

Ciclo de vida dos dados em CDP Public Cloud

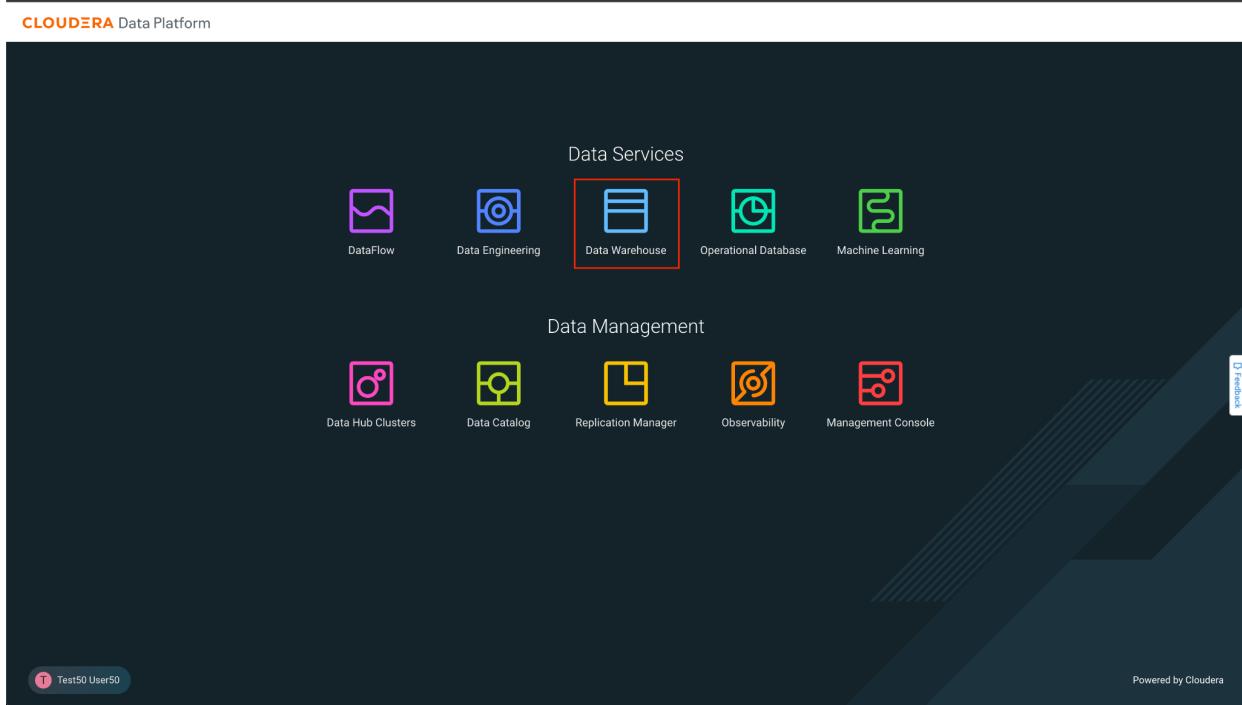
Laboratório Data Warehouse

Parte 1: Desenvolvimento do painel

Metas:

- Crie um conjunto de dados apontando para a tabela
- Crie um painel com métricas e dimensões

1. Clique em Data Warehouse no CDP PC Home:



2. Tela de boas-vindas do Data Warehouse. Clique em Data Visualization no menu à esquerda.

The screenshot shows the Cloudera Data Warehouse interface. On the left sidebar, there are links for Overview, Database Catalogs, Virtual Warehouses, and Data Visualization. The main area is titled 'Overview' with a 'Get started with Data Warehouse' section. Below this are three cards: 'Create' (for environments, database catalogs, virtual warehouses), 'Query and visualize data' (for running SQL queries and creating reports), and 'Guides and More' (for documentation and release notes). Under 'Database Catalogs | 1', there is one entry: 'ssa-datalake-de...' (warehouse-1685380695). Under 'Virtual Warehouses | 2', there are two entries: 'impala-vw-0' (running) and 'hive-vw-0' (stopped). Both entries show details like total cores, memory, and executors.

3. Em Data Visualization, clique no botão **Data VIZ** de onde foram atribuídos.

The screenshot shows the 'Data Visualization' page. The left sidebar has the same navigation as the previous screen. The main area displays a table of data visualizations. The first row, labeled 'dataviz-0', has its 'Data VIZ' button highlighted with a red box. The table includes columns for NAME, DATA VISUALIZATION ID, Environment ID, VERSION, CPU, MEMORY, UPTIME, and CREATED BY.

NAME	DATA VISUALIZATION ID	Environment ID	VERSION	CPU	MEMORY	UPTIME	CREATED BY
dataviz-0	viz-1685400615-2kkq	env-rggpp	7.1.1-b30	2	8 GB	an hour	acampos

4. Uma vez em Visualização de dados, vá para a opção Data no menu superior e, em seguida, para o Conector **ImpalaConn** no menu à esquerda.

The screenshot shows the Databricks Dataset list interface. On the left, there's a sidebar with connection management options: '% NEW CONNECTION', 'All Connections', 'ImpalaConn' (which is highlighted with a red box), and 'samples'. The main area displays a table of datasets with columns: Title/Table, ID, Created, Last Updated, Modified By, and # Dashboards. The datasets listed are:

Title/Table	ID	Created	Last Updated	Modified By	# Dashboards
Food Stores Inspection in NYC main.retail_food_store.inspections_current_critical_vio...	12	May 29, 2023	a few seconds ago	vizapps_admin	3
Cereals main.cereals	11	May 29, 2023	a few seconds ago	vizapps_admin	1
World Life Expectancy main.world_life_expectancy	9	May 29, 2023	a few seconds ago	vizapps_admin	1
Earthquake Data January 2019 main.earthquake_data2019	10	May 29, 2023	a few seconds ago	vizapps_admin	1
US State Populations Over Time main.census_pop	7	May 29, 2023	a few seconds ago	vizapps_admin	1
US County Population main.us_counties	8	May 29, 2023	a few seconds ago	vizapps_admin	1
Global Information Security Threats main.infoseq_1559	6	May 29, 2023	a few seconds ago	vizapps_admin	1
Restaurant Inspection SF main.restaurant_scores_lives_standard	5	May 29, 2023	a few seconds ago	vizapps_admin	1

5. Temos que criar uma nova fonte de dados, para isso, clique em **New Dataset** e aparecerá uma janela para inserir as informações da nova fonte de dados.

The screenshot shows the Databricks 'New Dataset' creation interface. On the left, there's a sidebar with connection management options: '% NEW CONNECTION', 'All Connections', 'ImpalaConn' (highlighted with a red box), and 'samples'. The main area has a header with 'NEW DATASET', 'ADD DATA', and a three-dot menu. Below is a table with columns: Title/Table, ID, Created, Last Updated, Modified By, and # Dashboards. The table currently displays 'No data'.

