



AI/BI for Data Analysts

Databricks Academy



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Agenda

Modules in this Course	Time
Dashboards and Visualizations in Databricks	2 hr 15 mins
AI/BI Genie	1 hr 15 mins



Course Learning Objectives

By the end of this course, you'll be able to use Databricks AI/BI tools to:

- Design dashboards for business insights.
- Share business intelligence assets with collaborators and stakeholders.
- Periodically revise data assets in accordance with best practices and new information.
- Create data assets for self-service analytics.
- Manage data assets for business intelligence in Databricks.



Lab Exercise Environment



Technical Details

- Your lab environment is provided by Vocareum.
- It will open in a new tab.
- It has been configured with the permissions and resources required to accomplish the tasks outlined in the lab exercise.
- Third party cookies must be enabled in your browser for Vocareum's user experience to work properly.
- Make sure to enable pop ups!



Before we get started...

Just a quick note

- Be aware, Databricks is a highly innovative company and through our courses we try to give you the latest and greatest.
- If you encounter inconsistencies in product naming, UI environments, or other areas of this content – let us know!

Visit help.databricks.com to submit your feedback.

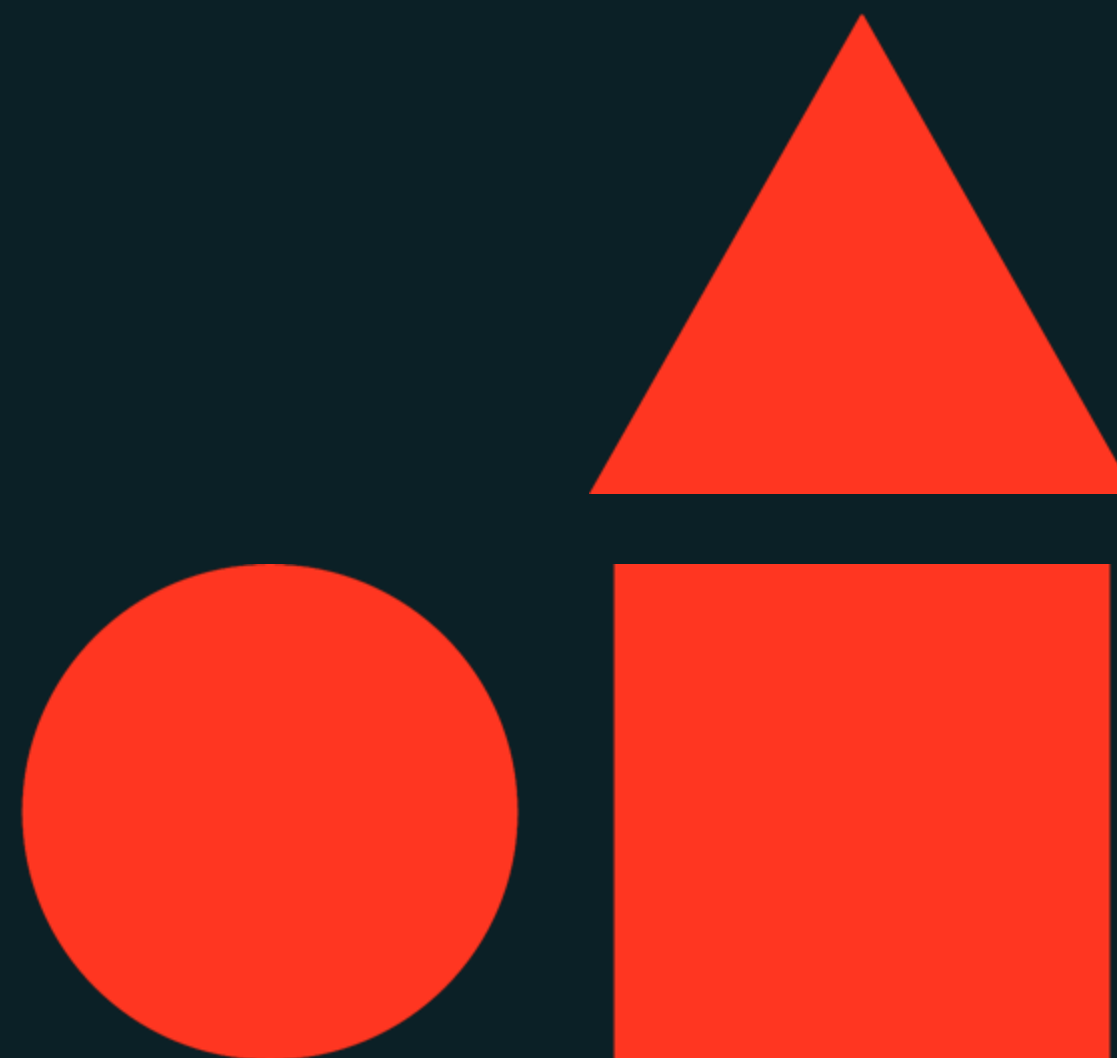
Enjoy the course!





Dashboards and Visualizations in Databricks

AI/BI for Data Analysts



Agenda

Dashboards and Visualizations in Databricks	Time	Lecture	Demo	Activity
AI/BI Dashboards	15 mins	✓		
Just enough SQL	10 mins	✓		
Designing Datasets for Dashboards	20 mins		✓	
Creating Visualizations and adding Summary Statistics to Dashboards	20 mins		✓	
AI Enhanced Features	8 mins		✓	
Filters	8 mins		✓	
Sharing Dashboards with Stakeholders and Others	8 mins		✓	
Managing Dashboards in Production	8 mins		✓	
Dashboard and Visualization Lab Activity	30 mins			✓



Learning Objectives (Part 1)

Design dashboards for business insights.

- Create datasets specifically for AI/BI Dashboards.
- Create the visualizations and widgets necessary for displaying the results of summary statistics.
- Use AI to create visualizations and widgets for a dashboard.
- Add dynamic features to a dashboard (parameters, filters).



Learning Objectives (Part 2)

Securely share data assets created for business intelligence purposes.

- Share business intelligence assets with collaborators and stakeholders.
- Use embedded credentials with a Dashboard to share with account-level Databricks users.
- Subscribe users to dashboards.

Periodically revise data assets in accordance with best practices and new information.

- Set refresh schedules on data assets used for business intelligence.



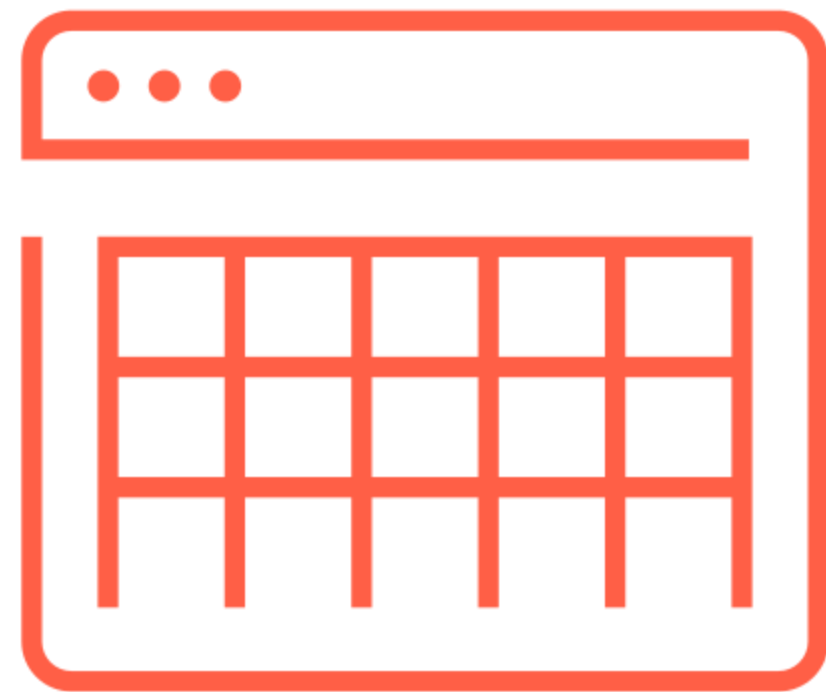


Dashboards and Visualizations in
Databricks
LECTURE

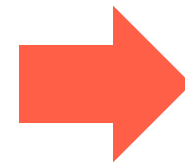
AI/BI Dashboards



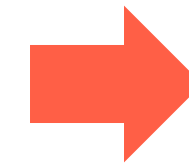
Dashboards bridge the gap between data and information



Data



Dashboards



Business insights

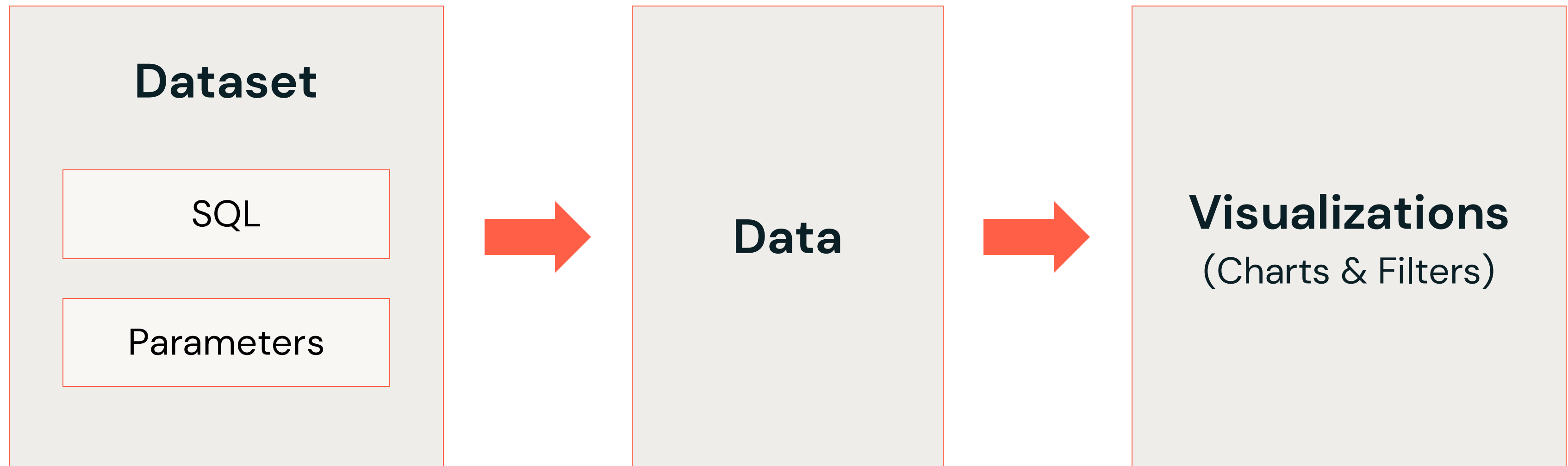


What is an AI/BI Dashboard?

It is a modern BI interface with AI-assisted authoring and real-time visualizations

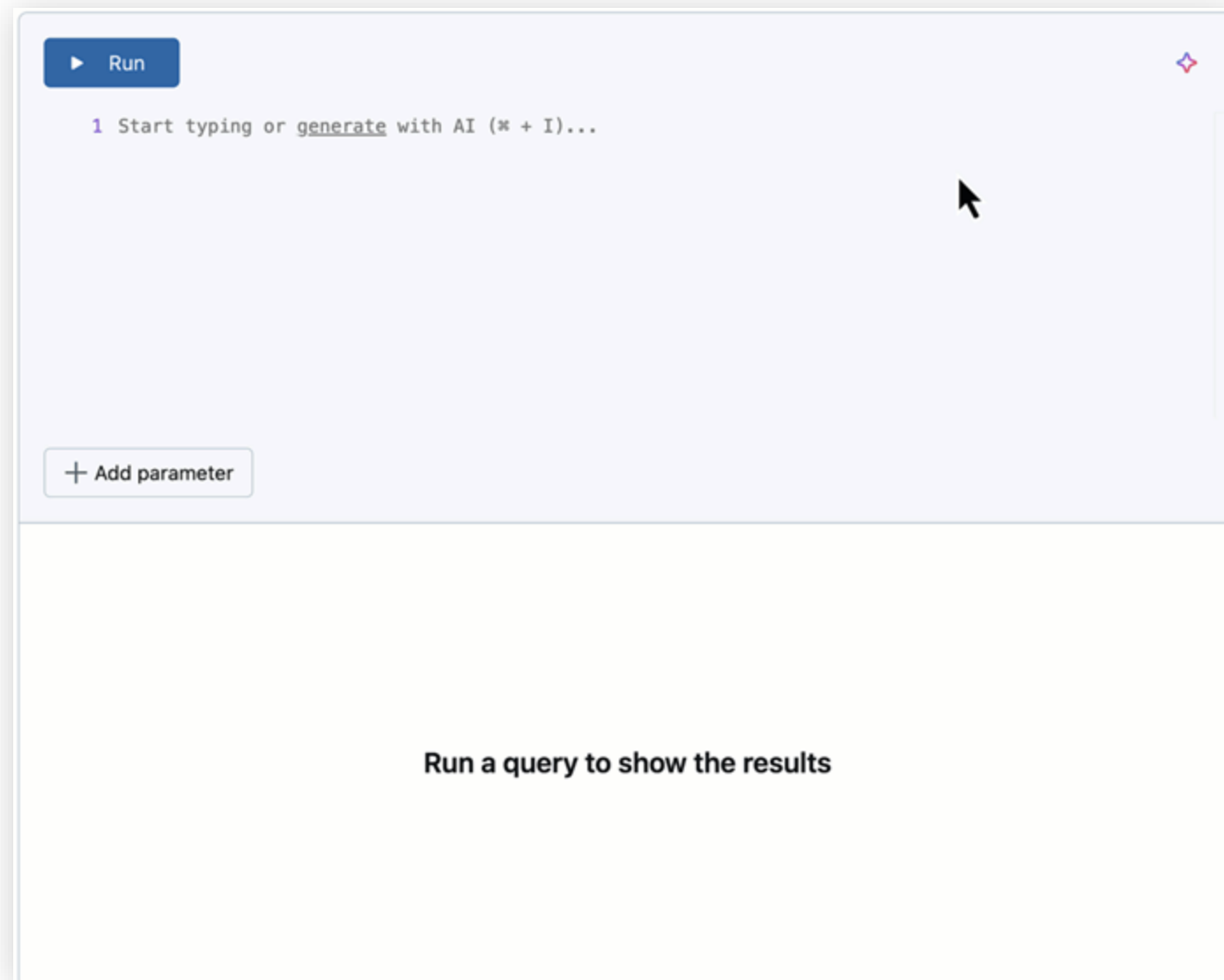
It is designed for collaboration and sharing insights with anyone in your organization

