive package



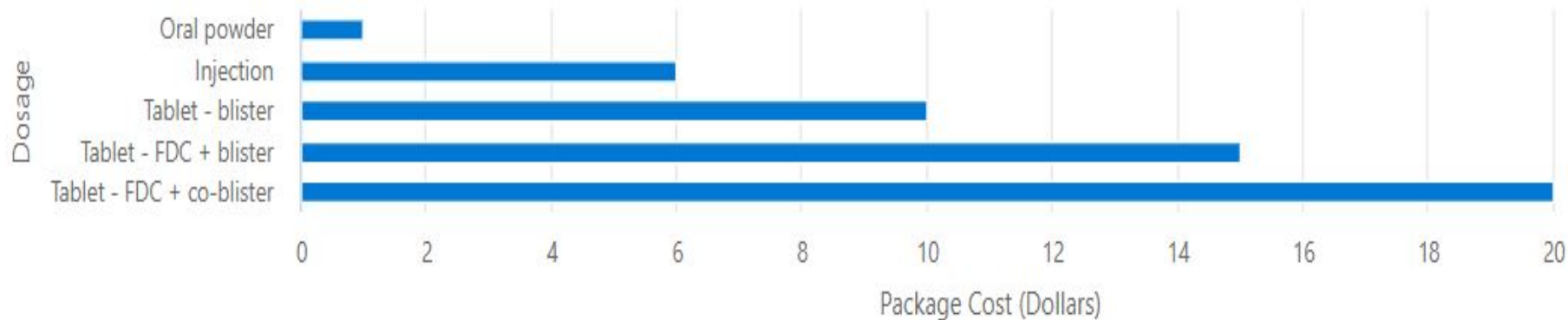


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Step 4: Creating Visualizations

Vis 5: Least Expensive Results

Oral powder dosage forms ranks as the least expensive





Final Dashboard





Overview

- Azure Trainings guided us towards learning and using KQL and creating visualizations using it
- Discovered Microsoft Data Explorer as a way of uploading data without VM or hot blob
- Were able to begin performing our KQL code from right within Data Explorer
- Visualizations created:
 - Found the most expensive brands of HIV/Aids test kits
 - Determined the countries with the highest cost for HIV/AIDS healthcare
 - Found the 10 countries that had the greatest number of test kits shipped to them
 - Found the percentage each form of transportation was used for shipping test kits
 - Located the 5 least expensive and 5 most expensive forms of dosage treatment
- Final Result of the Dashboard displayed