6. Insira as informações para a nova fonte de dados:

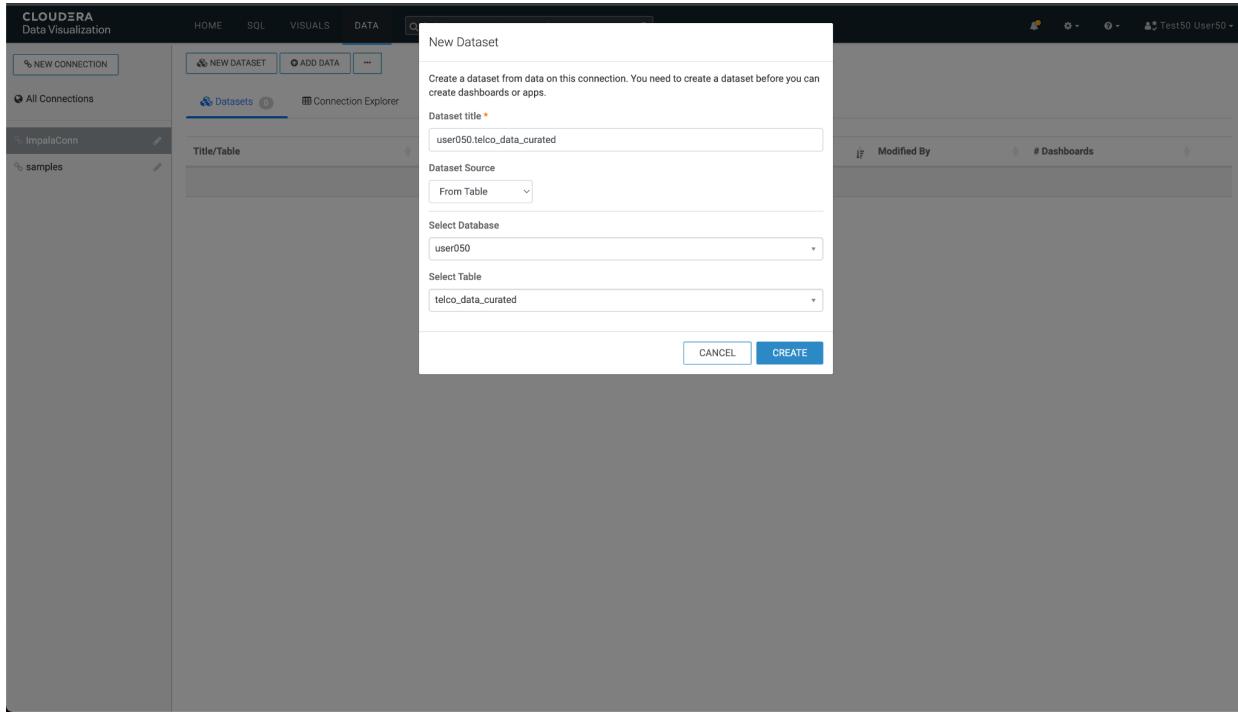
Dataset title: <assigned_user>.telco_curated_data

Dataset Source: Da mesa

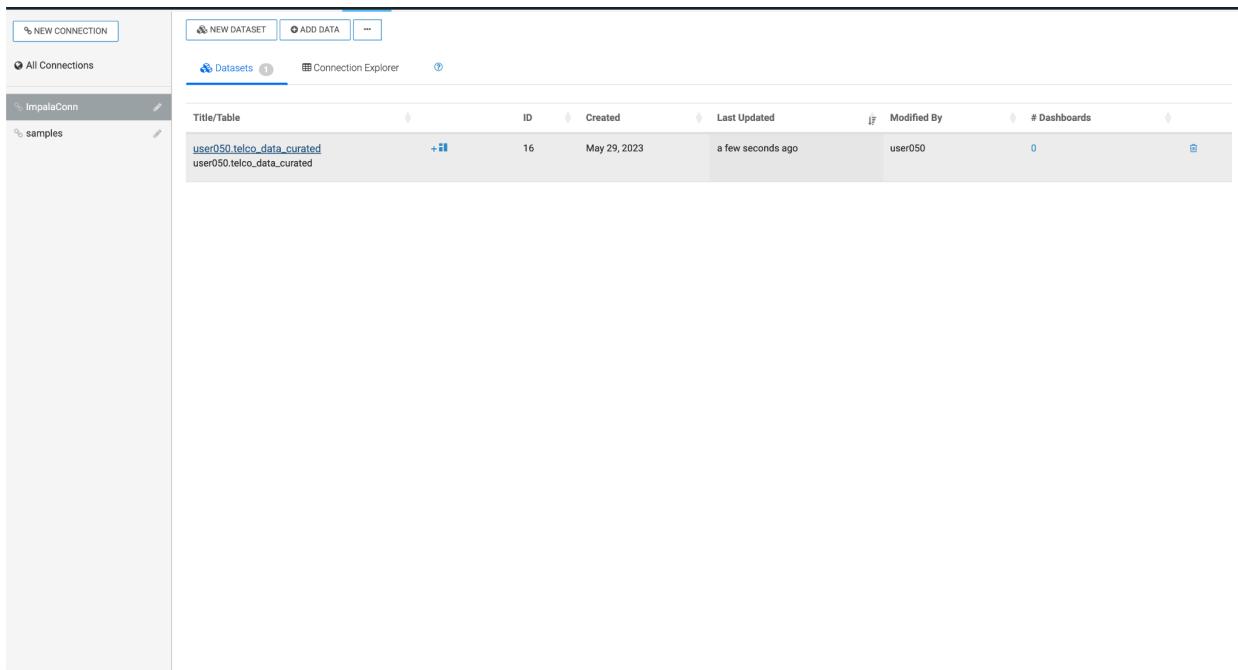
Select Database: <usuário_atribuído>

Select Table: telco_data_curated

Clique em **Create** para criar o novo conjunto de dados.



7. O novo dataset deve aparecer na lista. Clique no dataset que você acabou de criar.



8. Aqui você verá os detalhes do dataset.

Dataset: user050.telco_data_curated

Table: user050.telco_data_curated

Connection Type: Impala

Data Connection: ImpalaConn

Description:

Join Elimination: Enabled

Result Cache: From Connection

Incremental Results: Disabled

ID: 16

Created on: May 29, 2023 06:15 PM

Created by: user050

Last updated: May 29, 2023 06:15 PM

Last updated by: user050

9. Clique em **Fields** (menu esquerdo) para ver os campos capturados automaticamente durante o processo de criação do conjunto de dados.

