



Microsoft Cloud for Retail

In A Day

Lab 05: Retail Churn Model

Step-by-Step Lab

March 2022

Contents

Overview	3
Learning Objectives	4
Retail Story	4
Prerequisite(s).....	5
Customer Intelligence	5
Exercise 1: Create and Configure Dynamics 365 Customer Insights Environment.....	5
Task 1: Create Customer Insights Environment.....	6
Task 2: Deploy Retail Churn Model.....	10
Exercise 2: Configure Retail Churn Model in Dynamics 365 Customer Insights.....	13
Task 1: Add a Data Source	13
Task 2: Unify Your Data	26
Task 3: Train the model	33
Exercise 3: Understand the Churn Model Output.....	40
Summary	45

Overview

Unified customer profile is one of the key capabilities of Microsoft Cloud for Retail. In some ways, it's where the data story comes together. So, what does it do? Unified customer profile helps you gain insights across the complete view of a shopper's journey.

With unified customer profile, you can gain a 360-degree perspective of the customer in a clear and intuitive way so that you can provide personalized experiences, reveal important opportunities, prevent potential loss, or churn, and improve customer satisfaction.

Unified customer profile bolsters **unification**. You can:

- Bring multiple identities together to create a 360 view of the customer through AI-powered identity resolution
- Ingest multiple types of data, behaviors, and customer sentiment in real time via more than 500+ built-in connectors

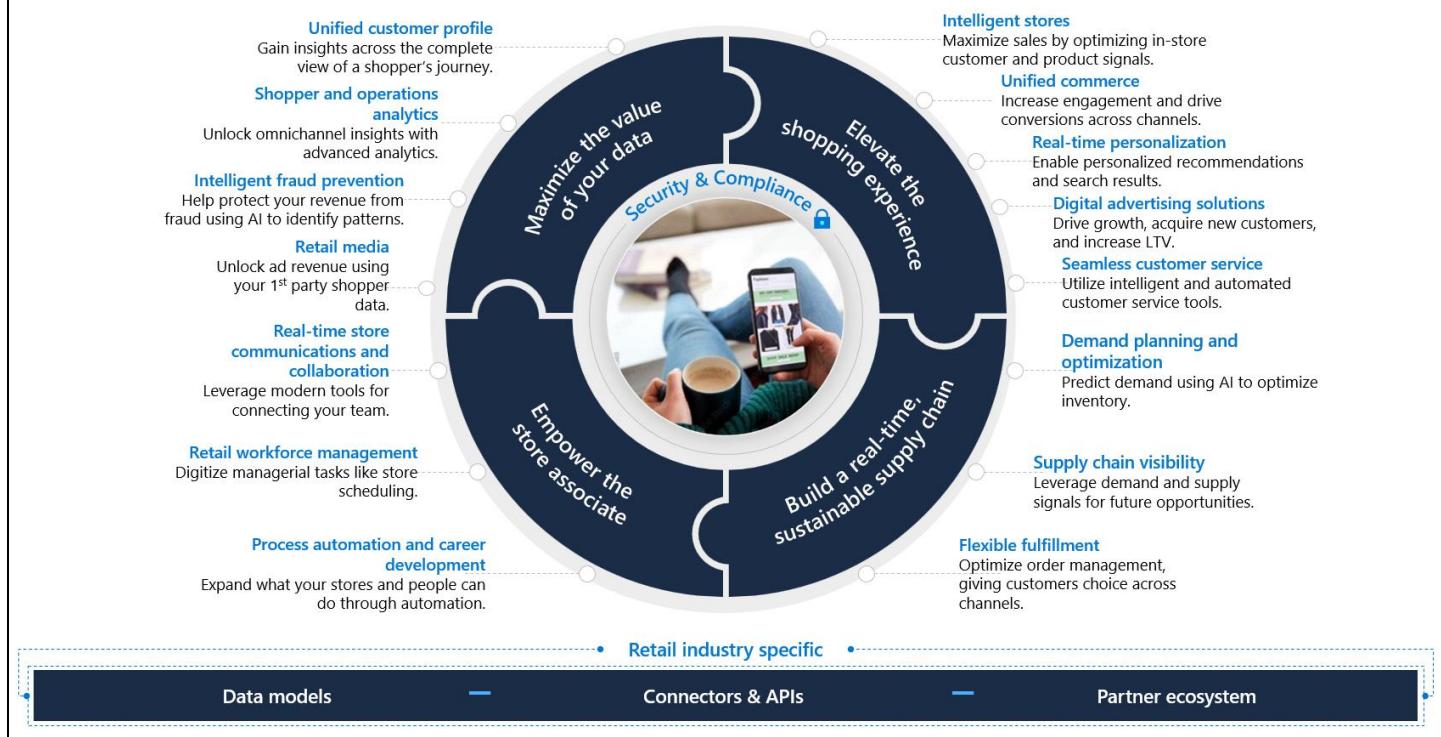
It also fosters **unique enrichment**:

- Gain a 360 view of the customer with proprietary audience intelligence from Microsoft Graph
- Leverage cross-channel behavior to complete the picture of your end-customer

Furthermore, Unified customer profile also gives you better access to customer **insights**:

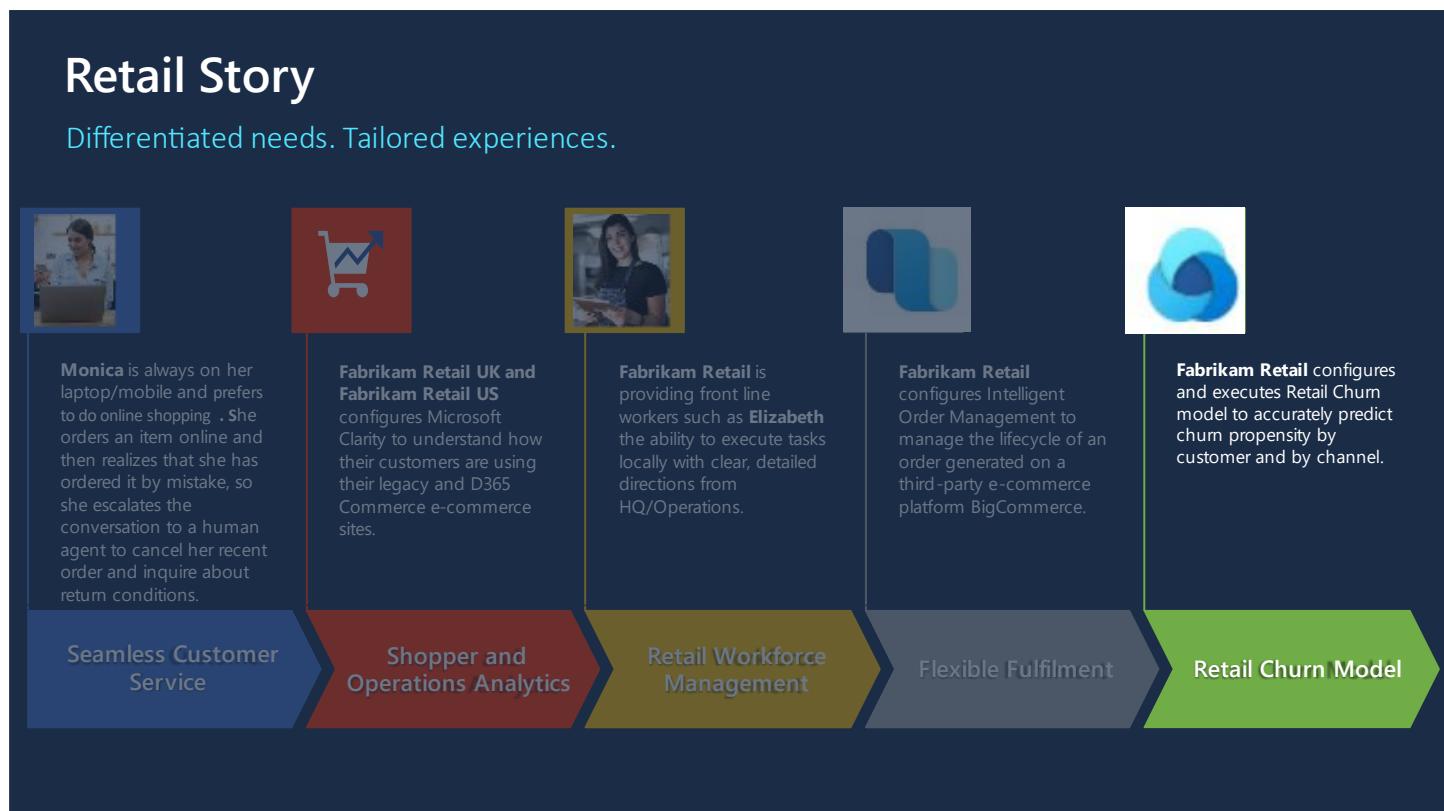
- Gain more nuanced insights by combining digital analytics with customer profiles to create richer segments, and leverage churn models to understand churn risk at a glance
- Observe customer progress through each defined step of the journey, quickly identifying obstacles and opportunities
- Create custom reports and views based on real-time customer behavior data, leverage built-in web and mobile analytics to predict customer needs