It is integrated with AI/BI Genie to allow users to explore data via conversational analytics

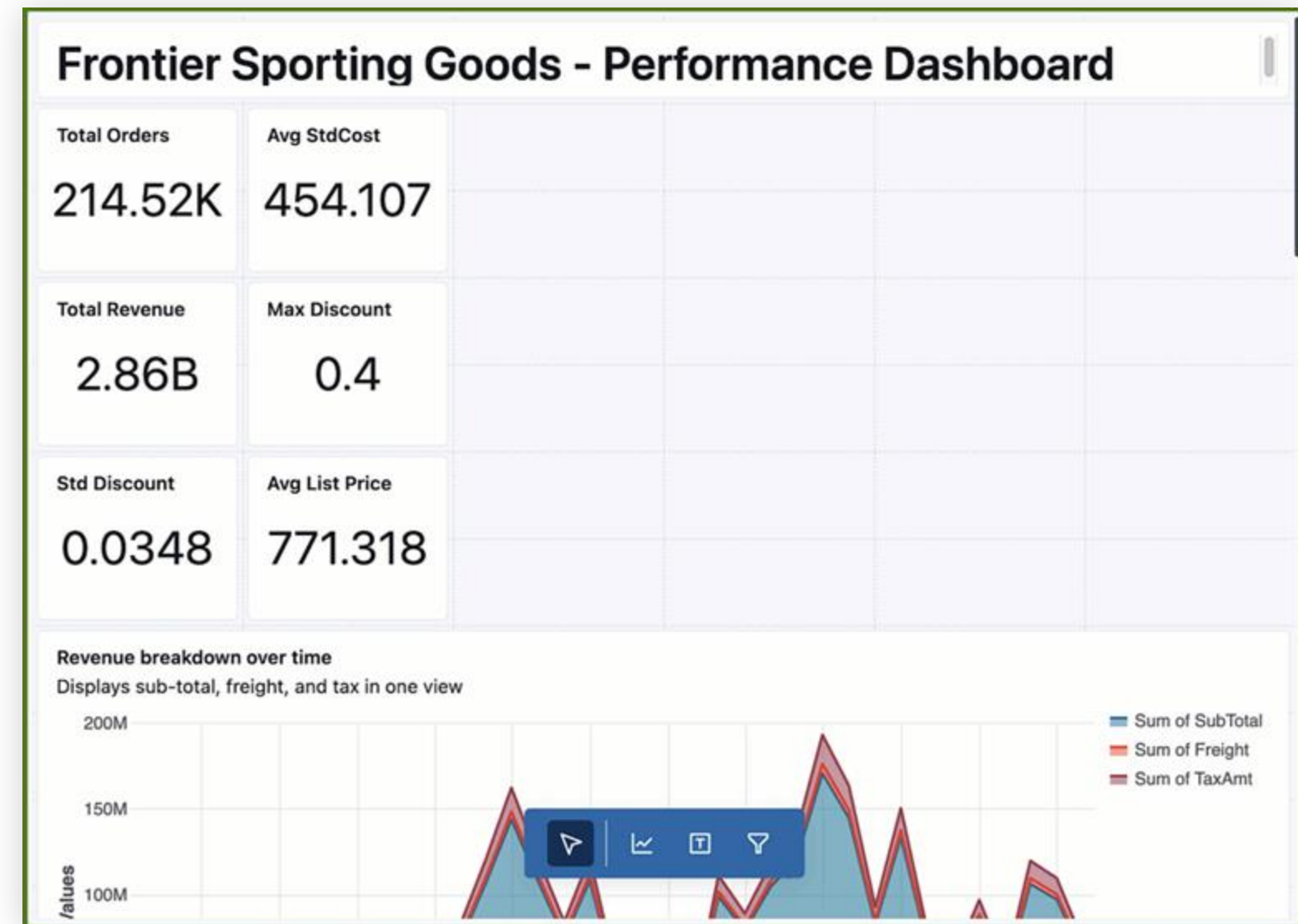


Databricks AI/BI Dashboards offer developers AI assistance

With defining data sets



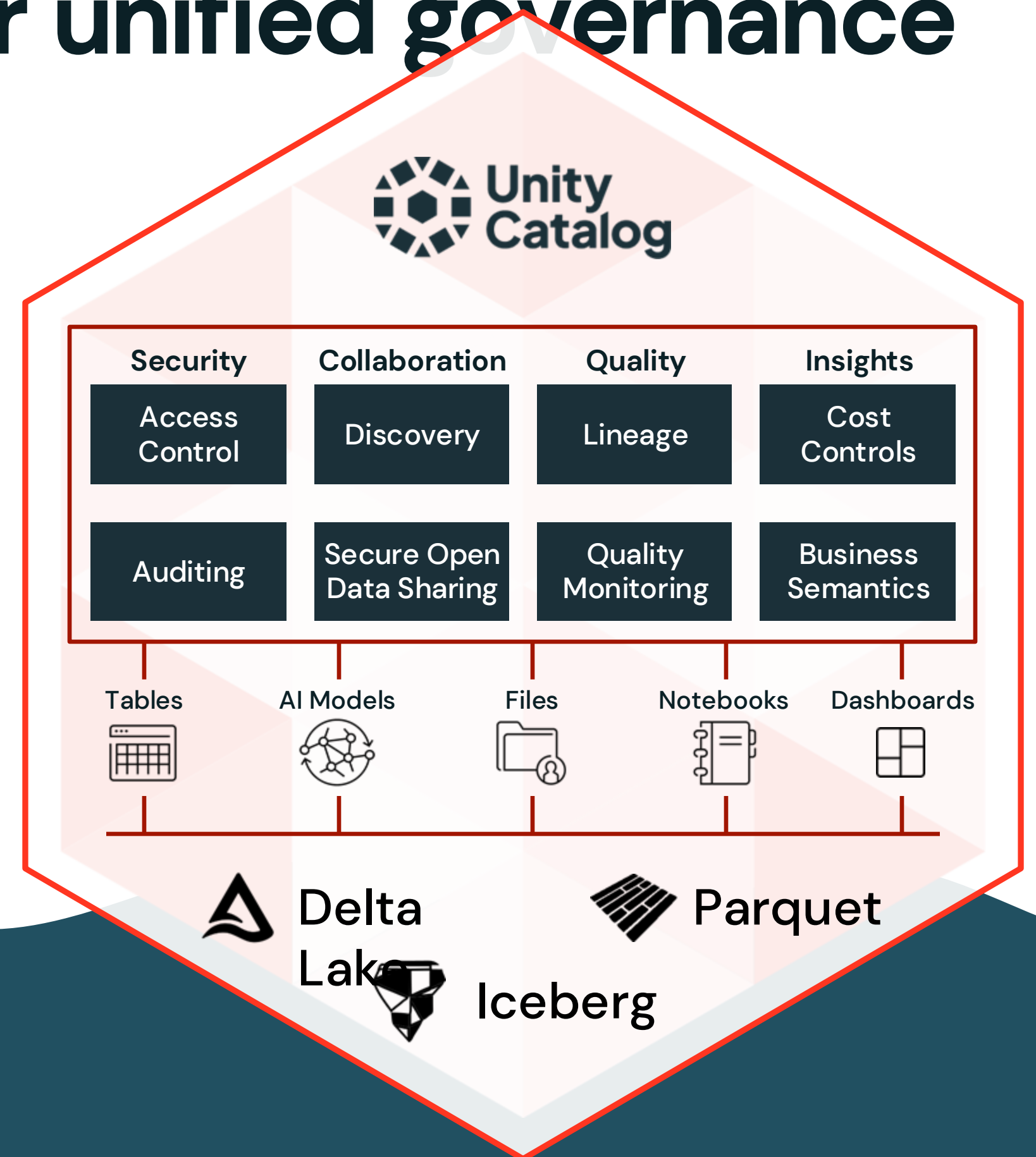
And with making visualizations



Built on Unity Catalog for unified governance

Unified capabilities
for every use case

Unified governance
for all assets



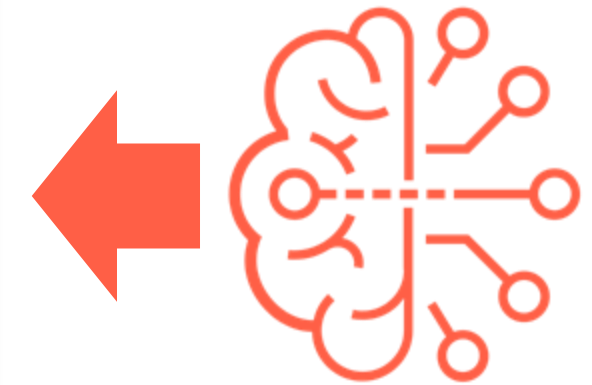
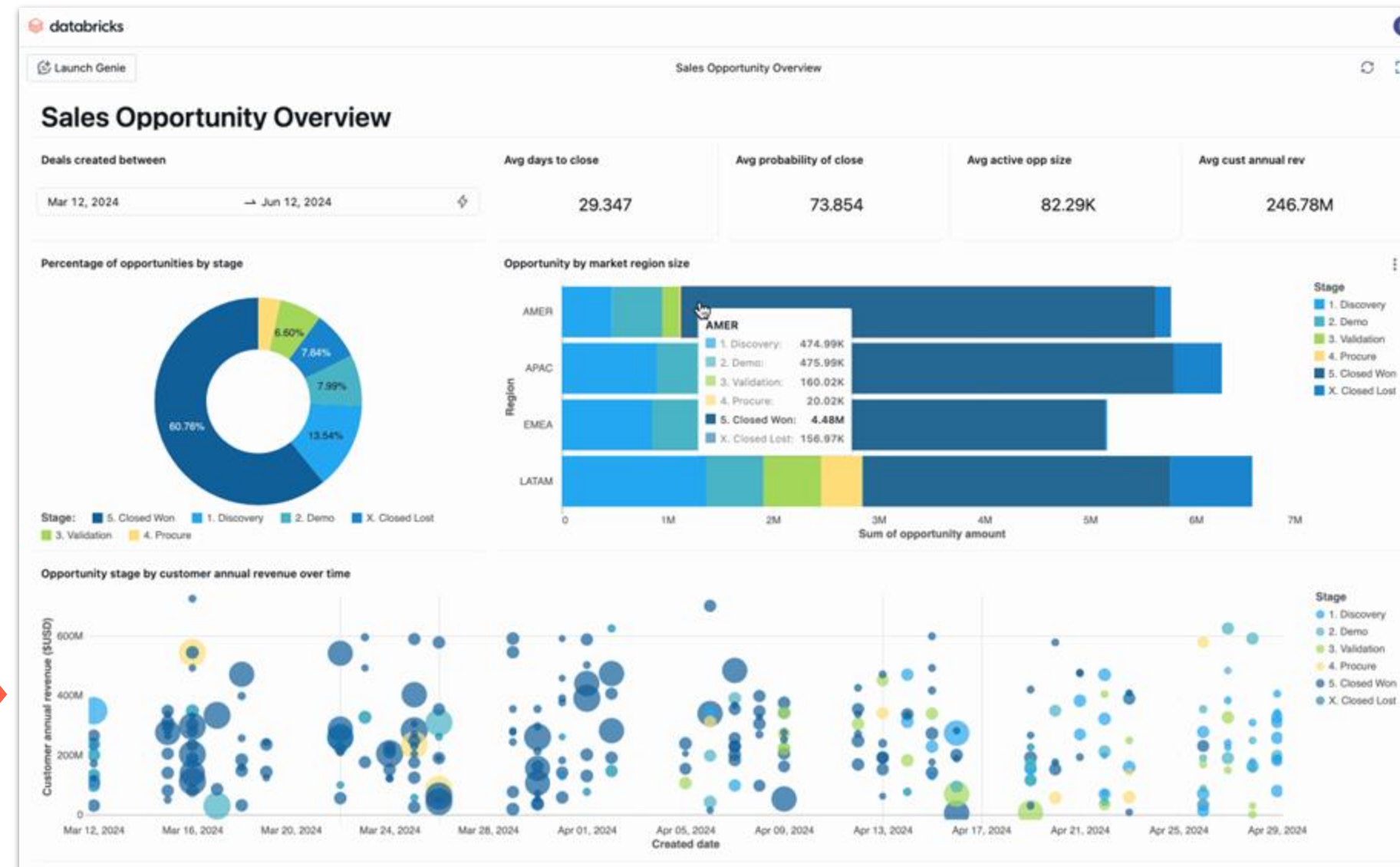
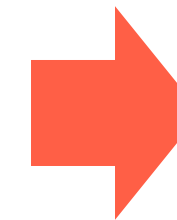
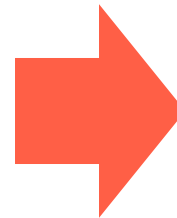
Dashboards offer instant, interactive insights at scale