Dataset Detail

Related Dashboards

Fields

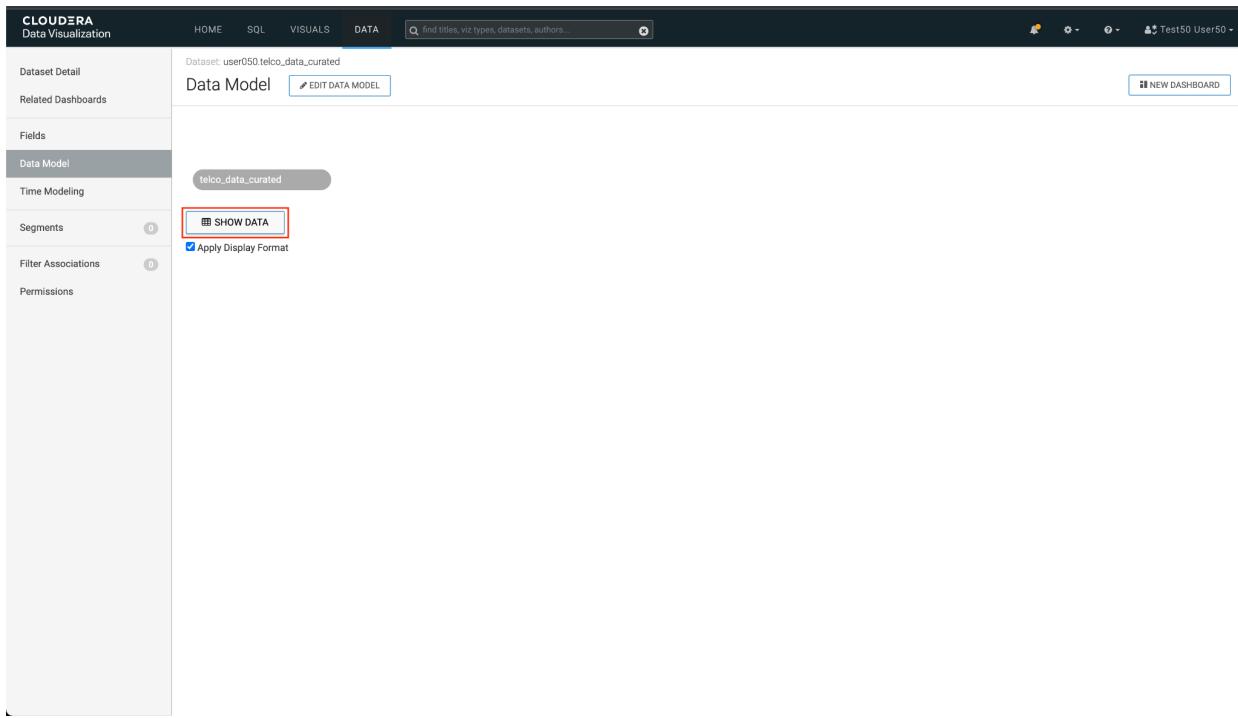
Dimensions

- telco_data_curated (19)
 - A multiplelines
 - A paperlessbilling
 - A gender
 - A onlinesecurity
 - A internetservice
 - A techsupport
 - A contract
 - A churn
 - A seniorcitizen
 - A deviceprotection
 - A streamingtv
 - A streamingmovies
 - A partner
 - A customerid
 - A dependents
 - A onlinebackup
 - A phoneservice
 - A paymentmethod

Measures

- telco_data_curated (3)
 - I2 totalcharges
 - I2 monthlycharges
 - I2 tenure

10. Você também pode visualizar os dados nesta tela. Clique em **Data Model** (menu esquerdo) e depois no botão **Show Data** que aparece no centro.



The screenshot shows the Cloudera Data Visualization interface. The top navigation bar includes links for HOME, SQL, VISUALS, and DATA, along with a search bar and user information. The left sidebar has a menu with options like Dataset Detail, Related Dashboards, Fields, Data Model (which is selected and highlighted in grey), Time Modeling, Segments, Filter Associations, and Permissions. The main content area displays a dataset named 'telco_data_curated'. Below the dataset name are two buttons: 'SHOW DATA' (highlighted with a red box) and 'Apply Display Format'. A small checkbox labeled 'Apply Display Format' is also visible. In the top right corner of the main area, there is a 'NEW DASHBOARD' button.

11. Neste momento, é executada uma consulta ao Virtual Wharehouse para recuperar o conteúdo do dataset. Observe as colunas e os valores. Clique no botão **New Dashboard** para criar um novo painel.

Dataset Detail

Related Dashboards

Fields

Data Model

Time Modeling

Segments

Filter Associations

Permissions

Dataset: user050.telco_data_curated

Data Model

[EDIT DATA MODEL](#)

[NEW DASHBOARD](#)

[telco_data_curated](#)

[HIDE DATA](#)

Apply Display Format

multiplelines	paperlessbilling	gender	onlinesecurity	internetservice	techsupport	contract	churn	seniorcitizen	deviceprotection	streamingtv	streamingmovies	totalcharges	partner	monthlycharges	customerid	dk
No phone service	Yes	Female	No	DSL	No	Month-to-month	No	0	No	No	No	29.850000381469727	Yes	32.602622985839844	7590-VHVEG	Ni
No	No	Male	Yes	DSL	No	One year	No	0	Yes	No	No	1889.5	No	79.32872009277344	5575-GNVE	Ni
No	Yes	Male	Yes	DSL	No	Month-to-month	Yes	0	No	No	No	108.1500015258789	No	53.849998474121094	3668-QPYBK	Ni
No phone service	No	Male	Yes	DSL	Yes	One year	No	0	Yes	No	No	1840.75	No	39.008785247802734	7795-CFOCW	Ni
No	Yes	Female	No	Fiber optic	No	Month-to-month	Yes	0	No	No	No	151.64999389648438	No	70.69999694824219	9237-HQITU	Ni
Yes	Yes	Female	No	Fiber optic	No	Month-to-month	Yes	0	Yes	Yes	Yes	820.5	No	99.6500015258789	9305-CDSKC	Ni
Yes	Yes	Male	No	Fiber optic	No	Month-to-month	No	0	No	Yes	No	1949.4000244140625	No	154.11448669433594	1452-KIOVK	Ye
No phone service	No	Female	Yes	DSL	No	Month-to-month	No	0	No	No	No	301.8999938964844	No	46.7568778916992	6713-OKOMC	Ni
Yes	Yes	Female	No	Fiber optic	Yes	Month-to-month	Yes	0	Yes	Yes	Yes	3046.050048828125	Yes	104.80000305175781	7892-POOKP	Ni

12. Ao abrir o canvas de desenvolvimento do novo dashboard apague o elemento visual que é apresentado por padrão. Isto pode ser feito clicando no botão de menu (...) localizado na parte superior à direita deste elemento e acessando a opção **Delete Visual**

enter title...

enter subtitle...

Add dashboard filters by selecting dataset fields from the Filters menu on the right.

enter title...

enter subtitle...

multiplelines paperlessbilling gender onlinesecurity

No phone service Yes Female No

No No Male Yes

No Yes Male Yes

No phone service No Male Yes

No Yes Female No

Yes Yes Female No Fiber optic

[View Data and Queries](#)

[Download as...](#)

[Save as Table or Dataset](#)

[Hide Empty Title & Subtitle](#)

[Clone](#)

[Make Linked](#)

[Delete Visual](#)

Visual ID: 121

VISUALS

DATA

user050.telco_data_curated

Sample Mode: OFF

Dimensions

- multiplelines
- paperlessbilling
- gender
- onlinesecurity
- internetservice
- techsupport
- contract
- churn
- seniorcitizen
- deviceprotection
- streamingtv
- streamingmovies
- partner
- customerid
- dependents
- onlinbackup
- phoneservice
- paymentmethod

Measures

- telco_data_curated
- # Record Count
- totalcharges
- monthlycharges
- tenure

DASH.