Capabilities connecting your customers, your people, and your data



Learning Objectives

Retail Story



This lab will focus on the retail story of Fabrikam Retail.

In the following exercises, you will be playing the role of a System Administrator and a Developer:

In **Exercise 1**, you will be creating a **Customer Insights** environment and deploy **Unified customer profile** via Solution Center. In **Exercise 2**, you will learn the steps to import Fabrikam retail's customer data from azure blob storage, generate retail churn model and analyze the churn predictions.

Prerequisite(s)

- Dynamics 365 Customer Insights

Customer Intelligence

Customer intelligence unifies important, relevant, and accurate customer information across multiple sources via Dynamics 365 Customer Insights. This solution empowers the agent to engage with customers based on relevant insights. Customer intelligence combines demographic information, financial measures, and attitudes to form financial segments and AI models. These insights help agents to quickly understand the customer.

Prerequisites:

- At least Contributor permissions in Dynamics 365 Customer Insights. More information: [User permissions](#).

Exercise 1: Create and Configure Dynamics 365 Customer Insights Environment

Note: If you have already deployed D365 Customer Insights environment and Unified Customer Profile solution then you can skip this exercise.

In this exercise, you will create and configure a Dynamics 365 Customer Insights environment in order to deploy the Retail Churn Model.

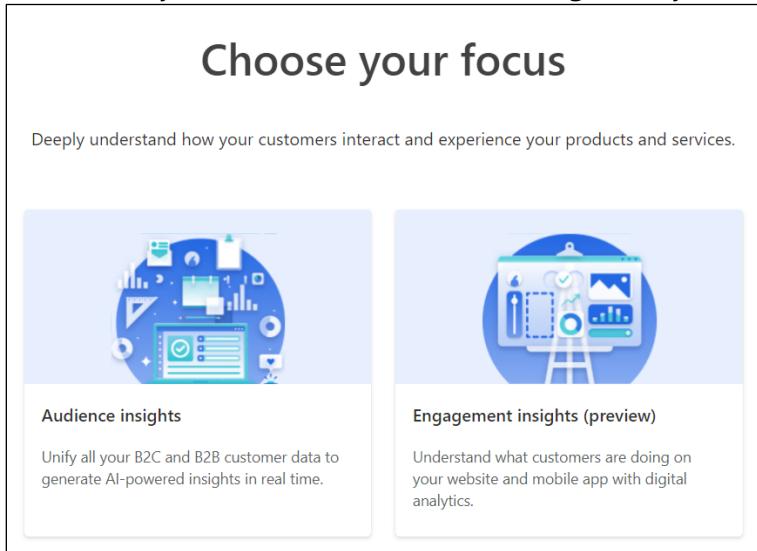
[Dynamics 365 Customer Insights](#) is a part of Microsoft's customer data platform (CDP) that helps deliver personalized customer experiences. The platform's capabilities provide insights into who your customers are and how they engage with your platform. Unify customer data across multiple sources to get a single view of customers.

- [Audience insights](#) helps you transform your business into a customer-centric organization. Marketing, sales, and service professionals have the insights they need to personalize experiences. Connect data from transactional, behavioral, and observational sources to create a 360-degree customer view. See results faster with a CDP designed to deliver insights that can be acted upon.
- [Retail channel churn predictive model](#): Retail channel churn predictive model, a key feature of Unified customer profile, uses an AI-based model to help omnichannel retailers use cross-channel data to assess the chance that a customer will churn—stop actively buying.

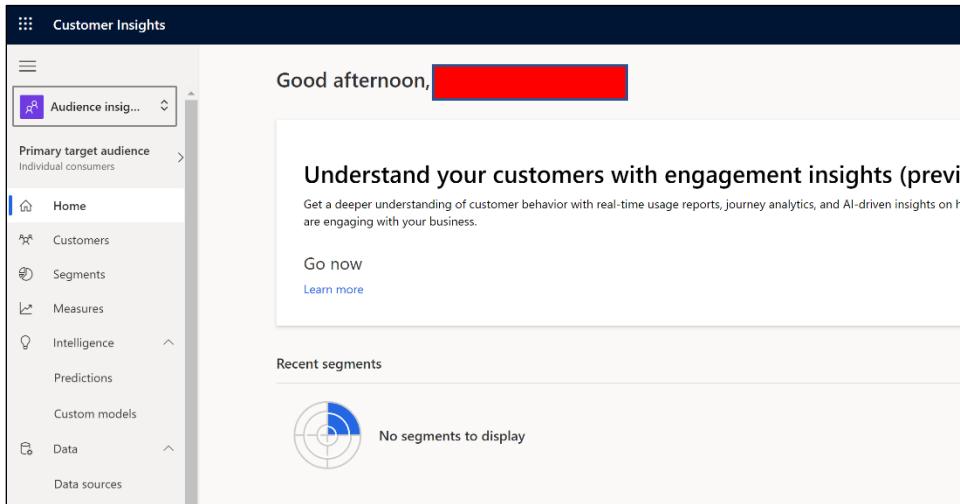
Task 1: Create Customer Insights Environment

In this task you will create a new Customer Insights sandbox environment. To set **Customer intelligence** up correctly, you must first create a Customer Insights sandbox environment and connect it to your Dataverse environment with no Data Sources specified. Once connected, you will go through [Solution Center](#) and deploy **Customer intelligence** from **Unified customer profile**, specifying the Customer Insights environment that you create in this task.