Data

```
SELECT name,  
       national_id,  
       country, fee_paid  
FROM fee_transactions  
WHERE country IN  
       ('US', 'CA', 'MX');
```

Queries



AI

Visualization



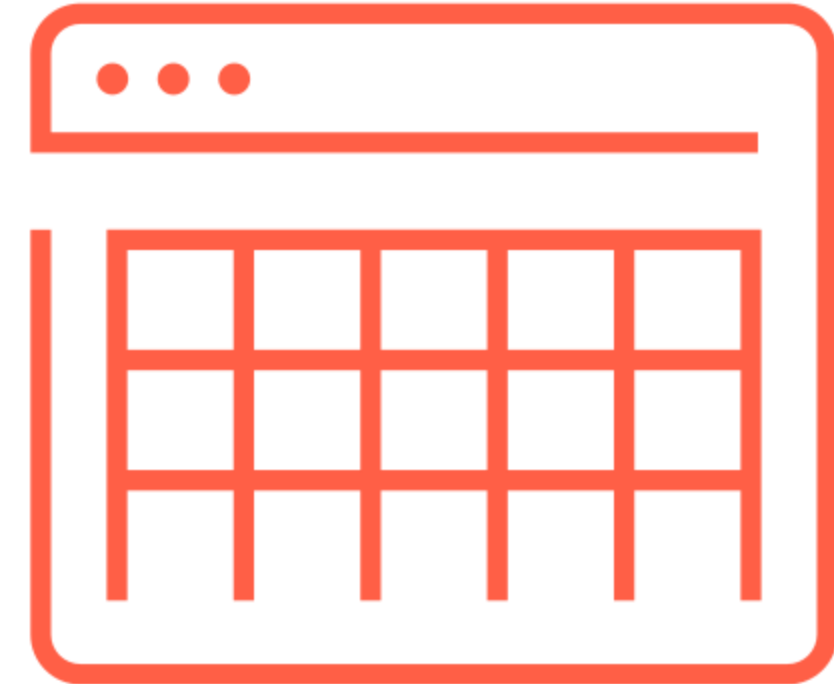
What do you need to create a dashboard?



A business purpose



A target audience



Data



What makes up a dashboard?

Title

Filters

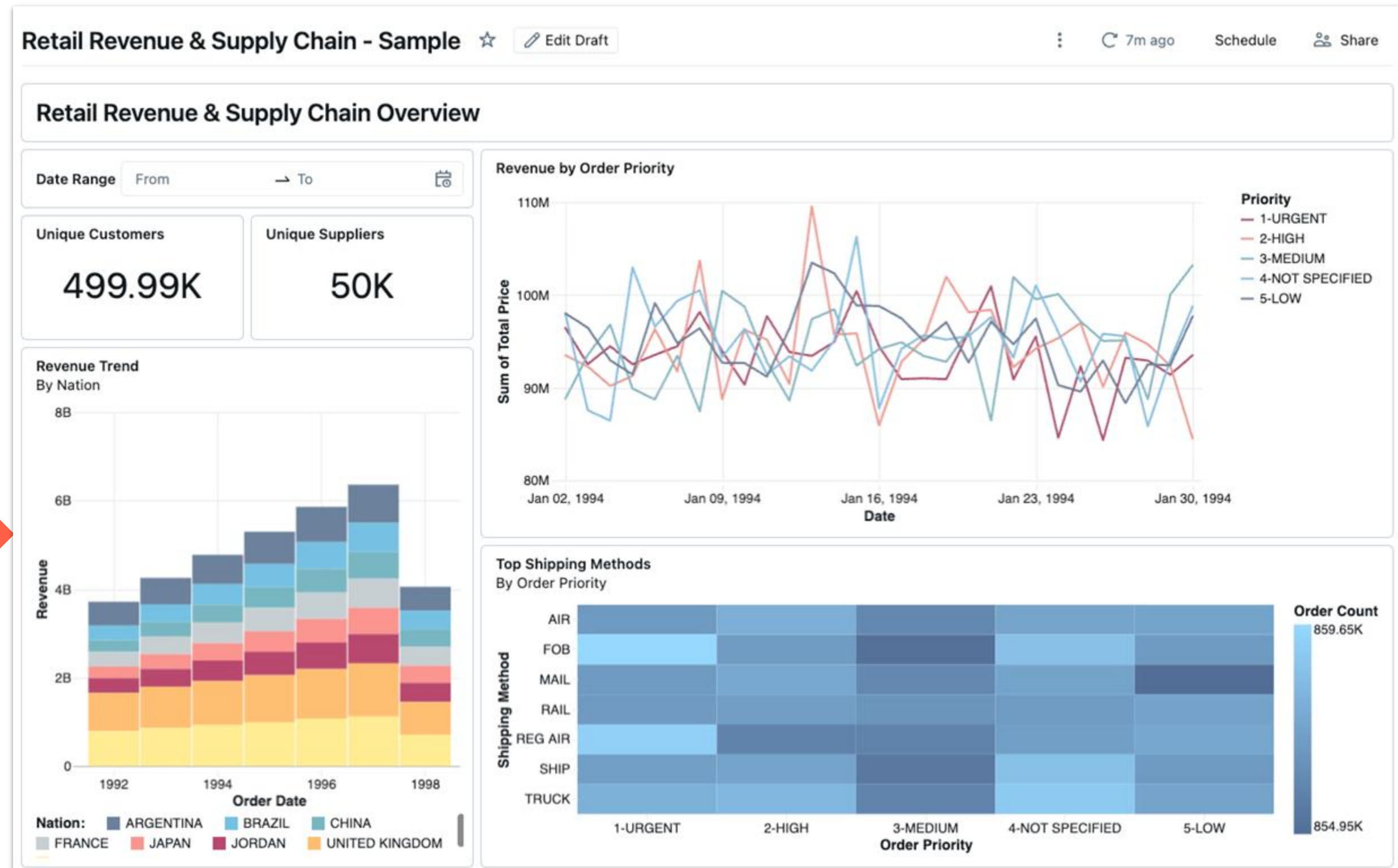
Counters

Stacked bar chart

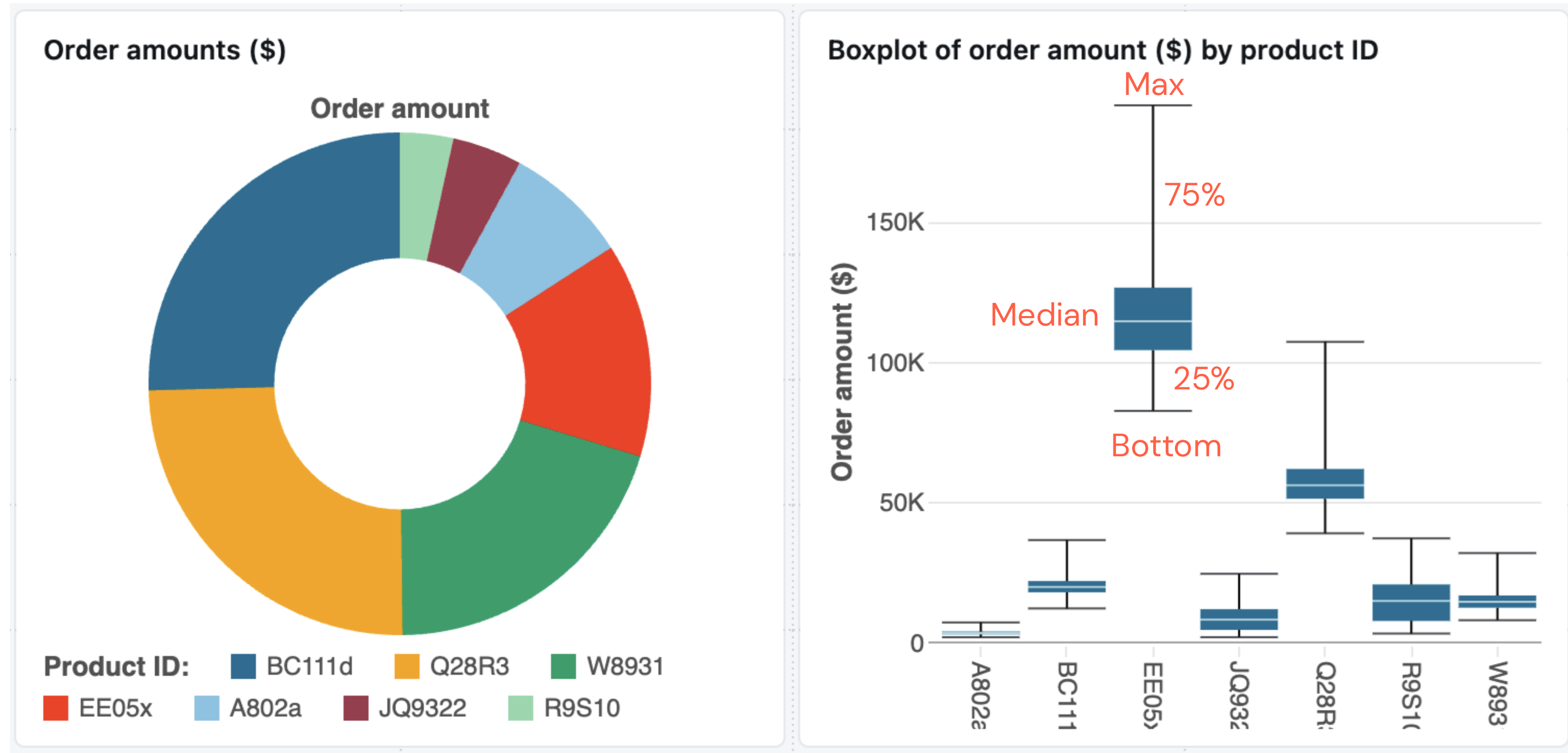
Text Box

Line chart

Heat map



Dashboards can show summary statistics



It all starts with Create Dashboard

New Dashboard 2025-06-30 09:16:49 ☆

⋮ Refresh shared_warehouse ▾ Publish 👤 Share

📊 Data | 🔍 Untitled page ⋮ +

↑

1. Click "Data" tab to get going

Create a dataset for your dashboard by writing your own SQL query or selecting an existing table.

2. Add a visualization or filter to your canvas

Select a tool then drag and draw to create your first dashboard widget.

Move Add a visualization Add a text box Add a filter

📊 | 📈 | 📄 | 🔍

Select a widget to configure

⚙️ Settings

Define data

Last, publish

Then define visualizations using that data






What options are available in the UI?

The screenshot shows a dashboard interface with several key components and annotations:

- Title:** A red arrow points to the dashboard title "New Dashboard 2025-06-30 09:16:49" in the top left corner.
- SQL warehouse:** A red arrow points to the "shared_warehouse" dropdown menu in the top right corner.
- Manage access:** A red arrow points to the "Share" button in the top right corner.
- Add pages:** A red arrow points to the "+" button next to the "Untitled page" tab in the top left corner.
- Instructions:** The main canvas contains two numbered instructions:
 - 1. Click "Data" tab to get going**
Create a dataset for your dashboard by writing your own SQL query or selecting an existing table.
 - 2. Add a visualization or filter to your canvas**
Select a tool then drag and draw to create your first dashboard widget.
- Widget Selection:** A blue bar at the bottom of the canvas contains four icons: a cursor (labeled "Move"), a line graph (labeled "Add a visualization"), a text box (labeled "Add a text box"), and a funnel (labeled "Add a filter").
- Settings:** A "Settings" button with a gear icon is located in the bottom right corner of the canvas.