Visuals

Filters

Settings

Style

BUILD

Style

Build

Style

Settings

Style

Dashboard Designer

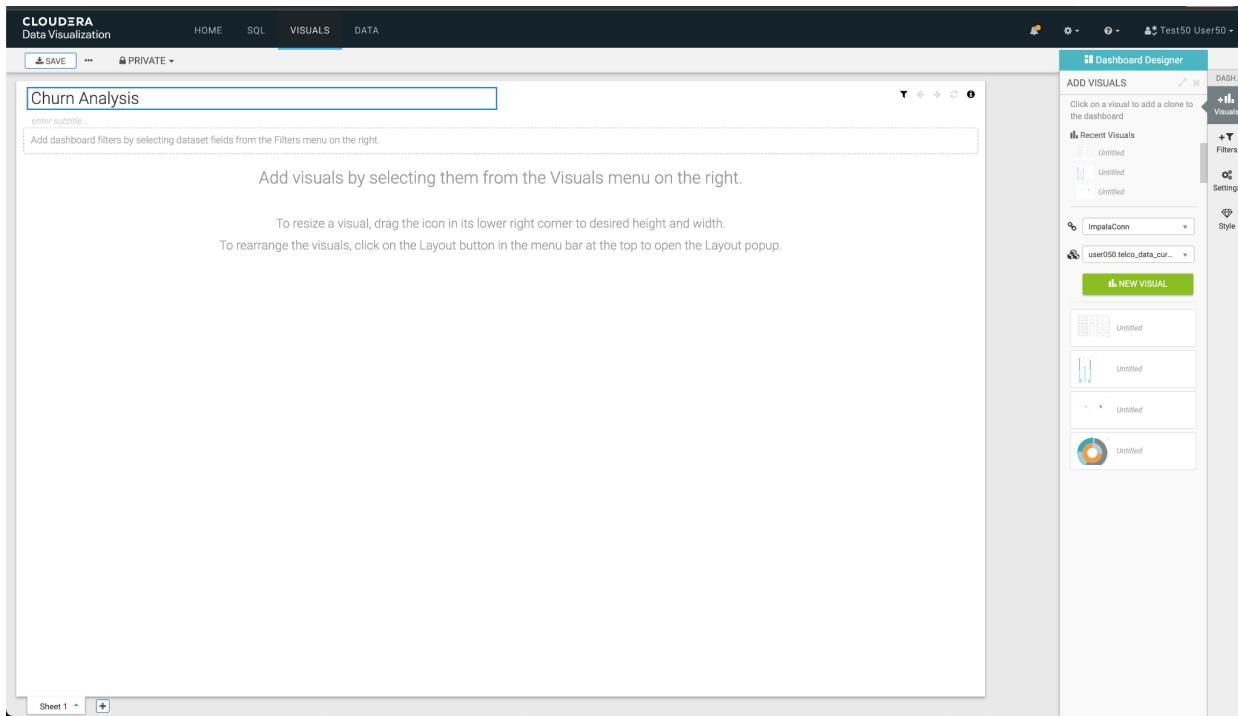
LAYOUT

SAVE

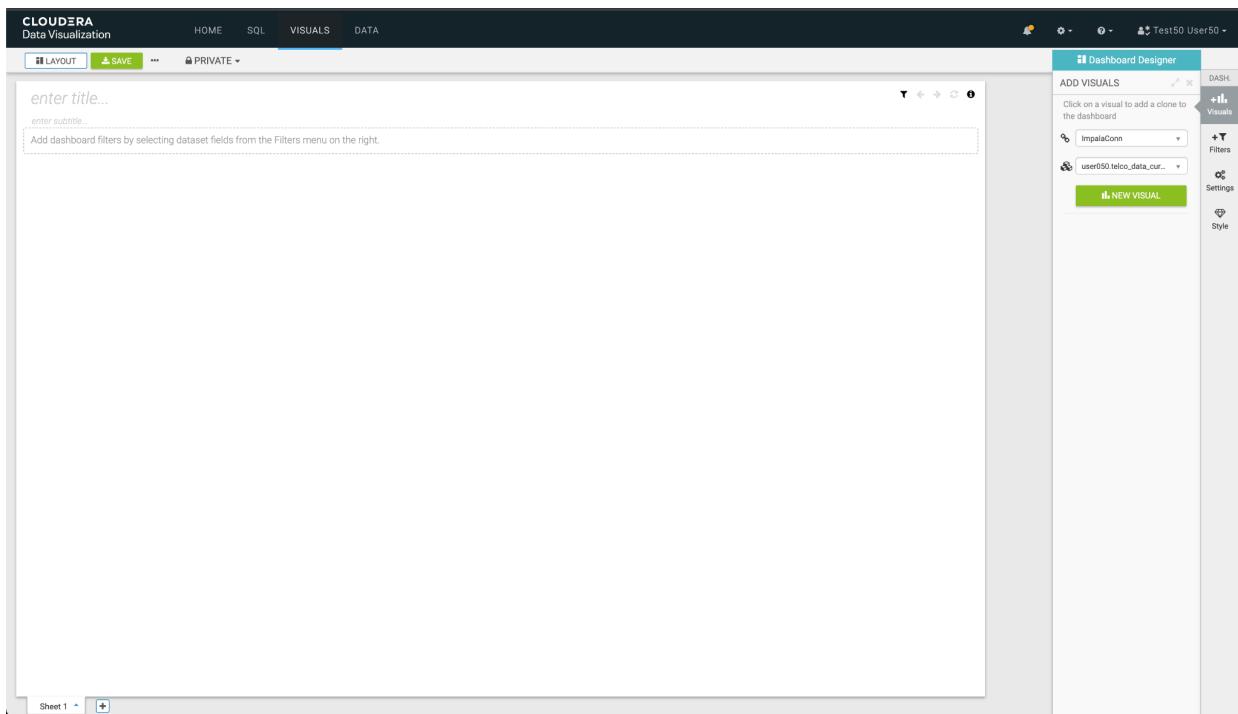
PRIVATE

Sheet 1

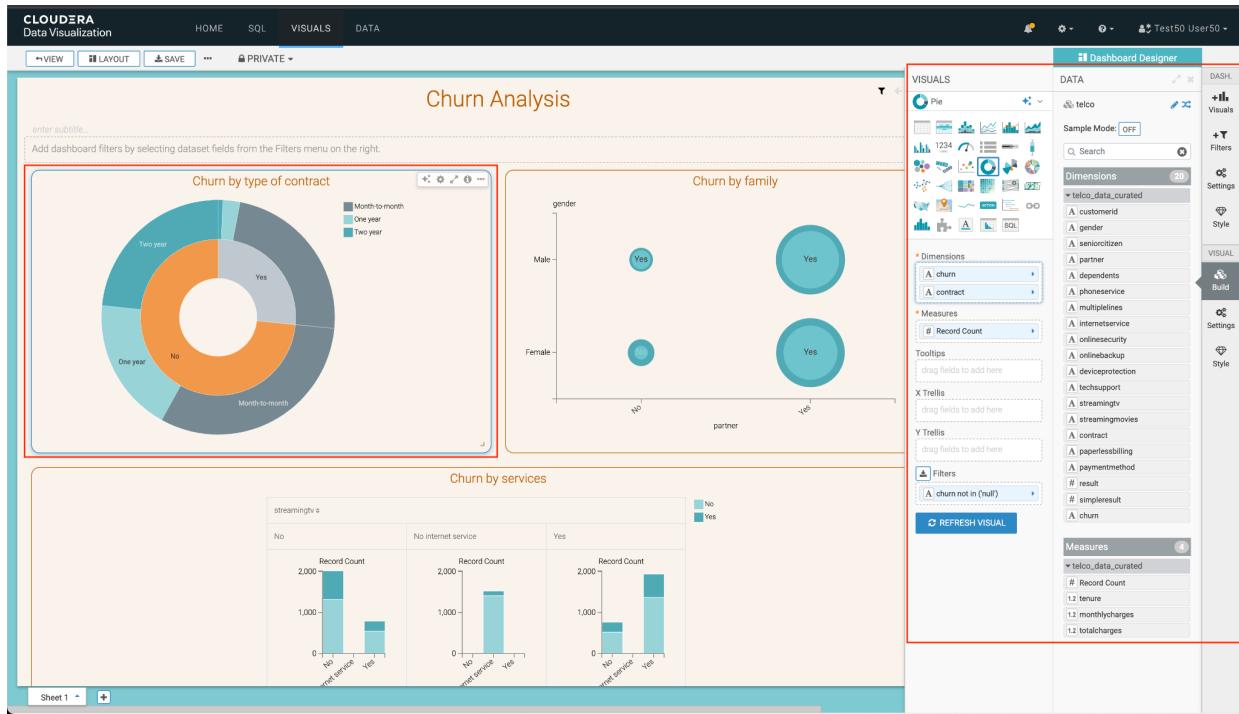
Na parte superior da tela, no campo **enter title**, insira o nome **Análise de rotatividade** para identificar o dashboard.