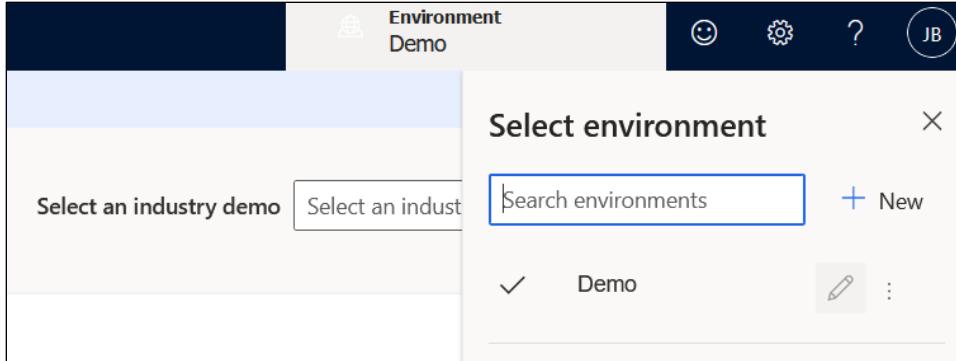
1. Using an In-Private or Incognito window, navigate to <https://home.ci.ai.dynamics.com/> and log in with the credentials provided by your instructor.
2. If not already selected, select **Audience insights** as your focus.



3. Your screen would look like this with Audience Insights selected:



4. In the top right corner of the screen, click on the environment name and then click **+ New** to create a new environment



5. Fill out the appropriate fields and click **Next**.
 - a. **Name:** <<UserName>> Retail Churn
 - b. **Choose your business:** Individual consumers (B-to-C)
 - c. **Type:** Pitch Demo
 - d. **Region:** West US

Create an environment

Basic information
 Advanced reporting
 Data storage
 Microsoft Dataverse
 Review

Basic information
Environments serve as a home base for your data and for your team.

Name *

Copy from existing environment (preview)

Choose your business *

Type *

Region * ⓘ

6. **Deselect** Power BI Reporting and click **Next**.

Create an environment

Basic information

Advanced reporting

Data storage

Microsoft Dataverse

Review

Advanced reporting

Use Microsoft Power BI to visualize your data.

Power BI reporting

Perform computations using *

Power BI with Azure Synapse Analytics

Sign into Power BI to pick a capacity

Sign in

Select a capacity *

Subscription *

Select an option

Synapse workspace *

Select an option

Back **Next** Review and finish Cancel

7. Leave **Customer Insights storage** selected and click **Next**.

Create an environment

Basic information

Advanced reporting

Data storage

Microsoft Dataverse

Review

Data storage

Azure Datalake storage for your high performance Audience Insights work loads.

Save output data to *

Customer Insights storage

Back **Next** Review and finish Cancel

8. Leave the Microsoft Dataverse environment URL blank and click **Next**.

Create an environment

Basic information
Advanced reporting
Data storage
Microsoft Dataverse
Review

Microsoft Dataverse

Provide your own Microsoft Dataverse environment to share data (profiles and insights) with Dataverse based business applications. Leave this field empty if you don't have one and we will provision one for you and share data with Dataverse.

Microsoft Dataverse environment URL

Back **Next** Review and finish Cancel

9. Click **Create**.

Create an environment

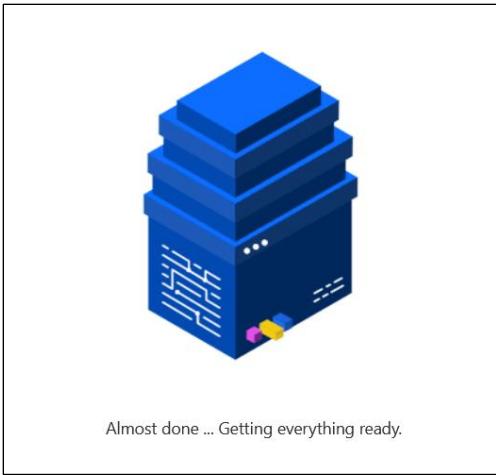
Basic information
Advanced reporting
Data storage
Microsoft Dataverse
Review

Review

Basic information	Edit
Name:	Retail Churn
Audience type:	Individual consumers (B-to-C)
Type:	PitchDemo
Region:	West US
Advanced reporting	Edit
User capacity selected:	No
Data storage	Edit
Output storage type:	Customer Insights storage
Microsoft Dataverse	Edit
Server address:	--
Enable data sharing:	No

Back **Create** Cancel

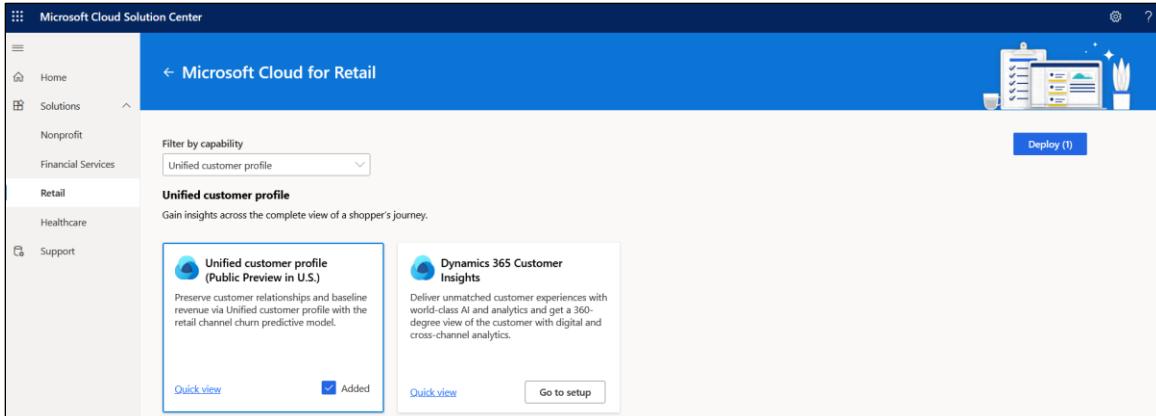
10. Wait for the environment to be created



Congratulations! You have successfully created a CI environment.

Task 2: Deploy Retail Churn Model

1. Open a **new tab** in our internet browser and navigate to the Microsoft Cloud Solution Center at solutions.microsoft.com
2. Expand **Retail** and navigate to **Unified customer profile**. Check **Add** next to Unified customer profile and then click **Deploy**.



3. Select the **Customer Insights Environment** that you created in the previous task, **provide a name** for your deployment, **agree** to the terms and conditions, and click **Next**.

Microsoft Cloud Solution Center

Home Solutions Nonprofit Financial Services Retail Healthcare Support

← Set up solution

Set up new deployment

- Configure dependencies
- Deploy solution
- Success

Set up new deployment

Follow these steps to set up and deploy your new solutions

Customer Insights Environment ⓘ

Retail Churn

Create new

Name your deployment for easy management ⓘ

Retail Churn

Terms of service

I acknowledge that I have read and agree to the [Terms of service](#)

Next

The screenshot shows the Microsoft Cloud Solution Center interface. On the left, there's a navigation bar with 'Home', 'Solutions' (which is expanded to show 'Nonprofit', 'Financial Services', 'Retail', 'Healthcare', and 'Support'), and a 'Create new' button. The main area has a title '← Set up solution' and a flow diagram. The first step 'Set up new deployment' is selected (indicated by a blue dot). It has three sub-options: 'Configure dependencies' (selected), 'Deploy solution', and 'Success'. To the right, under 'Set up new deployment', there's a section titled 'Customer Insights Environment ⓘ' with a dropdown menu showing 'Retail Churn' and a 'Create new' link. Below that is a 'Name your deployment for easy management ⓘ' input field with 'Retail Churn' typed in. At the bottom, there's a 'Terms of service' section with a checked checkbox and a link to 'Terms of service'. A large blue 'Next' button is at the bottom right.