Permissions: what can you do with a dashboard?

CAN VIEW or CAN RUN		<ul style="list-style-type: none">✓ Can look at and refresh the dashboard✓ Can click on widgets in the dashboard and interact with them✓ Can clone the dashboard
CAN EDIT		<p>All the above, plus</p> <ul style="list-style-type: none">✓ Can edit the dashboard✓ Can publish the dashboard
CAN MANAGE		<p>All the above, plus</p> <ul style="list-style-type: none">✓ Can change users' permissions on the dashboard✓ Can delete the dashboard



Your dashboard's publication cycle

First creation

New Dashboard 2025-07-03 13:01:57 ☆ ⋮ ↻ Refresh test_warehouse ▾ Publish 👤 Share



After naming

Winnipeg Production Dashboard ☆ ⋮ ↻ Refresh test_warehouse ▾ Publish 👤 Share



*Published
(Edit View)*

Winnipeg Production Dashboard ☆ View Published ⋮ ↻ Refresh test_warehouse ▾ Publish 👤 Share



Published

Winnipeg Production Dashboard ☆ Edit Draft ⋮ ↻ Refresh Schedule 👤 Share



How can you make a copy of an existing dashboard?

Move to draft mode

 Edit Draft

Specify new name and location

Clone "Winnipeg Production Dashboard" ×

New name*

(Clone) Winnipeg Production Dashboard

Clone to

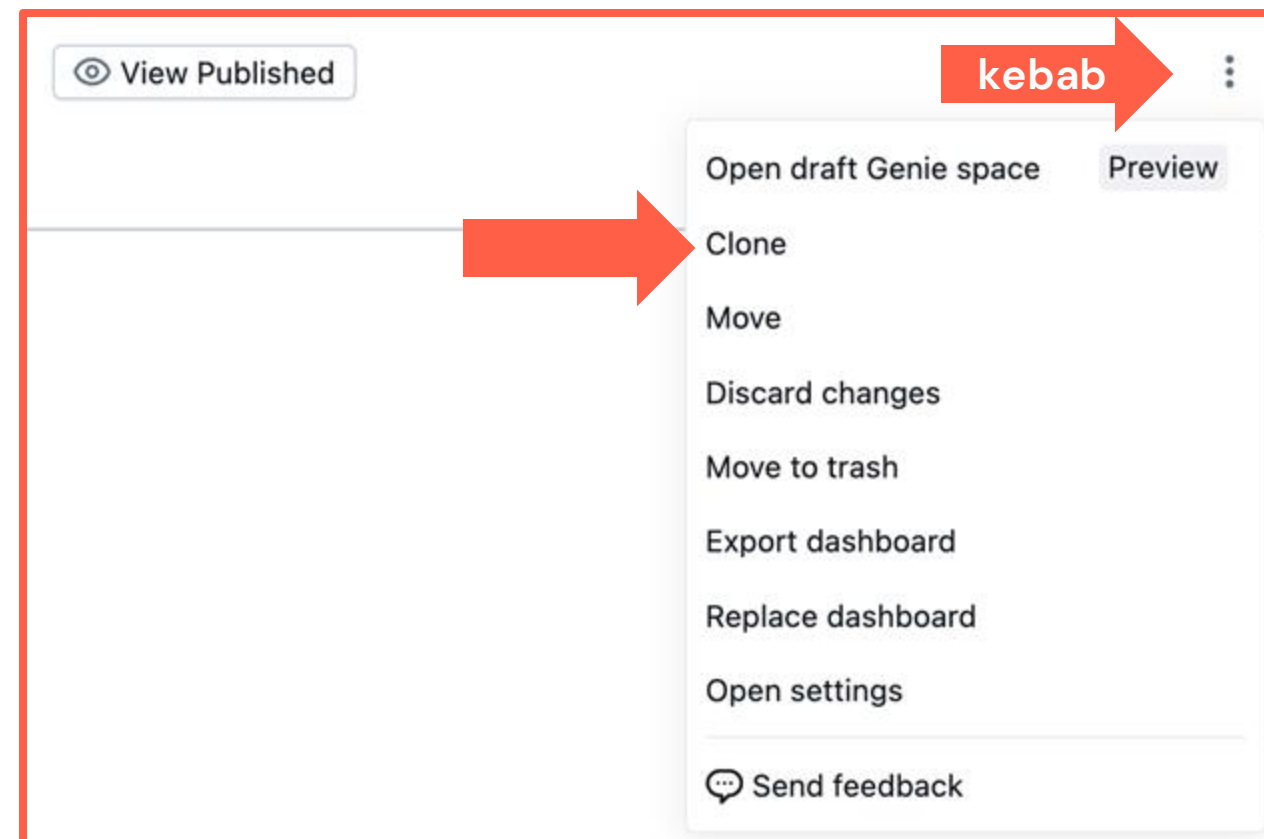
Workspace/Users/ @databricks.com 📁 Browse

☒ Include outputs

Cancel Clone

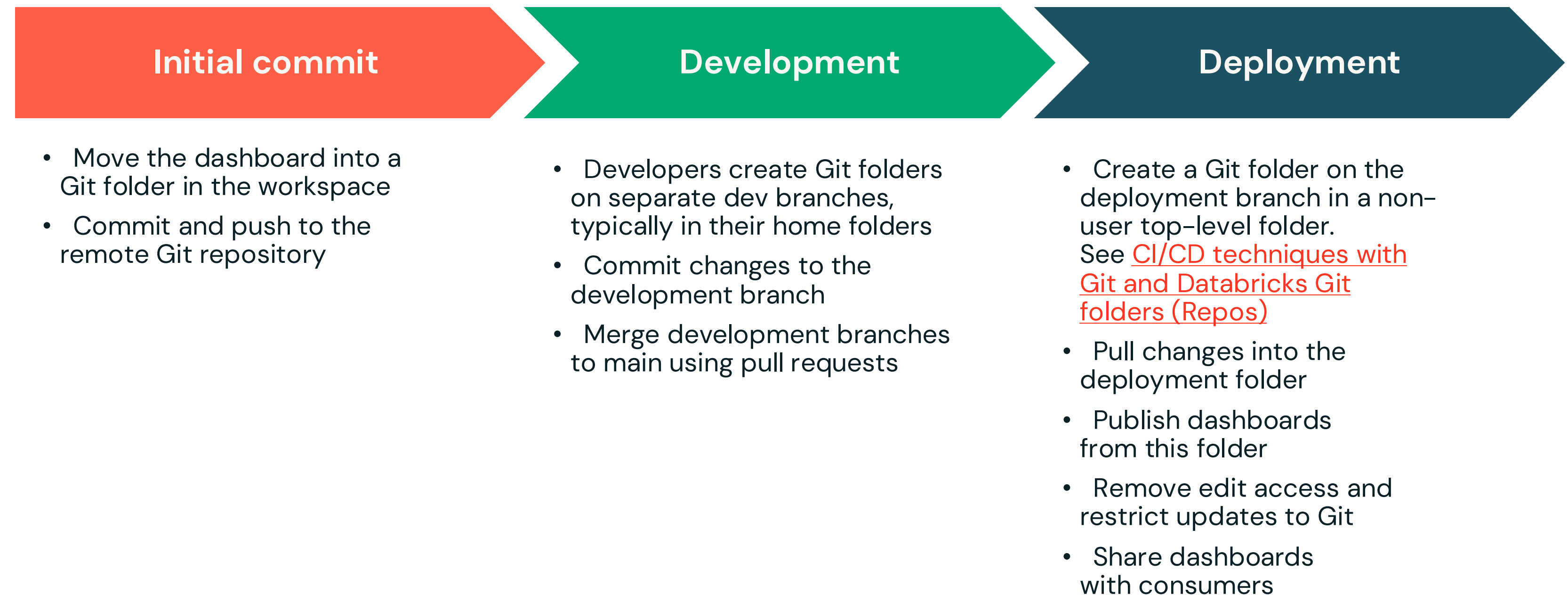
Caution: Dashboards are subject to the inherited permissions of the locations they are stored

Choose Clone from the kebab menu



Publishing and Sharing an AI/BI Dashboard

Managing the dashboard using Git/Version control





Dashboards and Visualizations in
Databricks
LECTURE

Just enough SQL



Databricks SQL lets you define custom datasets

- Can filter data values to focus on subsets of the data
- Can bridge together related tables
- SQL queries are stored as part of the dashboard's infrastructure
- Are refreshed on demand and on defined schedules



SQL queries are especially useful for lookups

OrderID	Product	Qty	CustID
B2104	Avocado	41	8ad2750b
B2105	Grapefruit	84	451e98f5
B2106	Cabbage	8	8ad2750b
B2107	Avocado	55	bb4a23a2
B2108	Pear	50	9302b293
more...			

Transactions table

CustID	Name	Province	more...
451e98f5	Ted	ON	
bb4a23a2	Emma	BC	
8ad2750b	Maya	AB	
9302b293	Jo	ON	
3aa9402e	Yumiko	QC	
more...			

Customer table



The simplest kind of query

```
SELECT *  
FROM fruteria.sales.transactions ;
```



Add a WHERE clause to focus on relevant rows

```
SELECT *  
FROM fruteria.sales.transactions  
WHERE franchiseID = "3000047" ;
```



Add a WHERE clause to focus on relevant rows

```
SELECT *  
  FROM fruteria.sales.transactions  
 WHERE franchiseID IN  
        ("3000047", "3000022", "3000093") ;
```



Name only relevant fields

```
SELECT product, quantity  
      FROM fruteria.sales.transactions  
      WHERE franchiseID = "3000047" ;
```



But what if we want to bring together fields from more than one table? (JOINS)

- ❑ Must specify the table each desired field comes from
- ❑ Must tell the query how to tie the tables together

OrderID	Product	Qty	CustomerID
B2104	Avocado	41	8ad2750b
B2105	Grapefruit	84	451e98f5
B2106	Cabbage	8	8ad2750b
B2107	Avocado	55	bb4a23a2
B2108	Pear	50	9302b293
more...			

Transactions table

CustomerID	Name	Province	more...
451e98f5	Ted	ON	
bb4a23a2	Emma	BC	
8ad2750b	Maya	AB	
9302b293	Jo	ON	
3aa9402e	Yumiko	QC	
more...			

Customer table



First, let's name the two tables...

```
SELECT product, quantity
FROM fruteria.sales.transactions
      AS t
JOIN fruteria.sales.customers
      AS c
[ . . . ] ;
```



Next let's specify the linking condition..

```
SELECT product, quantity
FROM fruteria.sales.transactions
AS t
JOIN fruteria.sales.customers
AS c
ON t.customerID = c.customerID ;
```



Now we can use fields from both tables

```
SELECT t.product, t.quantity, c.province  
FROM fruteria.sales.transactions  
      AS t  
JOIN fruteria.sales.customers  
      AS c  
ON t.customerID = c.customerID ;
```



And we can further filter

```
SELECT t.product, t.quantity, c.province
FROM fruteria.sales.transactions
      AS t
JOIN fruteria.sales.customers
      AS c
ON t.customerID = c.customerID
WHERE c.province IN ("ON", "BC") ;
```