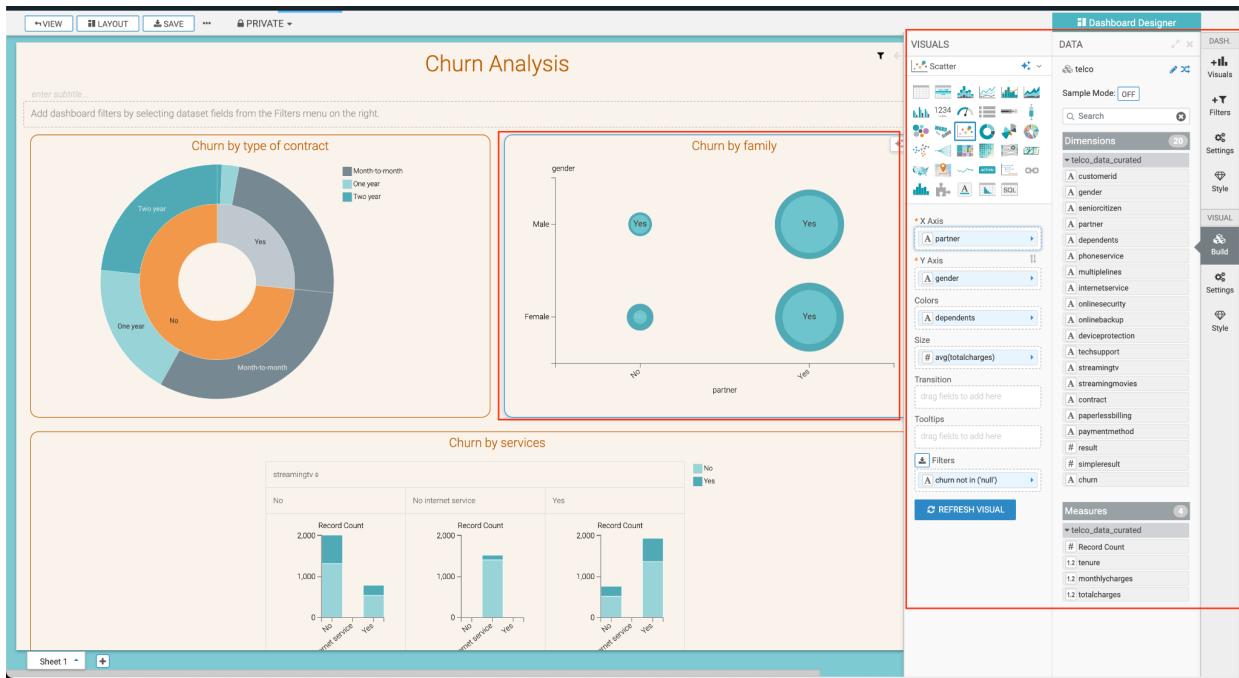
13. Para adicionar um novo elemento visual, clique no botão **Visuals** no menu à direita, selecione o conjunto de dados que corresponde a eles e clique no botão **New Visual**.



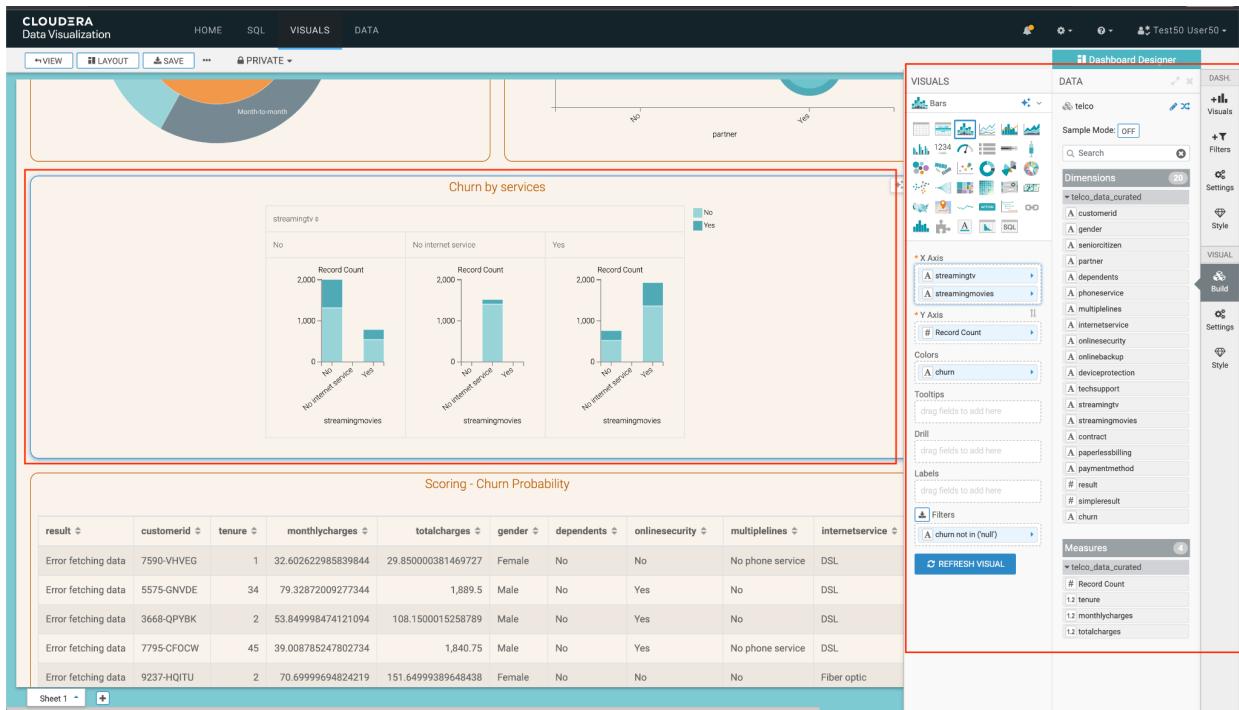
14. Adicione o primeiro elemento visual, que é um gráfico de pizza com as dimensões **churn** e **contract**, com a métrica de contagem de registros **# Record Count**. Assim que terminar, clique no botão **Refresh Visual**.