- Click Deploy to deploy the Retail Churn model to your Customer Insights environment.

Microsoft Cloud Solution Center

Home Solutions Nonprofit Financial Services Retail Healthcare Support

← Set up solution

Set up new deployment

- Configure dependencies
- Deploy solution
- Success

Configure pre-deployment dependencies

This solution has dependencies on other applications. We've run an automated check to see if the dependent applications have already been installed and configured.

Solution dependencies

These dependencies are required to be installed and configured in the destination selected in the previous step.

Dynamics 365 Customer Insights

Environment: Retail Churn

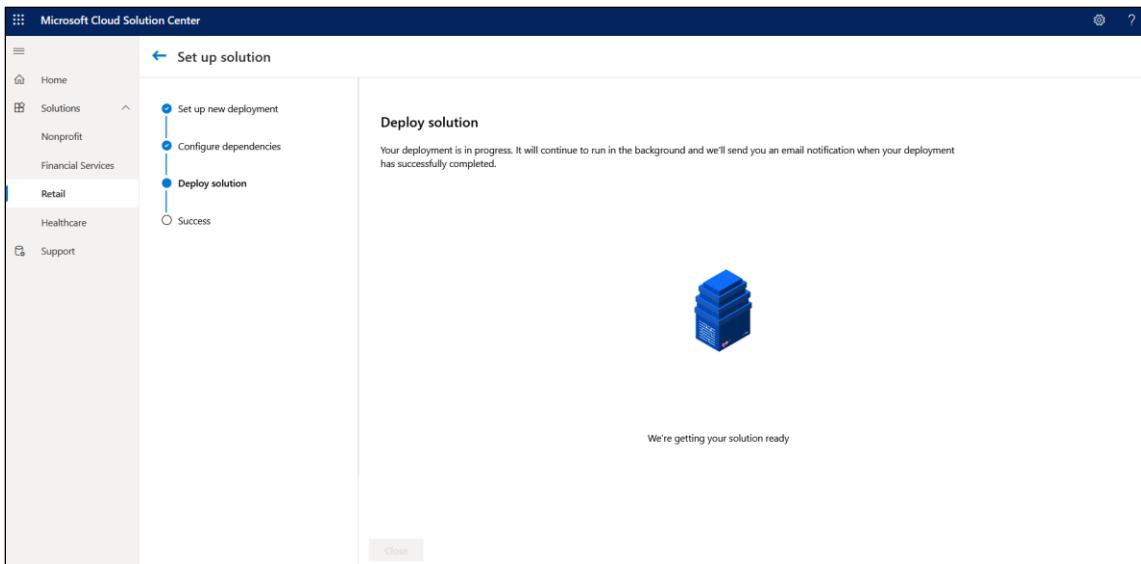
Installed

Configure

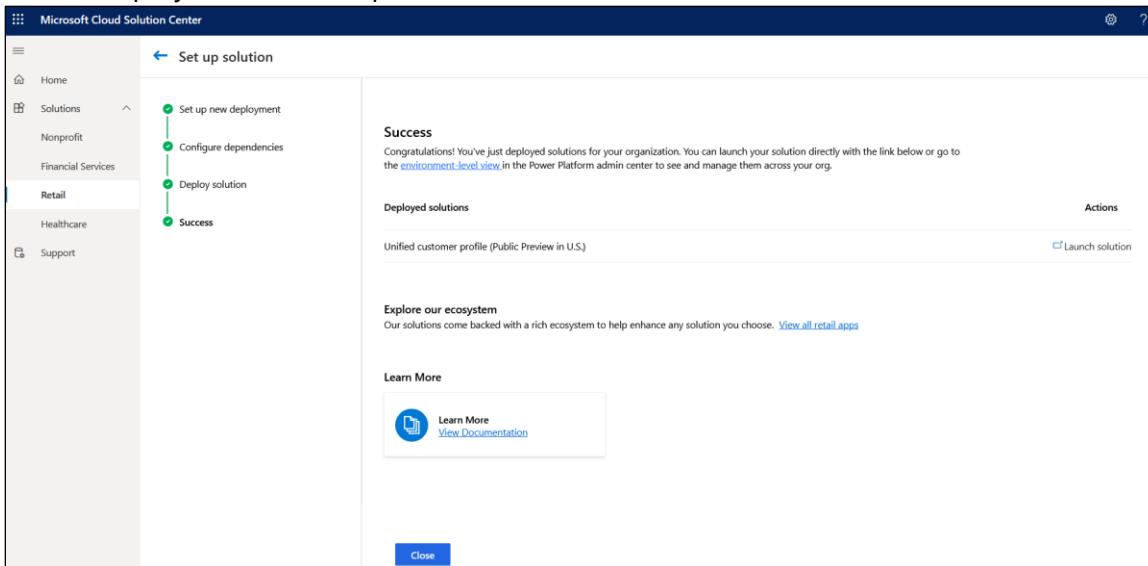
Back Deploy

The screenshot shows the Microsoft Cloud Solution Center interface. The left sidebar is identical to the previous screenshot. The main area shows the flow diagram where 'Configure dependencies' is selected. To the right, there's a 'Dynamics 365 Customer Insights' section with a 'Environment' dropdown set to 'Retail Churn'. Underneath, there are two radio buttons: 'Installed' (selected) and 'Configure'. At the bottom of this section are 'Back' and 'Deploy' buttons. The overall layout is clean and modern, using a light gray background and blue highlights for selected items.

- Deployment will take several minutes to complete.



- Once the deployment has completed, click **Close**.



Congratulations! You have successfully deployed Retail Churn Model.

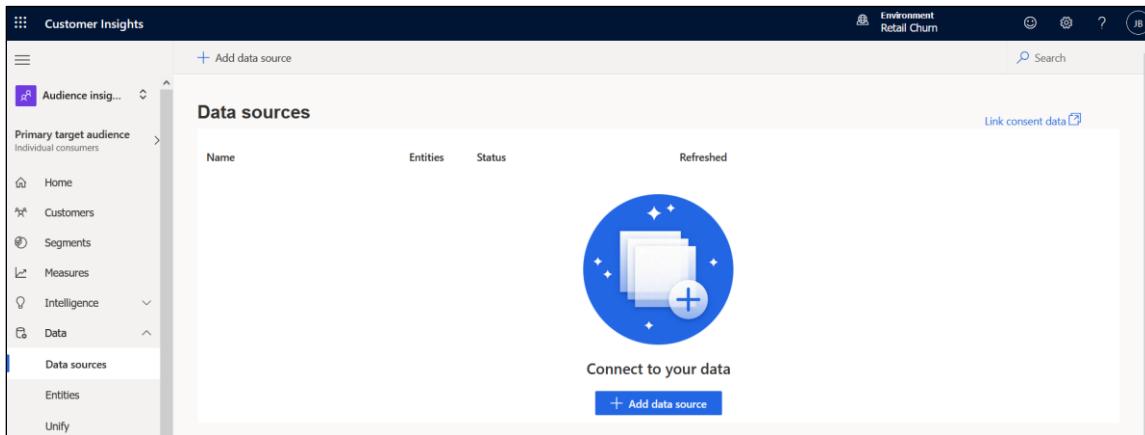
Exercise 2: Configure Retail Churn Model in Dynamics 365 Customer Insights

In this exercise, you will configure the Retail Churn Model in the Dynamics 365 Customer Insights environment you created in the previous exercise.