And we can further filter

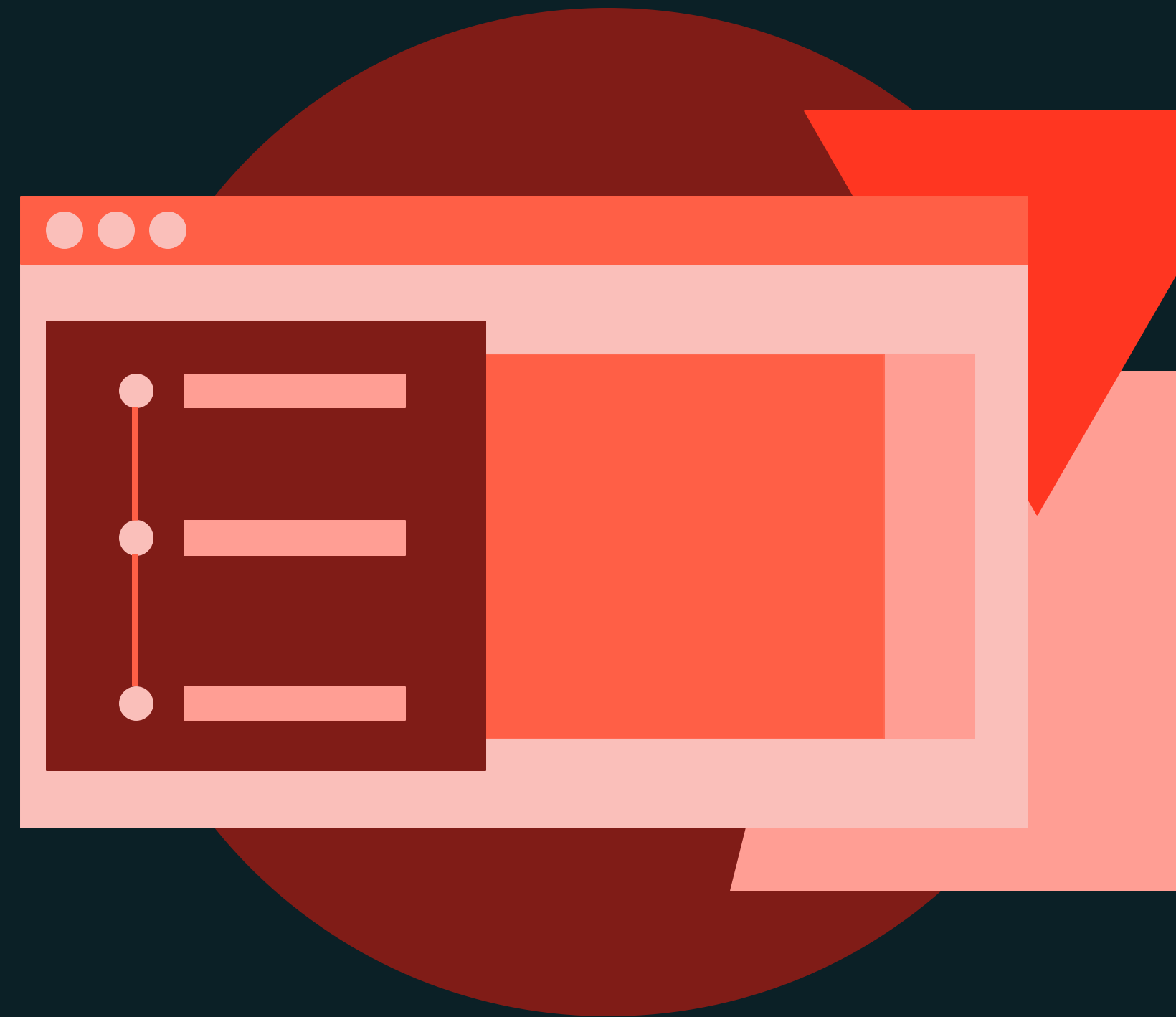
```
SELECT t.product, t.quantity, c.province
FROM fruteria.sales.transactions
      AS t
JOIN fruteria.sales.customers
      AS c
ON t.customerID = c.customerID
WHERE c.province IN ("ON", "BC")
      AND
      t.product = "Grapefruit" ;
```





Dashboards and Visualizations in
Databricks
DEMONSTRATION

Designing Datasets for Dashboards



Follow-along Instructions

Estimated Time: 20 minutes

For this demonstration, the instructor will walk you through the process of creating or selecting data assets for AI/BI Dashboards. You will also learn the process for creating a AI/BI Dashboard within the platform.

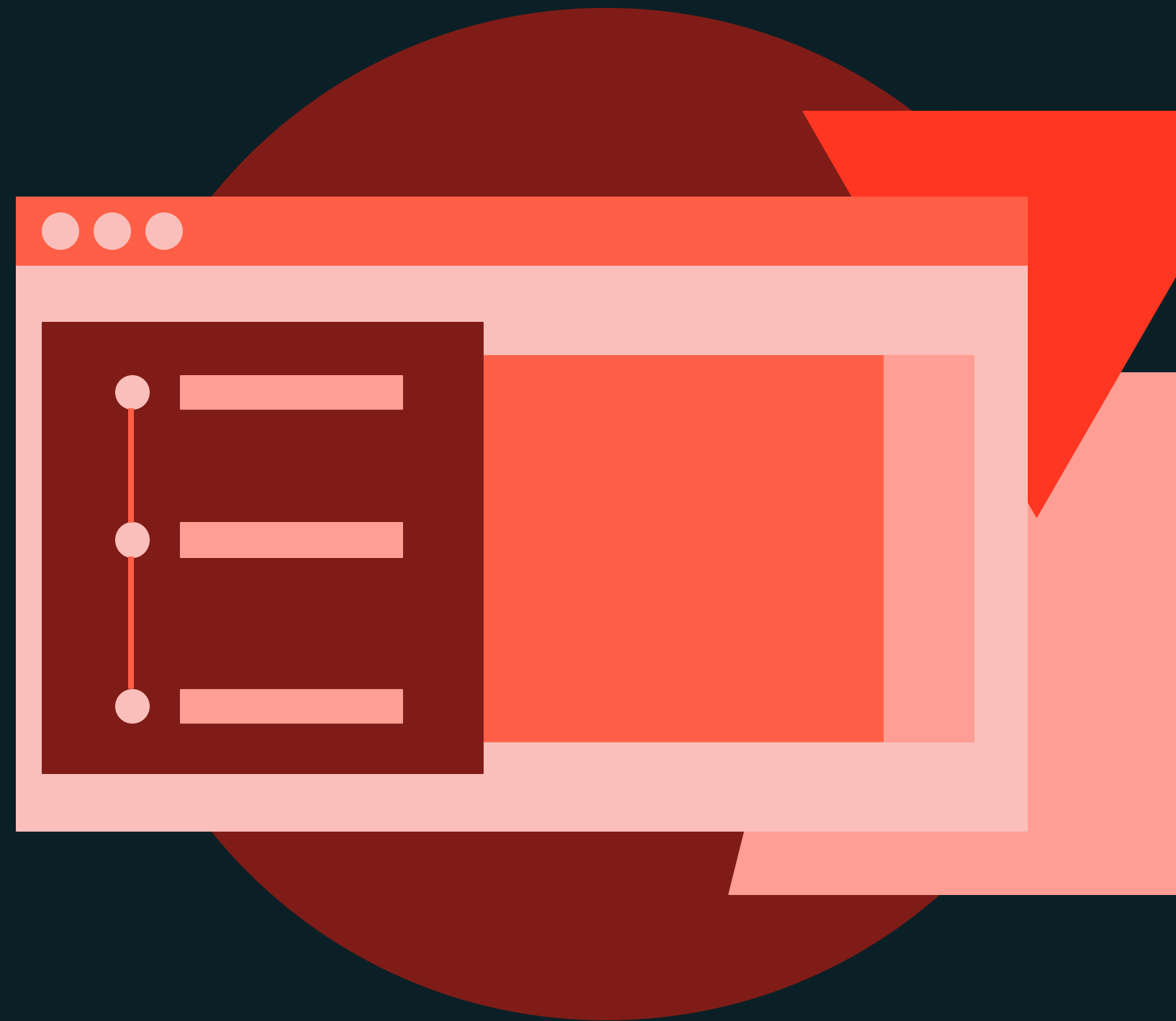
If you have access to the Vocareum lab environment, feel free to follow-along.





Dashboards and Visualizations in
Databricks
DEMONSTRATION

Creating Visualizations and adding Summary Statistics to Dashboards



Follow-along Instructions

Estimated Time: 20 minutes

For this demonstration, the instructor will show you how to add widgets to your dashboard for various purposes including for the display of text and graphics, numerical values, and illustrative charts.

If you have access to the Vocareum lab environment, feel free to follow-along.

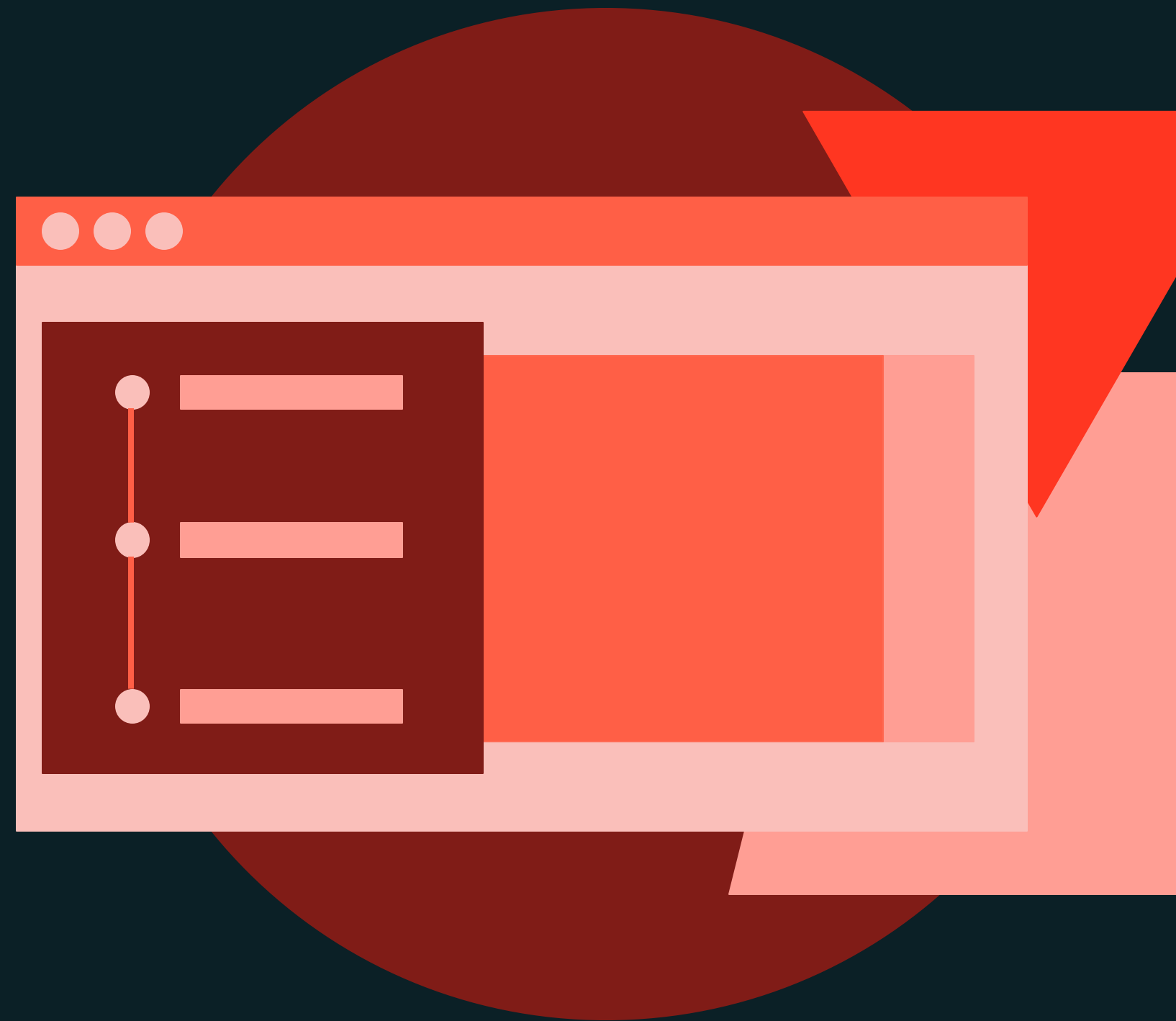
Note: The steps in this demonstration require you to have completed the steps in the *Designing Datasets for Dashboards* demonstration.





Dashboards and Visualizations in
Databricks
DEMONSTRATION

AI Enhanced Features



Follow-along Instructions

Estimated Time: 8 minutes

For this demonstration, the instructor will walk you through how to use Databricks' AI features to create visualizations and support your work through the use of natural language inputs.