15. Adicione o segundo elemento visual, que é um gráfico de dispersão com a dimensão **partner** como *Eixo X*, **gender** como *Eixo Y*, **dependentes** como *Colors* e **avg (totalcharges)** como *Size*. Assim que terminar, clique no botão **Refresh Visual**.



15. Adicione o terceiro elemento visual, que é um gráfico de barras com as dimensões **streamingtv** e **streamingmovies** como *Eixo X*, contagem de registros **# Record Count** como o eixo *Y* e **churn** como *Cores*. Assim que terminar, clique no botão **Refresh Visual**.



16. Adicione o quarto e último elemento visual, que é uma tabela com as dimensões e métricas do conjunto de dados. Certifique-se de adicionar todas as 17 dimensões e 3 métricas à tabela. Assim que terminar, clique no botão **Refresh Visual**.

The screenshot shows the Cloudera Data Visualization interface. At the top, there are tabs for HOME, SQL, VISUALS, and DATA. Below the tabs, there are buttons for VIEW, LAYOUT, SAVE, and PRIVATE. On the right side, there is a sidebar titled "Dashboard Designer" with sections for DATA, Dimensions, Measures, Tooltips, Filters, and a "Build" section containing "Scoring - Churn Probability". A red box highlights the "Scoring - Churn Probability" table, which contains the following data:

customerid	tenure	monthlycharges	totalcharges	gender	dependents	onlinesecurity	multiplelines	internetservice	seniorcitizen
7590-VHVEG	1	32.602622985839844	29.850000381469727	Female	No	No	No phone service	DSL	0
5575-GNVDE	34	79.32872009277344	1,889.5	Male	No	Yes	No	DSL	0
3668-QPYBK	2	53.849998474121094	108.1500015258789	Male	No	Yes	No	DSL	0
7795-CFOCW	45	39.008785247802734	1,840.75	Male	No	Yes	No phone service	DSL	0
9237-HQITU	2	70.69999694824219	151.64999389648438	Female	No	No	No	Fiber optic	0
9305-CDSKC	8	99.6500015258789	820.5	Female	No	No	Yes	Fiber optic	0
1452-KIOVK	22	154.11448669433594	1,949.4000244140625	Male	Yes	No	Yes	Fiber optic	0
6713-OKOMC	10	46.75687789916992	301.8999938964844	Female	No	Yes	No phone service	DSL	0

A red box also highlights the "Scoring - Churn Probability" title above the table. The "Build" section has a "Scoring - Churn Probability" title and a "REFRESH VISUAL" button.

Salve o painel clicando no botão **Save** no menu superior.

Parte 2: Adicionar novo campo

Metas:

- Adicionar um novo campo que faz chamadas para o modelo de ML
- Adicione o novo campo ao painel

1. Edite o Dataset criado anteriormente, em Data -> <user_assigned>.telco_data_curated.

The screenshot shows the Cloudera Data Visualization interface. On the left, there's a sidebar with connection management (New Connection, All Connections, ImpalaConn, samples). The main area is titled 'Datasets' and shows a table of datasets. The table has columns: Title/Table, ID, Created, Last Updated, Modified By, and # Dashboards. One dataset is listed: 'user050.telco_data_curated' with ID 16, created on May 29, 2023, last updated 'a few seconds ago' by user050, and 0 dashboards.

2. Uma vez no dataset, vá para **Fields** no menu à esquerda e, em seguida, clique em **Editar Fields** para editar os campos do seu conjunto de dados.

The screenshot shows the 'Fields' editor for the 'telco_data_curated' dataset. The left sidebar has sections for Dataset Detail, Related Dashboards, Fields, Data Model, Time Modeling, Segments, Filter Associations, and Permissions. The main area is divided into 'Dimensions' and 'Measures'. The 'Dimensions' section lists fields: multiplelines, paperlessbilling, gender, onlinesecurity, internetservice, techsupport, contract, churn, seniorcitizen, deviceprotection, streamingtv, streamingmovies, partner, customerid, dependents, onlinebackup, phoneservice, and paymentmethod. The 'Measures' section lists fields: totalcharges, monthlycharges, and tenure. There are buttons for 'EDIT FIELDS' and 'NEW DASHBOARD' at the top right.

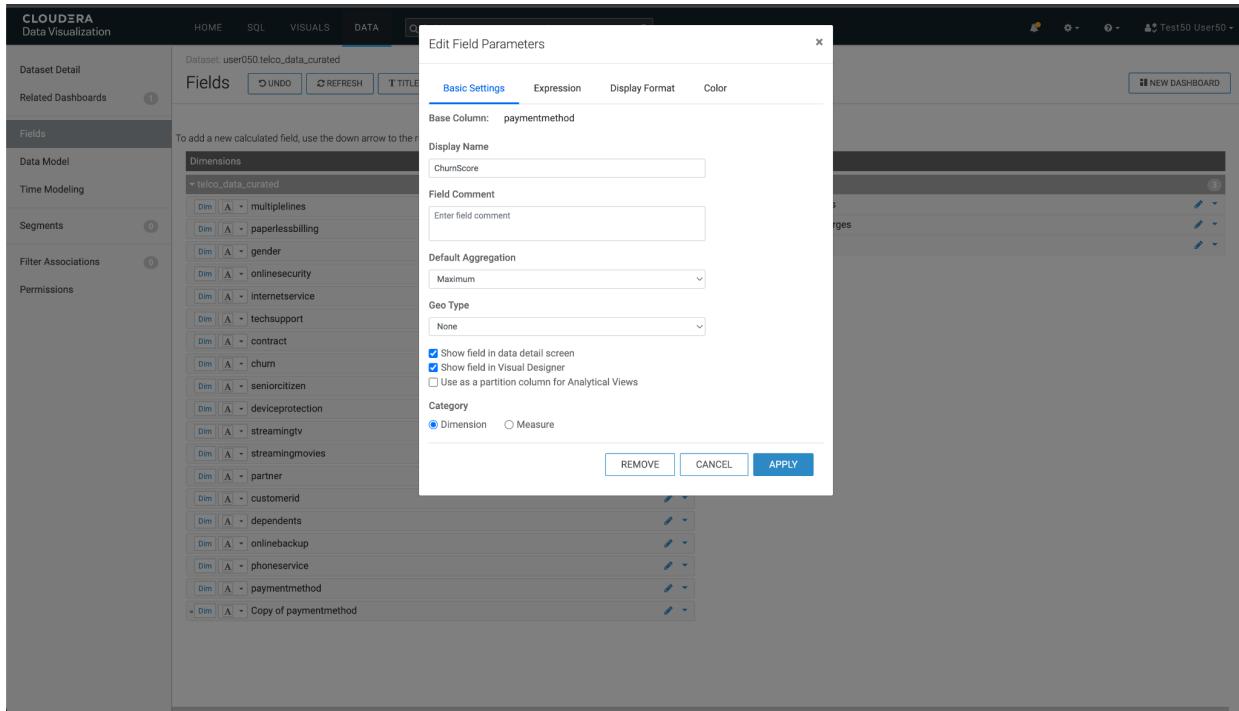
3. Na lista de **Dimensions**, clique na seta para baixo do último campo da lista e selecione a opção **Clone**.