Task 1: Add a Data Source

In this task, you will add a data source for your Retail Churn model.

1. Navigate to your newly created Customer Insights environment, expand **Data**, and go to **Data sources**. Click **Add data source**.



2. Select **Microsoft Power Query** save the data source as "RetailGroceryChurn", and then click **Next**.

A screenshot of the 'Choose your import method' step in the Microsoft Power Query wizard. It shows a list of options:

- Microsoft Power Query
Files, databases, Microsoft Azure services, and third-party online services
[Learn more](#)
- Azure Synapse Analytics (Preview)
Get data from Azure Synapse Analytics
- Azure data lake storage
Azure Data Lake storage accounts
[Learn more](#)
- Microsoft Dataverse
Data sets in the Common Data Service data lake
[Learn more](#)
- Customer Insights data library
Get data from Datahub catalog

A note at the bottom states: 'Data stored in an online service such as Azure Data Lake Storage may be stored in a different location than where data is processed or stored in Dynamics 365 Customer Insights. By importing, or connecting to, data stored in an online service such as Azure Data Lake Storage, you agree that data can be transferred to, and stored with, Dynamics 365 Customer Insights. Learn more at the [Microsoft Trust Center](#)'. Below this, there's a section to 'Provide a name to identify your data source.' with a 'Save data source as:' input field containing 'RetailGroceryChurn'. A note says: 'Use both letters and numbers—no spaces or special characters (3-64 characters)'. At the bottom right are 'Cancel' and 'Next' buttons.

3. Choose the **Azure Blobs** connector.

Select a connector or directly drag a file from your computer.

All categories File Database Power Platform Azure Online services Other

Data sources

Excel workbook File	Folder File	JSON File	PDF File	Parquet File
SharePoint folder File	Text/CSV File	XML File	Access Database	Amazon Redshift Database
Google BigQuery Database	IBM Db2 database Database	Impala Database	MySQL database Database	Oracle database Database
PostgreSQL database Database	SAP BW Application Server Database	SAP BW Message Server Database	SAP HANA database Database	SQL Server database Database
Snowflake Database	Sybase database Database	Teradata database Database	Vertica Database	Azure Analysis Services Azure
Azure Blobs Azure	Azure Data Explorer (Kusto) Azure	Azure Data Lake Storage Gen2 Azure	Azure HDInsight Spark Azure	Azure SQL database Azure
Azure Synapse Analytics (SQL...) Azure	Azure Tables Azure	Adobe Analytics Online services	Google Analytics Online services	Microsoft Exchange Online Online services
Salesforce objects Online services	Salesforce reports Online services	SharePoint Online list Online services	Smartsheet Online services	Active Directory Other
FHIR Other	OData Other	OdBC Other	SharePoint list Other	Spark Other

Cancel

- Refer to the **Storage Account name** and **Access Key** provided in your lab assignment document for this step.

Connection settings

Account name or URL *
retailchurn

Connection credentials

Data gateway
(none)

Authentication kind
Account key

Account key
[REDACTED]

Back Cancel Next

- Select **retailgrocery** and click **Transform data**.

Power Query - Choose data

Search

Display options ▾

Azure Blobs [6]

- clothing
- convenience
- food
- grocery
- hardware
- retailgrocery**

Content	Name	Extension	Date accessed	Date modified	Date created	Attributes	Folder Path
[Binary]	Grocery_contact.csv	.csv	null	2/25/2022, 4:47:21 ...	null	[Record]	https://retailchurn.blob.core.windows.net/retailgrocery/
[Binary]	Grocery_msrc_session.csv	.csv	null	2/25/2022, 4:48:42 ...	null	[Record]	https://retailchurn.blob.core.windows.net/retailgrocery/
[Binary]	Grocery_msrc_transaction.csv	.csv	null	2/25/2022, 4:49:15 ...	null	[Record]	https://retailchurn.blob.core.windows.net/retailgrocery/

Back Cancel Transform data

6. Click the **[Binary]** link in the first cell of the first row for the **Grocery_contact.csv** file.

Power Query - Edit queries

Home Transform Add column View Help

Get data Options Manage parameters Advanced editor Query Manage columns Sort Transform Combine

Source[{Name = "retailgrocery"}][Data]

Queries [1]

retailgrocery

Content	Name	Extension	Date accessed	Date modified	Date created	Attributes	Folder Path
[Binary]	Grocery_contact.csv	.csv	null	2/25/2022, 4:47:21 ...	null	[Record]	https://re...
[Binary]	Grocery_msrc_session.csv	.csv	null	2/25/2022, 4:48:42 ...	null	[Record]	https://re...
[Binary]	Grocery_msrc_transaction.csv	.csv	null	2/25/2022, 4:49:15 ...	null	[Record]	https://re...

Query settings

Properties

Name: retailgrocery

Entity type: Custom

Applied steps

Source Navigation

Completed (2.19 s) Columns: 8 Rows: 3

Step Cancel Save

Power Query - Edit queries

Home Transform Add column View Help

Get data Options Manage parameters Refresh Advanced editor Properties Query Parameters Manage columns Choose columns Remove rows Keep rows Remove Filter rows Sort Reduce rows Group by Replace values Data type: Text Use first row as headers Split column Group by Replace values Transform Combine

Queries [1] *fx* Csv.Document("Navigation 1", [Delimiter = ",", Columns = 10, QuoteStyle = QuoteStyle.None])

Completed (1.21 s) Columns: 10 Rows: 99+

Step Cancel Save

7. Go to the **Transform** ribbon and then select the **Use first row as headers** option

Power Query - Edit queries

Home **Transform** Add column View Help

Group by headers Reverse rows Count rows Use first row as headers Use headers as first row

Transpose Detect data type Rename Fill Move Text column Number column Date and time column

Replace values Mark as key Unpivot columns Convert to list Use first row as headers Promote the first row of data in the table to column headers. [", Columns = 10, QuoteStyle = QuoteStyle.None]

Completed (1.21 s) Columns: 10 Rows: 99+

Step Cancel Save

8. Right click the **birthdate** column, go to **Change type**, and select **Date**.

Power Query - Edit queries

Home Transform Add column View Help

Queries [1] Table.PromoteHeaders(#"Imported CSV", [PromoteAllScalars = true])

Contact genderCode bl Text Any column

	genderCode	bl	annualincom...
1	3fa4a725-d66b-436f-aca5-e653ebc...	N/A	1958-
2	e11911b9-c88e-4d0b-9d89-10531...	Female	1954-
3	d0181a83-d64d-4269-adef-2a9473...	Male	1960-
4	91117a4c-c123-4d82-9372-49be1...	Male	2000-
5	7c93fa8d-efee-4694-b78f-215673b...	Male	1953-
6	ddd138ef-13ce-40fc-876a-dd0614...	Female	1964-
7	a8008d8f-9463-4d95-a501-6b6b6...	Female	1958-
8	729c54e1-1ab7-48ab-ab70-75605...	Male	1959-
9	bb4ddcc3-7379-4420-8994-9848d...	Male	1969-
10	ec8a5561-3bfa-4d17-84ec-15617...	Male	1984-
11	659f1aa6-a64c-4b01-ad70-4f9051...	N/A	1999-
12	416d1604-36ea-4855-ae21-f534da...	Male	1994-
13	0223a5-e1d1-4e2a-1e3e3e314...	Female	1951-
14	a328a0f0-2a8-43dc-b806-635907...	N/A	1992-
15	e5891f63-0451-4211-9ba2-0ca2b8...	Male	1978-
16	b591a3a1-d533-43d2-958f-deb57...	Male	1970-
17	5ba48b97-0b71-474a-91ab-02cad...	Female	1958-
18	f87002e6-4897-424b-9d2-76510...	Male	1982-
19	457660-471-1403-b414-16570...	Male	2001-