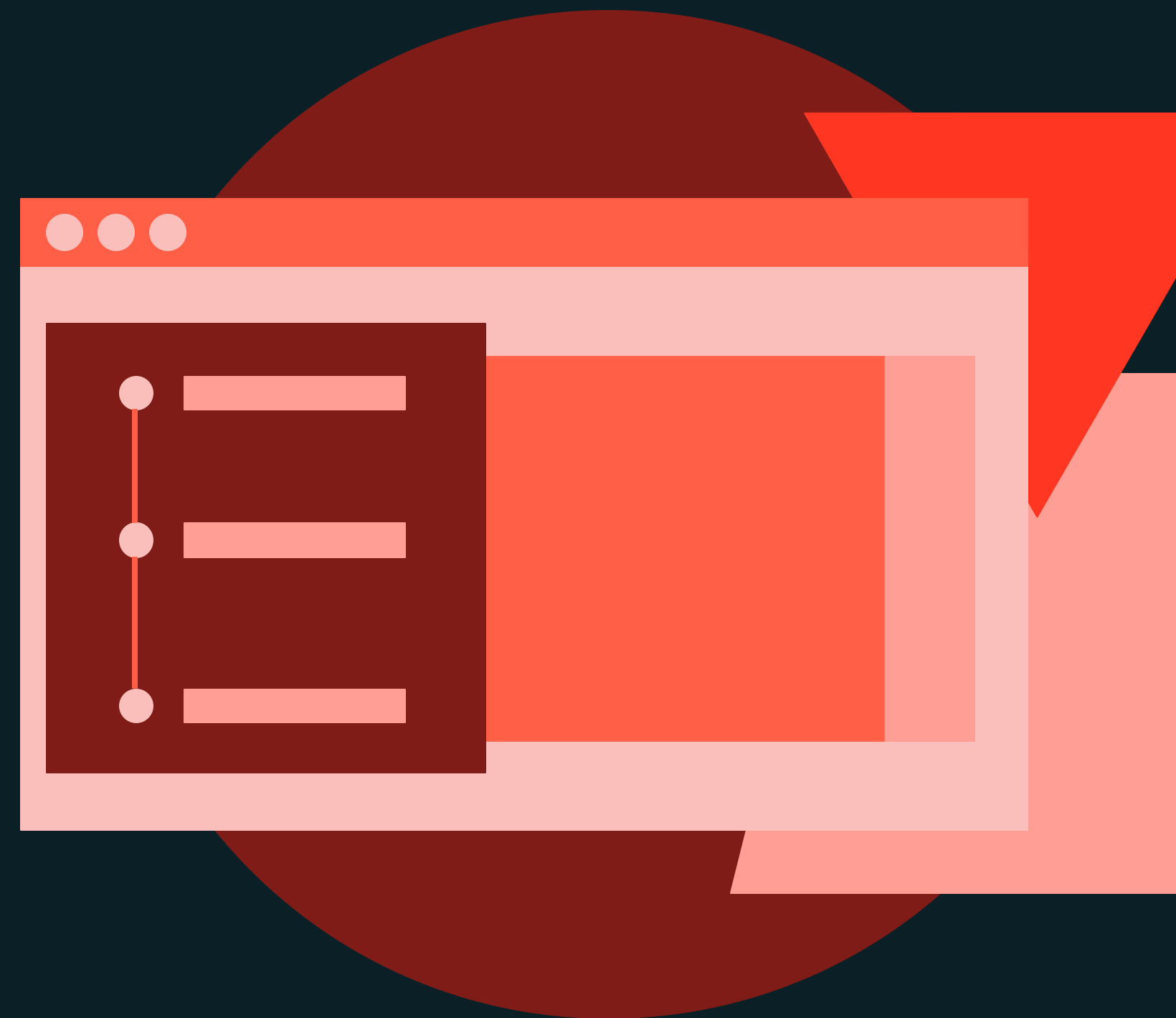
If you have access to the Vocareum lab environment, feel free to follow-along.





Dashboards and Visualizations in Databricks **DEMONSTRATION**

Filters



Follow-along Instructions

Estimated Time: 8 minutes

For this demonstration, the instructor will demonstrate how to add dynamic features to dashboards, such as filters. You'll also learn how to use cross filtering to drill down on multiple visualizations simultaneously.

If you have access to the Vocareum lab environment, feel free to follow-along.

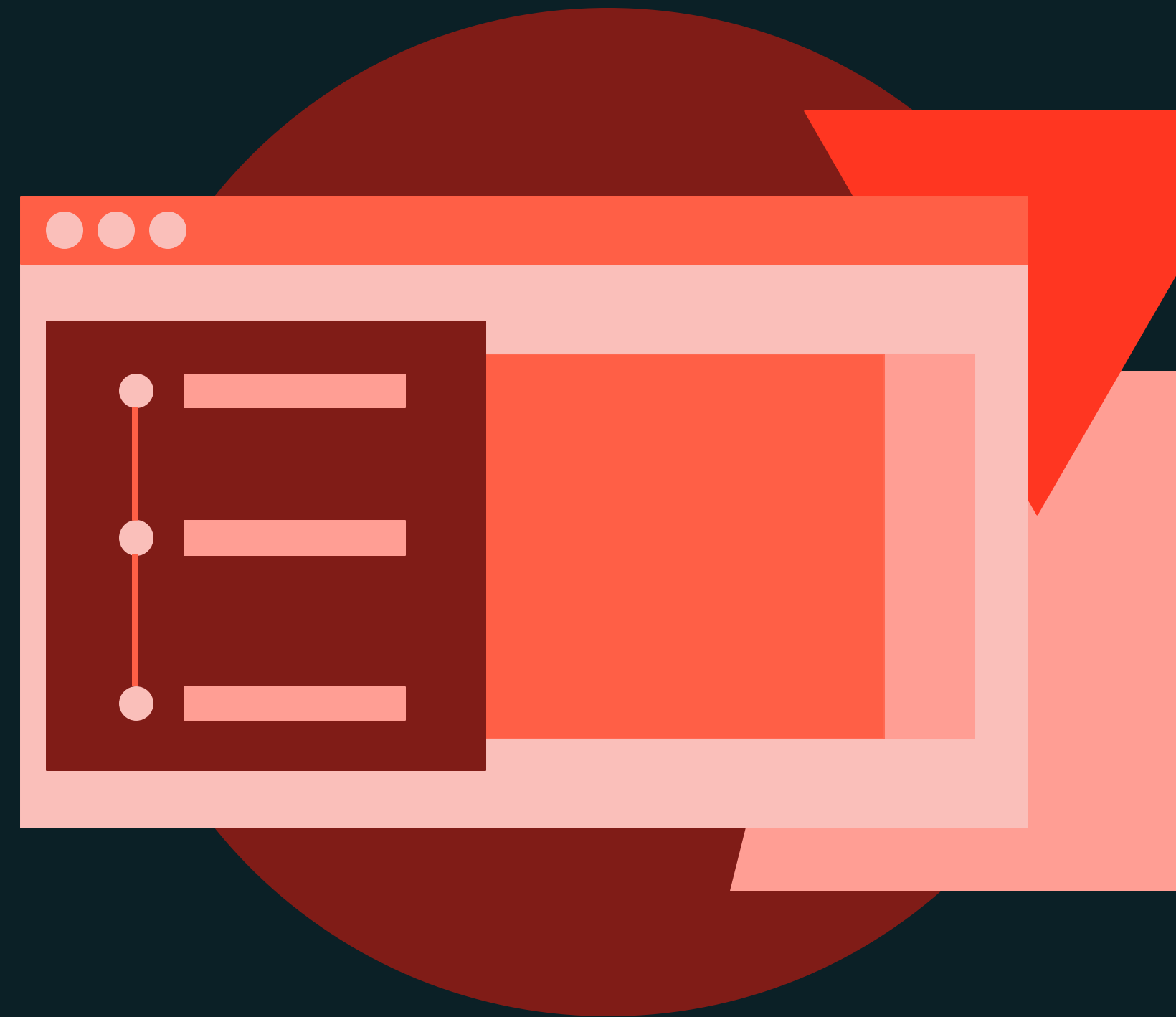
Note: The steps in this demonstration require you to have completed the steps in the *Creating Visualizations and adding Summary Statistics to Dashboards* demonstration.





Dashboards and Visualizations in
Databricks
DEMONSTRATION

Sharing Dashboards with Stakeholders and Others



Follow-along Instructions

Estimated Time: 8 minutes

For this demonstration, the instructor will walk you through how to securely share and publish dashboards for others to view and use. You'll see how to adjust the permissions settings for your dashboards for appropriate access.

If you have access to the Vocareum lab environment, feel free to follow-along.

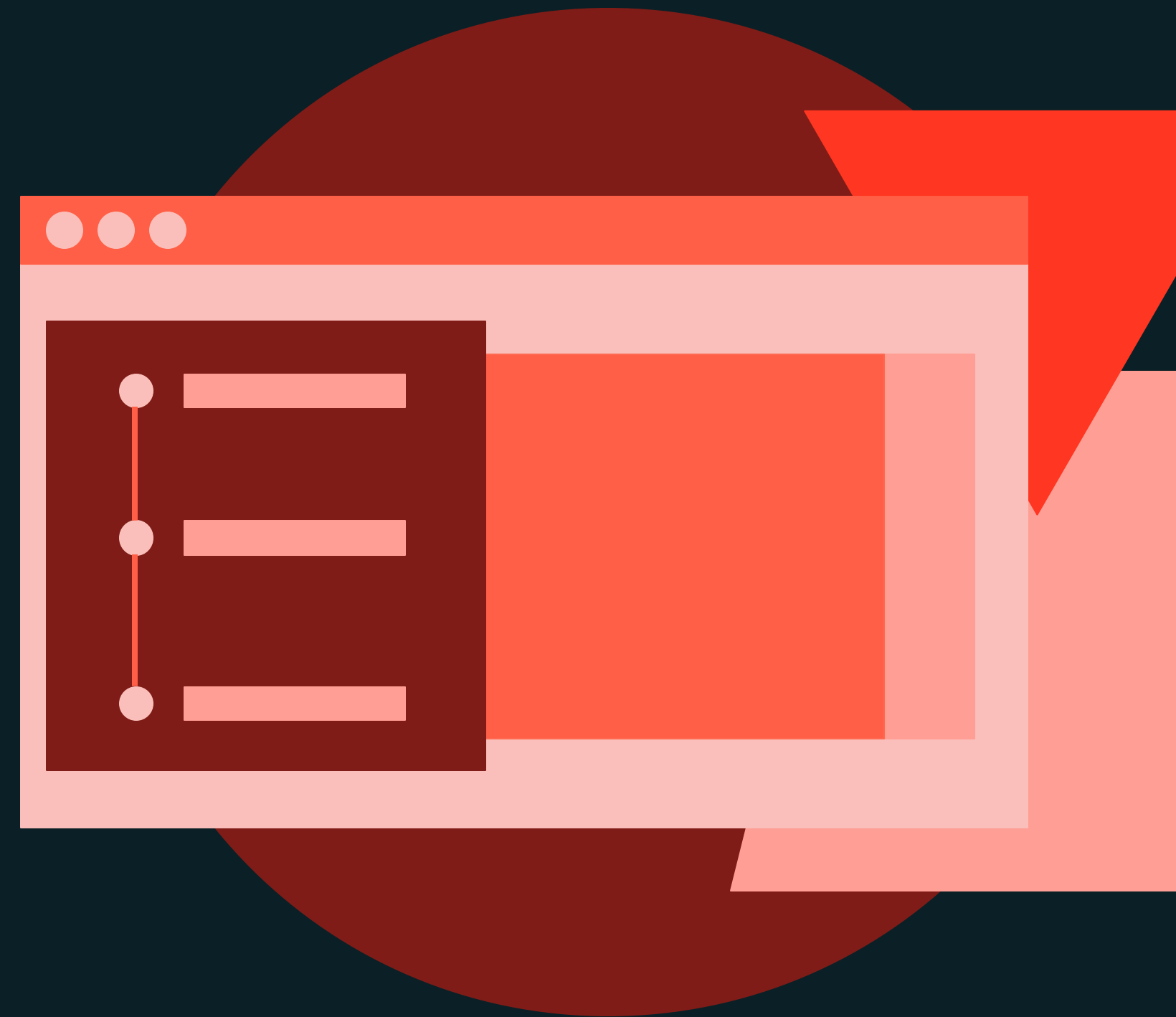
Note: The steps in this demonstration require you to have completed the steps in the *Filters* demonstration.





Dashboards and Visualizations in
Databricks
DEMONSTRATION

Managing Dashboards in Production



Follow-along Instructions

Estimated Time: 8 minutes

For this demonstration, the instructor will demonstrate how to update dashboards once they've been published.

If you have access to the Vocareum lab environment, feel free to follow-along.

Note: The steps in this demonstration require you to have completed the steps in the *Sharing Dashboards with Stakeholders and Others* demonstration.





Dashboards and Visualizations in
Databricks
LAB EXERCISE

Dashboard and Visualization Lab Activity



What's in this lab activity?

- Add Datasets to a Dashboard
- Add several visualizations to a dashboard.
- Add multiple tabs to a dashboard
- Add additional (non-visualization) widgets to a dashboard.
- Add filters to a dashboard.
- Establish Refresh schedules.
- Share Dashboards securely.





AI/BI Genie

AI/BI for Data Analysts



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Agenda

AI/BI Genie	Time	Lecture	Demo	Activity
AI/BI Genie	10 mins	✓		
Developing Genie Spaces	15 mins		✓	
Sharing Genie Spaces	5 mins		✓	
Maintaining Genie Spaces	10 mins		✓	
AI/BI Genie Space Development Activity Lab	30 mins			✓



Learning Objectives

Create data assets for self-service analytics.

- Establish AI/BI Genie spaces associated with a dashboard.
- Establish stand-alone AI/BI Genie spaces.
- Share AI/BI Genie spaces with stakeholders.
- Solicit feedback from stakeholders and non-technical users.