The screenshot shows the Cloudera Data Visualization interface. On the left, there's a sidebar with 'Dataset Detail' and 'Related Dashboards'. The main area is titled 'Fields' and shows two sections: 'Dimensions' and 'Measures'. The 'Dimensions' section lists various fields like 'multiplelines', 'paperlessbilling', 'gender', etc. The 'Measures' section lists 'totalcharges', 'monthlycharges', and 'tenure'. A tooltip at the bottom right of the Dimensions section says: 'To add a new calculated field, use the down arrow to the right of a field to clone it, and then edit the expression of the cloned field.' There are buttons for 'UNDO', 'REFRESH', 'TITLE CASE', 'SAVE', and 'Show Comments'. A 'NEW DASHBOARD' button is in the top right.

4. Após a clonagem do campo, clique no lápis **Edit Field** ao lado do campo para editá-lo.

This screenshot is similar to the previous one but shows a specific step. The 'Dimensions' section now includes a new item: 'Dim | A - Copy of paymentmethod'. To the right of this new item is a small black square containing a white pencil icon, which is the 'Edit Field' button. The rest of the interface remains the same, with the 'Measures' section and other dimensions visible.

5. Na janela pop-up que aparece, digite o nome do novo campo em **Display Name**. Sugerimos que você digite *ChurnScore*.



6. Vá para a guia **Expression** e insira o seguinte valor no campo **Expression**. Isso permitirá que você chame a API REST do modelo que você implantou anteriormente.

```
cviz_rest('{"url":"<workspace_url>":"<access_key>","colnames":["monthlycharges","totalcharges","tenure","gender","dependents","onlinesecurity","multiplelines","internetservice","seniorcitizen","techsupport","contract","streamingmovies","deviceprotection","paymentmethod","streamingtvtv","phoneservice","paperlessbilling","partner","onlinebackup"],"response_colname":"result"}')
```

7. Estando no CML em outra aba do navegador da web, vá para a seção de **Models** do seu projeto e clique no modelo que começa com o nome *ModelViz*, seguido pelo seu nome de usuário atribuído.

8. Na guia Visão geral, copie a URL que permite interagir e chamar a API do espaço de trabalho.

Substitua o valor copiado no atributo <workspace_url> no JSON do campo Expression.

The screenshot shows the Cloudera Data Visualization interface with a modal dialog titled "Edit Field Parameters". The dialog has tabs for "Basic Settings", "Expression" (which is selected), "Display Format", and "Color".

Expression Tab:

```
1 cviz.rest('{"url":"curl -d \\"workspace\\":\" + workspace + \" -d \\"access_key\\":\" + access_key + \" -d \\"columns\\":\" + monthlycharges + \",\"totalcharges\\":\" + tenure + \" -d \\"gender\\":\" + gender + \" -d \\"dependents\\":\" + onlineline + \" -d \\"multiplelines\\":\" + streamingtv + \" -d \\"phoneservice\\":\" + contract + \" -d \\"streamingmovies\\":\" + deviceprotect + \" -d \\"paymentmethod\\":\" + paperlessbilling + \" -d \\"partner\\":\" + phoneservice + \" -d \\"paperlessbilling\\":\" + onlinebackup + \" -d \\"response_column\\":\"result\"}')
```

Below the expression editor are three checkboxes:

- Expression contains an aggregation
- Autocomplete on
- Save expression only after validation succeeds

Buttons at the bottom of the dialog include "VALIDATE EXPRESSION", "REMOVE", "CANCEL", and "APPLY".

Left Sidebar:

- Dataset Detail:** Dataset: user050 telco_data_c...
- Related Dashboards:** 1
- Fields:** Fields, Undo
- Data Model:** Dimensions, telco_data_curated
 - Dim A - multiplelines
 - Dim A - paperlessbillin...
 - Dim A - gender
 - Dim A - onlinelinecurity
 - Dim A - internetservice
 - Dim A - techsupport
 - Dim A - contract
 - Dim A - churn
 - Dim A - seniorcitizen
 - Dim A - deviceprotection
 - Dim A - streamingtv
 - Dim A - streamingmovies
 - Dim A - partner
 - Dim A - customerid
 - Dim A - dependents
 - Dim A - onlinebackup
 - Dim A - phoneservice
 - Dim A - paymentmethod
 - Dim # ChurnScore
- Segments:** 1
- Filter Associations:** 0
- Permissions:**

Top Right: NEW DASHBOARD, Test50 User50

9. Voltando ao CML, copie a accessKey do modelo.

The screenshot shows the Cloudera Machine Learning interface. The top navigation bar includes 'user050 / user050-telco-churn / Models / ModelViz_user050 / Overview'. On the left sidebar, there are links for 'All Projects', 'Overview', 'Sessions', 'Data', 'Experiments', 'Models' (which is selected), 'Jobs', 'Applications', 'Files', 'Collaborators', and 'Project Settings'. The main content area has tabs for 'Overview', 'Deployments', 'Builds', 'Monitoring', 'Logs', and 'Settings'. The 'Overview' tab is active. It displays a 'Description' box containing 'visualization a given model prediction' and a 'Sample Code' box with curl and python code examples. A 'Sample Response' box shows a JSON object. To the right, a 'Model Details' panel provides information like 'Source' (Code), 'Model Id' (8), 'Deployment Id' (10), 'Build Id' (10), 'Comment' (Initial revision), and 'Function' (predict). A 'Model Resources' section lists 'Replicas' (1), 'Total CPU' (1 vCPUs), and 'Total Memory' (2.00 GB). The bottom left corner shows the version '2.0.38-b121'.

Substitua o valor copiado no atributo <access_key> do JSON do campo Expression.

CLOUDERA Data Visualization

HOME SQL VISUALIZATIONS

Dataset Detail Dataset: user050.telco_data_c

Related Dashboards

Fields UNDO

Basic Settings Expression Display Format Color

Expression

```
1 cviz_rest('{"url":"curl -dL workspace","access_key":  
"colnames":["monthlycharges","totalcharges","tenure"  
,"gender","dependents","onlinesecurity","multiplelines"  
,"internetservice","seniorcitizen","techsupport",  
"contract","streamingtv","deviceprotection",  
"paymentmethod","streamingmovies","phoneservice",  
"paperlessbilling","partner","onlinebackup"]  
,"response_colname":"result"}')
```

All Functions ▾ All Fields ▾

abs
acos
add_months
addate
AND
appx_median
ascii
asin
atan
+ monthlvchar

Expression contains an aggregation Autocomplete on

Save expression only after validation succeeds

REMOVE CANCEL APPLY

10. Concluído o processo de cópia da *URL da Workspace* e a *accessKey*, clique no botão **Validate Expression** na parte inferior da janela. Se a mensagem aparecer em verde *Validation Successful*, Clique em **Apply** para salvar as configurações feitas.