Completed (1.87 s) Columns: 10 Rows: 99+

Query settings >

- Properties
 - Name: retailgrocery
 - Entity type: Custom
- Applied steps
 - Source
 - Navigation
 - Navigation 1
 - Imported CSV
 - Promoted headers

Step Cancel Save

9. Select the following columns by holding down the **Ctrl key** on your keyboard: annualincome, msrc_creditscore, msrc_customerrelationshipduration, and msrc_distanceneareststore. Once highlighted, right click one of them, go to **Change type**, and select **Decimal number**.

Power Query - Edit queries

Home Transform Add column View Help

Queries [1] Table.TransformColumnTypes(#"Promoted headers", {{<-->birthdate, type date}})

gactiv... annualincom... msrc_occupationstatus msrc_creditscore msrc_customerrelationshipdurati... msrc_distanceneareststore

	gactiv...	annualincom...	msrc_occupationstatus	msrc_creditscore	msrc_customerrelationshipdurati...	msrc_distanceneareststore
1	32013	9244823	318	12.38		
2	31807	486.8008593935054	254	13.69		
3	31773	1005.3447935107653	671	14.38		
4	49165	747.5397847104007	246	22.01		
5	35932	895.9196094001996	70	20.25		
6	20742	522.9779620552961	205	20.3		
7	43406	931.8807090056166	75	7.59		
8	42331			21.59		
9	19715			4.59		
10	74319			9.47		
11	41017			4.97		
12	47292			3.51		
13	94595			19.96		
14	34974			17.66		
15	26691			2.44		
16	65281			11.84		
17	51333			20.57		
18	27973			19.55		
19	27973			20.77		

Completed (1.15 s) Columns: 10 Rows: 99+

Query settings >

- Properties
 - Name: retailgrocery
 - Entity type: Custom
- Applied steps
 - Source
 - Nav...
 - Nav...
 - Imported CSV
 - Promoted headers
 - Change type

Step Cancel Save

10. Finally, under Properties on the right side, change the **Name** to "contact" and hit the **Enter** key on your keyboard. DO NOT CLICK SAVE.

Power Query - Edit queries

Home Transform Add column View Help

Queries [1] < contact

Completed (0.91 s) Columns: 10 Rows: 99+

Query settings

- Properties
 - Name: contact
 - Entity type: Custom
- Applied steps
 - Source
 - Navigation
 - Navigation 1
 - Imported CSV
 - Promoted headers
 - Changed column

Cancel Save

11. Right-click the contact query and select Duplicate.

Power Query - Edit queries

Home Transform Add column View Help

Queries [1] < contact

Completed (2.12 s) Columns: 10 Rows: 99+

Query settings

- Properties
 - Name: contact
 - Entity type: Custom
- Applied steps
 - Source
 - Navigation
 - Navigation 1
 - Imported CSV
 - Promoted headers
 - Changed column

Cancel Save

12. Right-click the duplicated query and rename it to "transactions".

Screenshot of Power Query - Edit queries showing the 'transactions' query selected. The 'Applied steps' pane on the right shows several steps applied to the query, including 'Source', 'Navigation', 'Imported CSV', 'Promoted headers', and 'Changed column types'. The main area displays a table with 99 rows and 10 columns.

contactid	genderCode	birthdate	msrc_loyaltymembers...	msrc_agreementtomarketingactiv...	1.2.annual...
3fa4725-d66b-436f-ac5-e653eb...	N/A	9/30/1958	False		
e11911b9-c88e-4d0b-9d89-10531...	Female	6/25/1954	False		
d0181a83-d6a4-4269-adef-2a9473...	Male	12/19/1960	True		
911174c-c123-4b82-9372-49be1...	Male	5/16/2000	False		
7c93fa8d-efee-4694-b78f-215673b...	Male	6/3/1953	True		
ddd136ef-13ce-40fc-876a-dd0614...	Female	9/18/1964	False		
a8008a8f-9463-4d95-a501-66b6b...	Female	5/26/1958	True		
729c54e1-1ab7-48ab-ab70-75605...	Male	1/29/1959	False		
bb4bdce3-7379-4420-8994-988d...	Male	6/10/1969	False		
ec8a5561-3bfa-4d17-84ec-15617...	Male	3/15/1984	False		
6591aa6-a64c-4b01-ad70-4f9051...	N/A	12/1/1999	False		
416d1604-36ea-4855-ae21-f534da...	Male	9/1/1994	False		
02f34a5-e161-4e2a-a1ce-3e33f4...	Female	1/6/1951	False		
a328a0f0-2ac8-43dc-b806-635907...	N/A	1/1/1992	True		
e5891f63-0451-4211-9ba2-0ca2b2...	Male	1/19/1978	False		
b591a3a1-d533-43d2-958f-deb57...	Male	1/28/1970	False		
5ba48b97-0b71-474a-91ab-02cad...	Female	9/4/1958	True		
f870026e-4897-424b-9df2-765a10...	Male	7/20/1982	True		
4cc76f60-3731-4f02-bd24-16670...	Male	7/13/2001	False		

13. With the **transactions** query selected, delete all the **Applied steps** on the right up to the Navigation step.

Screenshot of Power Query - Edit queries showing the 'transactions' query selected. The 'Applied steps' pane on the right shows only the 'Source' and 'Navigation' steps applied to the query. The main area displays a table with 3 rows and 8 columns.

Content	Name	Extension	Date accessed	Date modified	Date created	Attributes	Link
[Binary]	Grocery_contact.csv	.csv	null	2/25/2022, 4:47:21 ...	null	[Record]	https://...
[Binary]	Grocery_msrc_session.csv	.csv	null	2/25/2022, 4:48:42 ...	null	[Record]	https://...
[Binary]	Grocery_msrc_transaction.csv	.csv	null	2/25/2022, 4:49:15 ...	null	[Record]	https://...

14. Click the **[Binary]** link in the first cell of the third row for the **Grocery_msrc_transaction.csv** file.

Power Query - Edit queries

Home Transform Add column View Help

Group Use first row as by headers > Transpose Reverse rows Count rows Table

Queries [2]

contact

transactions

Source [{Name = "retailgrocery"}][Data]

010	Content	Name	Extension	Date accessed	Date modified	Date created	Attributes	Text column
1	[Binary]	Grocery_contact.csv	.csv	null	2/25/2022, 4:47:21 ...	null	[Record]	https://r...
2	[Binary]	Grocery_msrc_session.csv	.csv	null	2/25/2022, 4:48:42 ...	null	[Record]	https://r...
3	[Binary]	Grocery_msrc_transaction.csv	.csv	null	2/25/2022, 4:49:15 ...	null	[Record]	https://r...