Manage the data assets for business intelligence in Databricks.

- Make edits to the settings of an AI/BI Genie Space.
- Review and respond to feedback on AI/BI Genie Spaces from stakeholders and business users.





AI/BI Genie

LECTURE

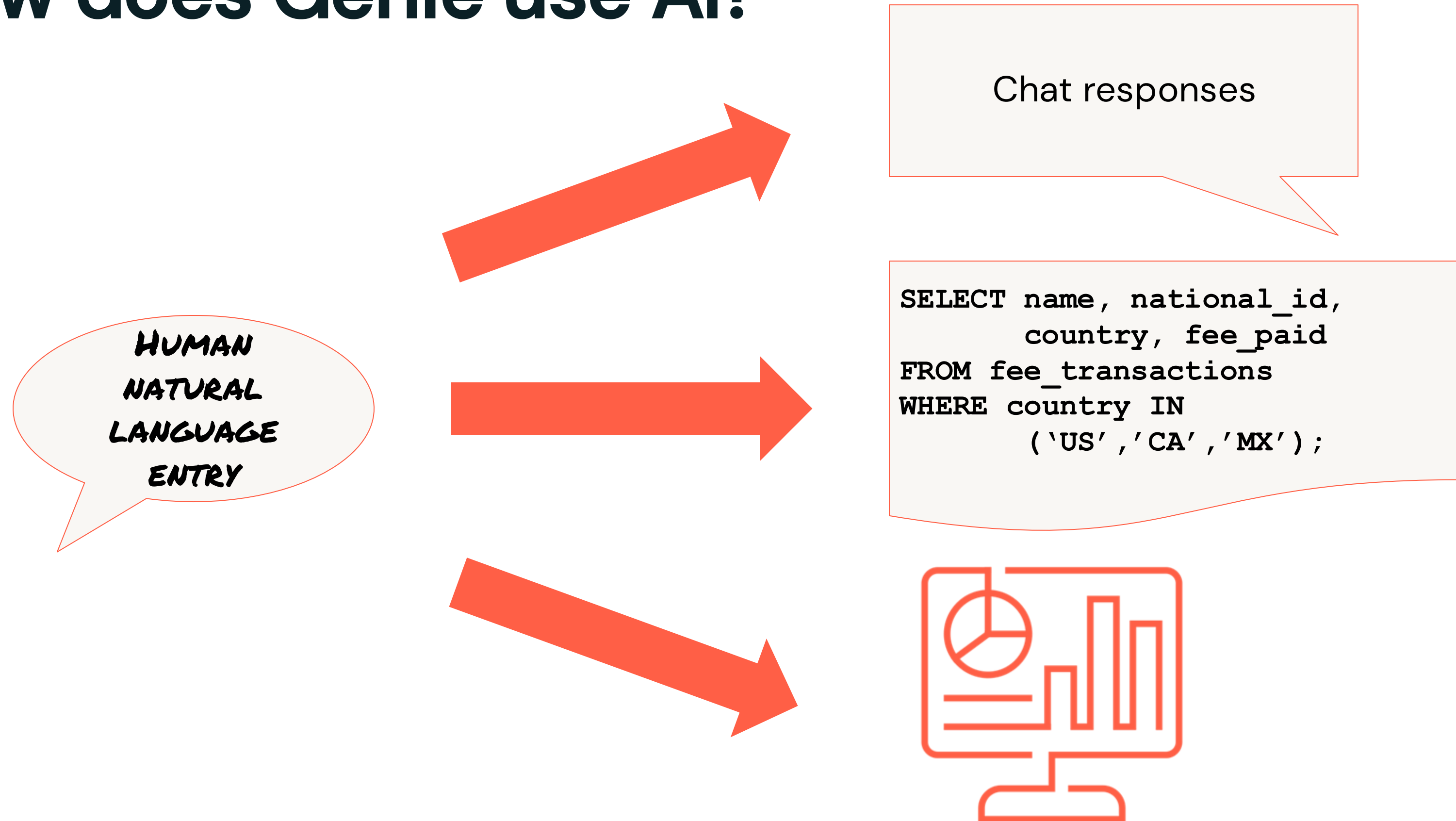
AI/BI Genie



Genie lets users converse with data in natural language



How does Genie use AI?



How AI/BI Genie understands the business

Dashboards and data



Curated instructions



Unity Catalog



User feedback



Genie space



Building your Genie Space

Start with well-documented tables

The image shows two overlapping windows from the Databricks Genie interface. The background window, titled "Connect your data", provides instructions on uploading datasets and includes a search bar, filter tabs for "For you" and "All", a breadcrumb trail "All catalogs > dbacademy_ca_sales > v01", a list of tables (customers, opportunities, orders) with checkboxes, and a "Selected:" section at the bottom showing the chosen tables. The foreground window, titled "customerid", is for configuring a specific column. It includes a "Description" field, a "Synonyms" field, an "Advanced" section with a toggle for "Example values" (which is turned on) and a text input for sample values ("AS7573, CI4562, TC0514, CS6924, QS1139"), and another toggle for "Build value dictionary" (which is turned off). Both windows have "Cancel" and "Create" or "Save" buttons.

- Begin with UC tables/views and add meaningful comments to columns and table descriptions for clarity
- Clearly define primary keys and foreign keys for better context understanding



Building your Genie Space

Genie learns from you

- Include relevant instructions that help Genie understand unique jargon, logic or business concepts
- Save as instruction → verified SQL queries can be saved, teaching Genie to provide more accurate answers in the future

The screenshot shows the 'General Instructions' configuration window. At the top, there are tabs for 'Context' and 'Settings'. Below these are three buttons: 'Data', 'Instructions' (which is selected), and 'SQL Queries'. The main area is titled 'General Instructions' with the subtitle 'Add general instructions on how you want Genie to behave.' It contains a text area with examples of instructions, such as 'MCA stands for My Company Abbreviation' and 'Countries in the country_code column are stored with two characters (e.g. US, IT)'. A 'Save' button is located at the bottom right.

The screenshot shows the 'SQL Queries' configuration window. It has tabs for 'Context' and 'Settings'. Below these are three buttons: 'Data', 'Instructions', and 'SQL Queries' (which is selected). A text input field contains the question 'What question does this query answer?'. Below this is a text area containing a SQL query: '1 SELECT column_1, column_2 FROM...'. At the bottom, there are sections for 'Parameters' and 'Usage Guidance', each with a dropdown arrow. At the very bottom are three buttons: 'Cancel', 'Preview', and 'Save'.



Using Genie Benchmarks

- Benchmarks are used for evaluation, not training
- Set of standardized questions with supplied SQL to answer the question.
- Running a benchmark provides three responses:
 - Good
 - Bad
 - Requires Manual Review

Add benchmark

Question

e.g. "What was our ARR over the last 4 years?"

SQL Answer (optional)

▶ Run

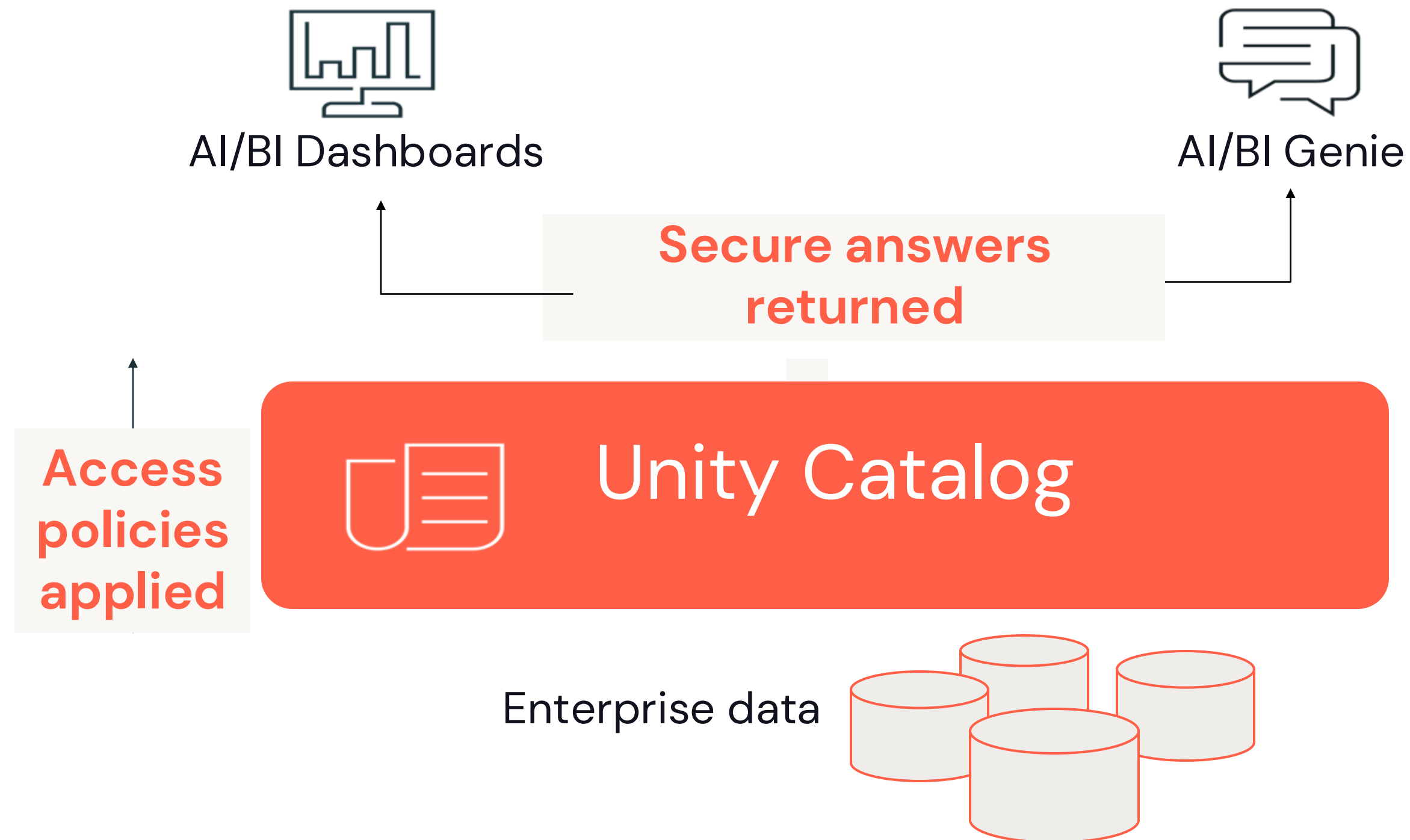
Enter a ground truth SQL statement that correctly answers your benchmark question. This statement will be executed, and the query results will be compared to Genie's results to determine accuracy. Questions without a ground truth SQL statement will be marked for manual review.

Cancel

Add benchmark



Genie offers governed and secure insights






What are your responsibilities for using AI/BI Genie with stakeholders and business users?

- ❑ Carefully curate the base datasets
- ❑ Provide reasonable sample queries
- ❑ Mark vetted queries as Trusted Assets
- ❑ Respond to user feedback and add instructions
- ❑ Ensure that the data is fresh



Permissions: what can you do with a Genie space?

CAN VIEW or CAN RUN		<ul style="list-style-type: none">✓ Can ask Genie questions and get answers✓ Can give feedback on answers 👍 👎
CAN EDIT		<p>All the above, plus</p> <ul style="list-style-type: none">✓ Can add or edit saved instructions✓ Can add or edit sample questions✓ Can bring in or throw out included data tables
CAN MANAGE		<p>All the above, plus</p> <ul style="list-style-type: none">✓ Can see all the questions users ask in the space, and the answers✓ Can see all the feedback✓ Can change the space's permissions✓ Can delete the space



Governing your Genie Space

Governed Genie space interactions



Unified security and governance

All interactions governed by UC's security policies and data access controls

RLS and CLS ensure data privacy



Trusted interactions

All Genie interactions inherit access policies

Users only see data they are authorized to access



Prepping for governance

Users must have:

SELECT permissions on UC tables, views, functions, etc.

CAN USE permissions on the SQL warehouse

Consider using a code-styled callout box for these permissions to make them pop



A few best practices when creating a Genie space



What should users be able to answer?



Encourage alignment with business needs



Test the response quality



Rephrase the questions; does the model still understand?



Ask new, related questions; does Genie generalize well?