The screenshot shows the Cloudera Data Visualization interface. In the center, a modal window titled "Edit Field Parameters" is open, specifically on the "Expression" tab. The expression input field contains the following code:

```
1 cviz_rest('url': "https://modelservice.ml-369003c3-99e.ssa-hol.yut-wqz.cloudera.site/model", "accessKey": "mmmlalkv47019guw4xhxm943k9c8z", "columns": ["monthlycharges", "totalcharges", "tenure", "gender", "dependents", "onlinesecurity", "multiplelines", "internetservice", "contract", "streamingtv", "deviceprotection", "paymentmethod", "streamingmovies", "phoneservice", "paperlessbilling", "partner", "onlinebackup"], "response_colname": "result")
```

Below the expression, there are two checkboxes: "VALIDATE EXPRESSION" (unchecked) and "Save expression only after validation succeeds" (checked). At the bottom of the modal, a green box displays the message "Validation Successful!". There are also "REMOVE", "CANCEL", and "APPLY" buttons. The background of the main interface shows a dataset detail view with various fields listed under "Dimensions".

11. O novo campo deve aparecer na lista. Altere o tipo de dados, selecionando o tipo *Integer*, que é representado pelo símbolo **#**

The screenshot shows the Cloudera Data Visualization interface. The top navigation bar includes links for HOME, SQL, VISUALS, and DATA, along with a search bar and user information. The main workspace is titled "Dataset Detail" and shows a "Fields" editor for a dataset named "user050.telco_data_curated". The Fields editor has two main sections: "Dimensions" and "Measures". The Dimensions section lists various attributes from the "telco_data_curated" schema, such as "multiplelines", "paperlessbilling", "gender", and "churn". The Measures section lists "totalcharges", "monthlycharges", and "tenure". A note at the top of the editor says: "To add a new calculated field, use the down arrow to the right of a field to clone it, and then edit the expression of the cloned field." A green "SAVE" button is located at the top right of the editor.

12. Finalize o processo clicando no botão verde com a legenda **Save** no menu superior.

This screenshot is identical to the one above, showing the Cloudera Data Visualization Fields editor for the "user050.telco_data_curated" dataset. The Dimensions and Measures sections are the same, and the note about cloning fields is still present. The green "SAVE" button is now highlighted in yellow, indicating it has been clicked. The rest of the interface remains the same, with the top navigation bar and sidebar visible.

13. Retorne ao painel, selecionando a opção **Visuals** no menu superior e clicando no nome do painel que foi criado anteriormente.

The screenshot shows the Cloudera Data Visualization interface. At the top, there's a navigation bar with links for HOME, SQL, VISUALS, and DATA, along with a search bar and user information. Below the navigation is a toolbar with buttons for NEW DASHBOARD, NEW APP, MOVE TO WORKSPACE, EXPORT, and DELETE. On the left, there's a sidebar for WORKSPACES, showing Public and Private sections. The main area displays a grid of sample dashboards. One specific dashboard, 'Churn Analysis', is highlighted with a red box. Other visible dashboard titles include 'Deficiency Details', 'State of NYC', 'Sample App', 'Store Details', 'Cereal Comparisons', 'Earthquakes Around the World', 'Life Expectancy Dashboard', 'World Population & GDP Trends', 'Animated world population - GDP vs life expectancy', 'US State Population Trends', 'Census Dashboard', 'Global Threats', 'Time & Industry Threat View', 'Inspector View', 'Consumer View', 'Iris species w/ images', and 'Taxi rides application'. A button labeled 'Sample Dashboards' is located at the bottom left.

14. Uma vez no painel, clique no botão **Edit** que está no canto superior esquerdo.

This screenshot shows a detailed view of a dashboard within the Cloudera Data Visualization interface. The top navigation bar includes links for HOME, SQL, VISUALS, and DATA, along with a search bar and user information. A toolbar at the top has buttons for EDIT, PRIVATE, and other options. The main content area features three stacked bar charts under the title 'streamingtv'. The first chart, 'No internet service', compares 'Record Count' for 'No' and 'Yes' categories across 'streamingmovies' and 'streamingtv'. The second chart, 'partner', also compares 'Record Count' for 'No' and 'Yes' across the same categories. Below the charts is a large table with columns for totalcharges, monthlycharges, tenure, multiplelines, paperlessbilling, gender, onlinesecurity, internetservice, techsupport, contract, and churning. The table contains several rows of data. At the bottom right of the table, there are page navigation buttons (1, 2, 3, 4, 5, >).

15. Edite a tabela inferior clicando nela e depois na opção **Build** no menu vertical direito. Adicione o novo campo, **ChurnScore**, no início da tabela, clicando e arrastando na opção **Dimensions** disponível.

The screenshot shows the Cloudera Data Visualization interface. At the top, there's a navigation bar with 'HOME', 'SQL', 'VISUALS', and 'DATA'. Below the navigation is a toolbar with 'VIEW', 'LAYOUT', 'SAVE', and 'PRIVATE'. The main area contains three stacked bar charts under the heading 'streamingtv \$'. The first chart is for 'No internet service', the second for 'No', and the third for 'Yes'. Each chart has two bars: 'No' (light blue) and 'Yes' (dark blue). The Y-axis is labeled 'Record Count' and ranges from 0 to 2,000. The X-axis is labeled 'streamingmovies'. To the right of the charts is a 'partner' dimension. Below the charts is a table with several rows of data. The columns include 'totalcharges', 'monthlycharges', 'tenure', 'multiplelines', 'paperlessbilling', 'gender', 'onlinesecurity', 'internetservice', 'techsupport', 'contract', and 'ChurnScore'. The 'ChurnScore' column is highlighted with a red box in the 'Dimensions' section of the 'Build' panel on the right. The 'Build' panel also lists other dimensions like 'totalcharges', 'monthlycharges', 'tenure', 'multiplelines', 'paperlessbilling', 'gender', 'onlinesecurity', 'internetservice', 'techsupport', 'contract', 'churn', 'seniorcitizen', 'deviceprotection', 'streamingtv', 'streamingmovies', 'partner', 'customerid', 'dependents', 'onlinebackup', 'phoneservice', and 'paymentmethod'. It also includes sections for 'Measures', 'Tooltips', and 'Filters'.

totalcharges	monthlycharges	tenure	multiplelines	paperlessbilling	gender	onlinesecurity	internetservice	techsupport	contract	ChurnScore
29.850000381469727	32.602622985839844	1	No phone service	Yes	Female	No	DSL	No	Month-to-month	
1,889.5	79.32872009277344	34	No	No	Male	Yes	DSL	No	One year	
108.1500015258789	53.849998474121094	2	No	Yes	Male	Yes	DSL	No	Month-to-month	
1,840.75	39.008785247802734	45	No phone service	No	Male	Yes	DSL	Yes	One year	
151.64999389648438	70.69999694824219	2	No	Yes	Female	No	Fiber optic	No	Month-to-month	
820.5	99.6500015258789	8	Yes	Yes	Female	No	Fiber optic	No	Month-to-month	

16. Clique no botão Refresh Visual para atualizar os dados. A nova coluna deve aparecer *ChurnScore* depois no início da tabela, com um valor do tipo numérico. Finalize o processo clicando no botão **Save** no menu superior esquerdo.