Table cell details

CSV
retailchurn.blob.core.windows.net
189,617,947 bytes

Completed (0.66 s) Columns: 8 Rows: 3

Query settings

Properties Name transactions Entity type Custom Applied steps Source Navigation

Step Cancel Save

15. As before, go to **Transform** and select **Use first row as headers**.

Power Query - Edit queries

Home Transform Add column View Help

Group Use first row as by headers > Transpose Reverse rows Count rows Use first row as headers Use headers as first row

Quer contact transactions

Promote the first row of data in the table to column headers. **,"**, Columns: 13, QuoteStyle = **QuoteStyle.None**

Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10	Column11	Column12	Column13
msrc_transactionid	msrc_customerid	msrc_transaction	msrc_productcatalogid	msrc_transactionlocationid	msrc_transacti...	msrc_transac...						
2	ecc57120-494a-46d7-9c07-9e71d1...	3fa4a725-d66...	46212cd-b178...	54910e32-70f4-451...	fa2f1144-1445-46ea-bbcf-ab21c...	Physical	2021-06-1					
3	cb3db1ba-8611-4a91-8500-4979a...	3fa4a725-d66...	7d67eed-b0b...	a1c673d1-5383-446...	3caff72-3c17-4e10-ac5c-d2dab...	Physical	2021-06-1					
4	92800346-03b7-47da-bf22-3390f...	3fa4a725-d66...	fe48d624-439...	61bd9ff8-8ae8-4fb3...	41de6f45-746e-44cd-ab49-813...	Physical	2021-06-2					
5	c49376bb-7d24-4ef0-a614-50129...	3fa4a725-d66...	a96de2b8-2ba...	6df0f586-543e-41e...	bc448ee-012c-45ed-8605-61b6...	Digital	2021-06-1					
6	86cc66dc-141b-412e-bd42-5232...	3fa4a725-d66...	cb0ed62e-3efc...	f8ee83d5-db23-4115...	bc448ee-012c-45ed-8605-61b6...	Physical	2021-06-1					
7	f97ddcf2-31b0-4384-8458-a3d74...	3fa4a725-d66...	69b2a83b-1c0b...	572ae238-df73-4368...	bc448ee-012c-45ed-8605-61b6...	Digital	2021-06-2					
8	9ef92e23-8735-4069-9fda-cfa4b3...	3fa4a725-d66...	a90c66-069...	ed37132d-9a64-4cc5...	41de6f45-746e-44cd-ab49-813...	Physical	2021-06-2					
9	fb323b3f-3e6c-4c85-870f-a23a7f5...	3fa4a725-d66...	4d2db506-6f7...	add7650e-4320-4cb5...	41de6f45-746e-44cd-ab49-813...	Physical	2021-06-1					
10	2dde4be5-196e-4f6e-8265-4e6fb6...	3fa4a725-d66...	d7497c4d-911...	47e99aaa-1e60-4631...	41de6f45-746e-44cd-ab49-813...	Digital	2021-06-1					
11	cdb27ef6-3140-4f84-b131-a7a959...	e1191b9-c88...	07687634-05...	d560e049-ed78-458...	bc448ee-012c-45ed-8605-61b6...	Physical	2021-08-1					
12	a9fcba4f-2ef8-4ae2-bd29-28b0664...	e1191b9-c88...	281446e-887...	d560e049-ed78-458...	bc448ee-012c-45ed-8605-61b6...	Physical	2021-08-0					
13	e0588688-a776-4a9a-95d4-d904...	e1191b9-c88...	ef58e2de-be7...	d560e049-ed78-458...	3caff72-3c17-4e10-ac5c-d2dab...	Digital	2021-08-0					
14	1a9e0177-247d-44e6-883e-1760d...	e1191b9-c88...	b391841-1e3...	b750e5e-455-4fb6...	41de6f45-746e-44cd-ab49-813...	Digital	2021-08-1					
15	3fac58ff-415d-4ef5-9114-349016d...	e1191b9-c88...	18a90081-a9...	50054239-424e-468...	3caff72-3c17-4e10-ac5c-d2dab...	Digital	2021-08-0					
16	abf86df0-e0e4-4d01-a68b-0b7f75...	e1191b9-c88...	36f0e835-1a3...	c224df1-b1e2-490...	41de6f45-746e-44cd-ab49-813...	Physical	2021-08-0					
17	99c52044-98bb-407a-99d1-bc357...	e1191b9-c88...	3e78f76a-470...	fc83a2b-250b-4f77...	fa2f1144-1445-46ea-bbcf-ab21c...	Physical	2021-08-0					
18	deacc7-a6f0-4c2e-a556-2288ff7...	e1191b9-c88...	af047cc4-8ee8...	63fd9892-6dcf-4bae...	3caff72-3c17-4e10-ac5c-d2dab...	Physical	2021-08-0					
19	4337a23-1a20-4a20-8020-0200000...	e1191b9-c88...	02000000-0000-0000-0000-000000000000	00000000-0000-0000-0000-000000000000	3caff72-3c17-4e10-ac5c-d2dab...	Digital	2021-08-0					

Completed (1.32 s) Columns: 13 Rows: 99+

Query settings

Properties Name transactions Entity type Custom Applied steps Source Navigation Navigation 1 Imported CSV

Step Cancel Save

16. Scroll over to and select the **msrc_transactiontimestamp** column. Right-click and **Change type** to **Date/Time**.

The screenshot shows the Power Query interface with the 'Edit queries' tab selected. The 'Queries [2]' pane on the left lists 'contact' and 'transactions'. The main area displays the 'transactions' query, which is a table with 99+ rows and 13 columns. A context menu is open over the 'msrc_transactionamount' column, with the 'PromoteAllScalars = true' option highlighted. The 'Applied steps' pane on the right shows the history of steps taken on this query, including 'Imported CSV' and 'Promoted headers'.

17. Press and hold the **Ctrl key** on your keyboard to select both the **msrc_transactionamount** and **msrc_discountappliedamount** columns. Right-click one of the columns, go to **Change type**, and select **Decimal number**.

The screenshot shows the Power Query interface with the 'Edit queries' tab selected. The 'Queries [2]' pane on the left lists 'contact' and 'transactions'. The main area displays the 'transactions' query, which has been transformed. The 'Applied steps' pane shows a step labeled 'ABC Changed col...' with a red error icon, indicating a problem with the transformation of the 'msrc_transactionamount' and 'msrc_discountappliedamount' columns.