Refine your instructions



Iterate on prompts until answers match expectations



Encourage fine-tuning based on user testing

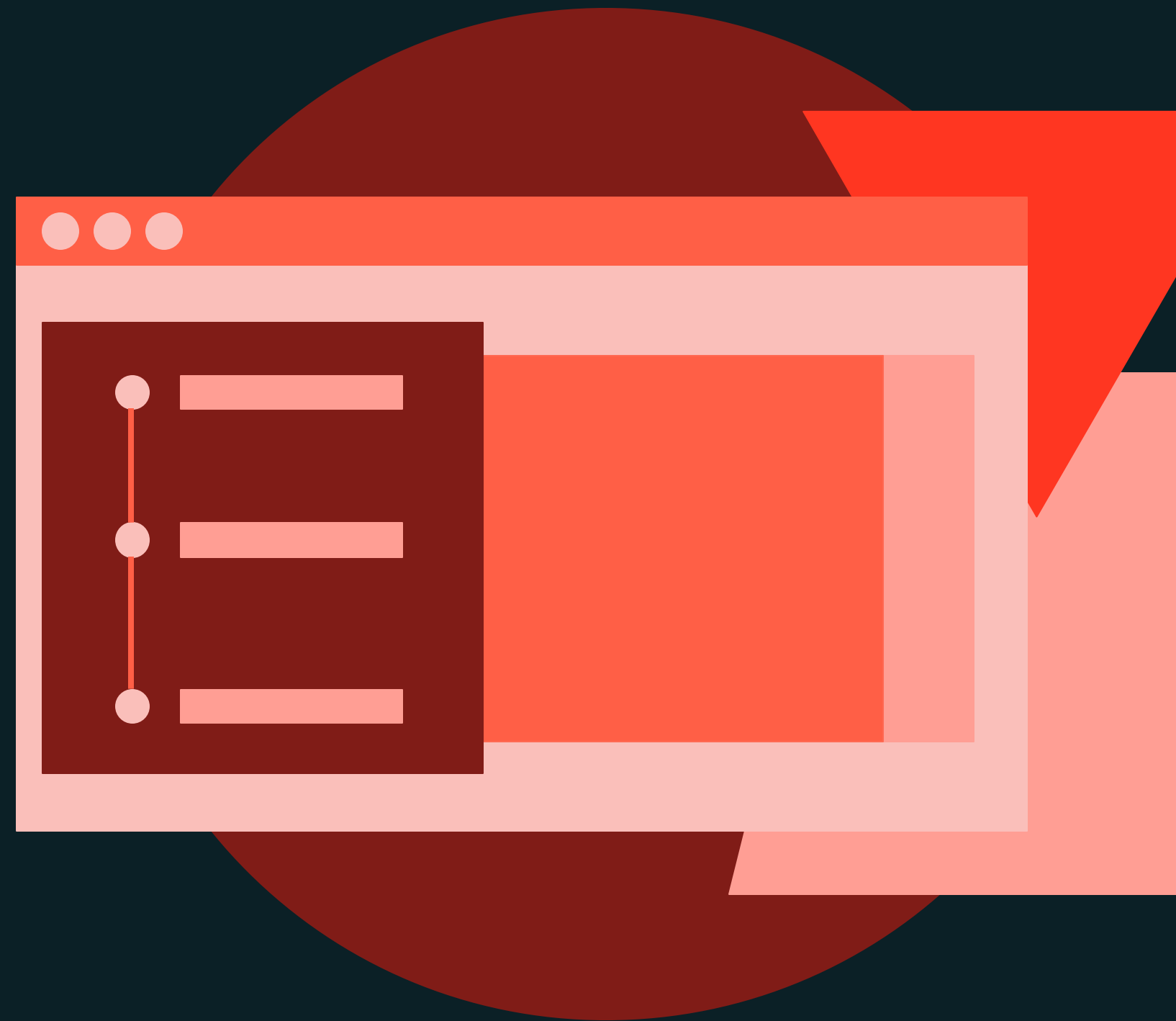




AI/BI Genie

DEMONSTRATION

Developing Genie Spaces



Follow-along Instructions

Estimated Time: 15 minutes

For this demonstration, the instructor will show you how to create a Genie space, including how to configure some of the basic settings.

If you have access to the Vocareum lab environment, feel free to follow-along.

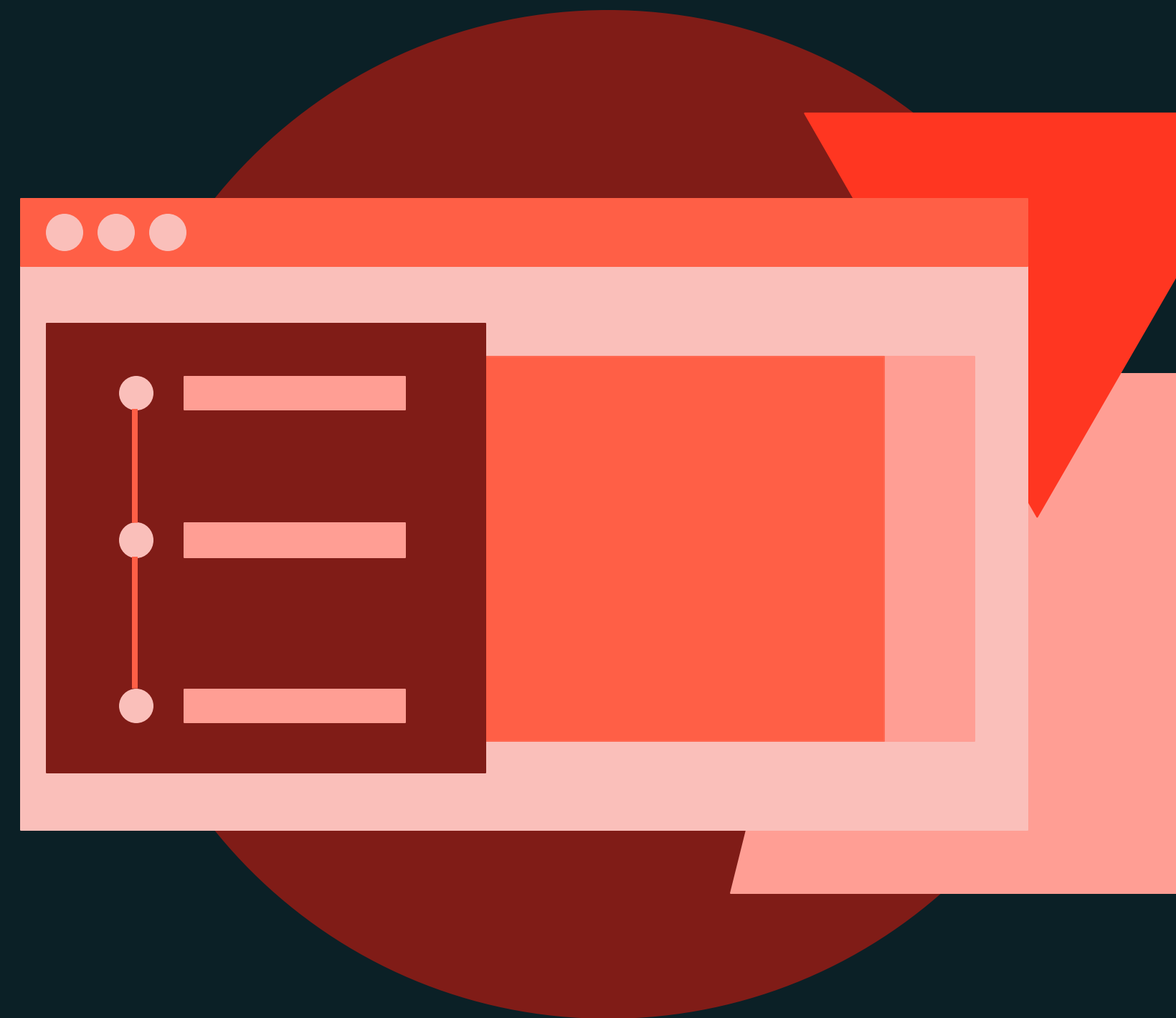




AI/BI Genie

DEMONSTRATION

Sharing Genie Spaces



Follow-along Instructions

Estimated Time: 5 minutes

For this demonstration, the instructor will demonstrate the process for sharing Genie spaces with others within your Databricks account.

If you have access to the Vocareum lab environment, feel free to follow-along.

Note: The steps in this demonstration require you to have completed the steps in the *Developing Genie Spaces* demonstration.

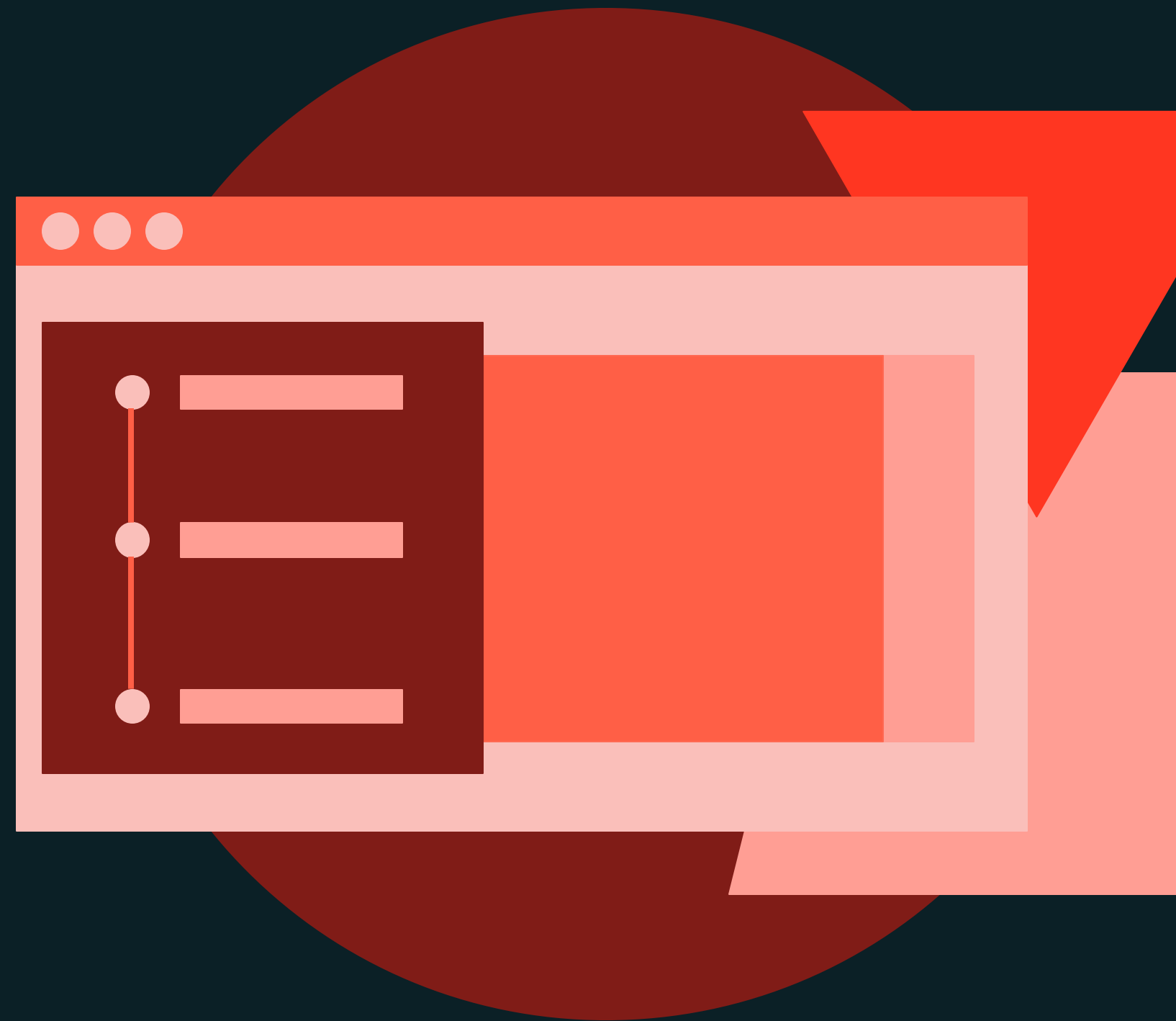




AI/BI Genie

DEMONSTRATION

Maintaining Genie Spaces



Follow-along Instructions

Estimated Time: 10 minutes

For this demonstration, the instructor will demonstrate how to edit and maintain a Genie space based on feedback from end-users, including setting custom instructions, adding benchmark questions, and ensuring datasets are properly notated and described.

If you have access to the Vocareum lab environment, feel free to follow-along.

Note: The steps in this demonstration require you to have completed the steps in the *Sharing Genie Spaces* demonstration.





AI/BI Genie

LAB EXERCISE

AI/BI Genie Space Development Activity Lab



What's in this lab activity?

Develop a Genie Space

Manage settings and custom instructions.

Practice using a Genie Space as if you were an end user.

Review the feedback provided through the UI as a Genie Space Developer



Summary and Next Steps

AI/BI for Data Analysts



Course Learning Objectives Recap

In this course, you learned how to use Databricks AI/BI tools to:

- Design dashboards for business insights.
- Share business intelligence assets with collaborators and stakeholders.
- Periodically revise data assets in accordance with best practices and new information.
- Create data assets for self-service analytics.
- Manage the data assets for business intelligence in Databricks.



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