18. Right-click the **transactions** query and select **duplicate**.

Power Query - Edit queries

Home Transform Add column View Help

Queries [2]

msrc_transactions

Purchase	Type	Amount	Timestamp	Status	Delayed
Debit	Credit card	2.363769729	1.323792212	Delayed	True
Debit	Cash	1.323175478	0	Delayed	True
Refund	Cash	12.86216777	0	Delayed	True
Debit	Refund	3.924133996	0	Delayed	True
Debit	Debit	3.976310525	1.068660005	Delayed	True
Mobile/digital/cashless	Debit	10.29214445	2.150837185	Delayed	True
Debit	Credit card	8.185362855	0	On-time	True
Debit	Credit card	14.86790188	0	Delayed	True
Refund	Credit card	0.3635065123	0	Delayed	True
Debit	Refund	11.14417053	2.060410405	Delayed	True
Debit	Credit card	0.1906003796	0.03987881907	Delayed	True
Credit card	Debit	0.9710120332	0	Delayed	True
Debit	Credit card	7.9234028249	2.103243773	Delayed	True
Cash	Cash	1.796647511	0.4314152398	Delayed	True
Cash	Gift card	8.847661661	2.986940906	Delayed	True
Cash	Cash	10.6220733	3.548649445	Delayed	True
Debit	Debit	11.83582545	0	Delayed	True

Completed (2.90 s) Columns: 13 Rows: 99+

Query settings

- Properties
 - Name: transactions
 - Entity type: Custom
- Applied steps
 - Source
 - Navigation
 - Navigation 1
 - Imported CSV
 - Promoted headers
 - Changed column types

Step Save Cancel

19. Rename the query to “**session**” and delete all the **Applied steps** up to Navigation like you did before.

Power Query - Edit queries

Home Transform Add column View Help

Queries [3]

session

Content	Name	Extension	Date accessed	Date modified	Date created	Attributes	Link
[Binary]	Grocery_contact.csv	.csv	null	2/25/2022, 4:47:21 ...	null	[Record]	https://r...
[Binary]	Grocery_msrc_session.csv	.csv	null	2/25/2022, 4:48:42 ...	null	[Record]	https://r...
[Binary]	Grocery_msrc_transaction.csv	.csv	null	2/25/2022, 4:49:15 ...	null	[Record]	https://r...

Completed (0.69 s) Columns: 8 Rows: 3

Query settings

- Properties
 - Name: session
 - Entity type: Custom
- Applied steps
 - Source
 - Navigation

Step Save Cancel

20. Click the **[Binary]** link in the first cell of the second row for the **Grocery_msrc_session.csv** file.

Power Query - Edit queries

Home Transform Add column View Help

Queries [3]

- contact
- transactions
- session

Source{[Name = "retailgrocery"]}[Data]

010 101 Content	Name	Extension	Date accessed	Date modified	Date created	Attributes
1 [Binary]	Grocery_contact.csv	.csv	null	2/25/2022, 4:47:21 ...	null	[Record]
2 [Binary]	Grocery_msrc_session.csv	.csv	null	2/25/2022, 4:48:42 ...	null	[Record]
3 [Binary]	Grocery_msrc_transaction.csv	.csv	null	2/25/2022, 4:49:15 ...	null	[Record]

Table cell details

retailchurn.blob.core.windows.net
105,432,560 bytes

Completed (0.69 s) Columns: 8 Rows: 3

Query settings

- Properties
 - Name session
- Entity type Custom
- Applied steps
 - Source
 - Navigation

Step Cancel Save

21. Go to **Transform** and select **Use first row as headers**.

Power Query - Edit queries

Home Transform Add column View Help

Queries [3]

- contact
- transactions
- session

Use first row as headers

Promote the first row of data in the table to column headers.

Column1	Column2	Column3	Column4	Column5	Column6
msrc_sessionid	msrc_customerid	msrc_sessiontimestamp	msrc_visittype	msrc_sessionchannel	msrc_sessionduration
1 462f12b-178d-4345-b179-e3669...	3fa4725-066b-436f-ac5-e653e...	2021-06-17 08:45:00	Physical	Brick and mortar	41.92540261984776 F
2 7df67cc0-b087-4f77-b29a-9ca2e10...	3fa4725-066b-436f-ac5-e653e...	2021-06-16 08:54:00	Physical	Brick and mortar	42.14446939764739 F
3 fe48d624-439e-4c45-a519-982065...	3fa4725-066b-436f-ac5-e653e...	2021-06-21 08:34:00	Physical	Brick and mortar	44.42984551415812 F
4 a96de2b0-2ba0-4004-a9b8-b6e7fd...	3fa4725-066b-436f-ac5-e653e...	2021-06-14 06:31:00	Digital	Instagram	43.09570606721701 F
5 bced62e-3efc-46fd-97b8-b2ead21...	3fa4725-066b-436f-ac5-e653e...	2021-06-14 03:08:00	Physical	Brick and mortar	43.82838526581899 F
6 e992a8bc-1d55-4bee-9b1e-73572...	3fa4725-066b-436f-ac5-e653e...	2021-06-21 11:55:00	Digital	App	43.87030969219855 F
7 a90bc6a6-0699-4976-8a49-4904d...	3fa4725-066b-436f-ac5-e653e...	2021-06-24 11:30:00	Physical	Brick and mortar	42.845305292074... F
8 4d2db506-6773-4ce8-9d9d-3458a...	3fa4725-066b-436f-ac5-e653e...	2021-06-12 14:05:00	Digital	Chat	44.71716663151871 F
9 d7497c46-911e-43f6-838d-02057...	3fa4725-066b-436f-ac5-e653e...	2021-06-17 07:32:00	Physical	Brick and mortar	43.62810153891612 F
10 07687634-050a-4000-be2d-0e66...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-13 18:10:00	Physical	Brick and mortar	41.92973041259731 F
11 281f466e-8f87-4c25-b2c9-27f74...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-09 07:11:00	Physical	Brick and mortar	42.6646738231925... F
12 ef50e2de-be7f-4f5b-b8b3-b512fc...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-07 11:45:00	Digital	App	40.382452266548... F
13 b39d1841-1e34-4c9a-92f2-fd9ad...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-16 19:35:00	Digital	Website	43.6749475691305... F
14 18a9081a-d9cd-4fc8-9832-55494...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-08 07:17:00	Digital	Website	43.41405259018818 F
15 36f0e635-1a35-4b4d-9ada-e1a901...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-04 12:00:00	Physical	Brick and mortar	43.2046129392539... F
16 3e78f76a-a705-44d4-a3fd-01b82f...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-05 10:17:00	Physical	Brick and mortar	44.18332832360634 F
17 a047cc4-8ee8-4d56-82c0-1205c...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-04 07:03:00	Physical	Brick and mortar	41.8584999687191 F
18					
19					

Completed (1.55 s) Columns: 9 Rows: 99+

Query settings

- Properties
 - Name session
- Entity type Custom
- Applied steps
 - Source
 - Navigation
 - Imported CSV

Step Cancel Save

22. Right-click **msrc_sessiontimestamp**, go to **Change type** and select **Date/Time**.

Power Query - Edit queries

Home Transform Add column View Help

Queries [3]

- contact
- transactions
- session

Table

fx Table.PromoteHeaders(#"Imported CSV", [PromoteAllScalars = true])

msrc_sessionid	msrc_customermid	msrc_sessionchannel	msrc_sessionduration
462f12cb-178d-4345-b179-e3669...	3fa4a725-d66b-436f-ac5-e653ebc...	Brick and mortar	1.2 Decimal number
7df7eed-b087-4ff7-b29a-9ca2e10...	3fa4a725-d66b-436f-ac5-e653ebc...	Brick and mortar	1.2 Decimal number
fe48d624-439e-4d45-a519-982065...	3fa4a725-d66b-436f-ac5-e653ebc...	Instagram	1.2 Decimal number
a96de2b8-2ba0-4004-a9b8-b6e7fd...	3fa4a725-d66b-436f-ac5-e653ebc...	Brick and mortar	1.2 Decimal number
cbaed62e-3efc-46f0-97b5-b2ead21...	3fa4a725-d66b-436f-ac5-e653ebc...	Brick and mortar	1.2 Decimal number
69b2a8bc-1e85-4be9-9b1e-73572...	3fa4a725-d66b-436f-ac5-e653ebc...	App	1.2 Decimal number
a90bc6a6-0699-4976-8a49-9404d...	3fa4a725-d66b-436f-ac5-e653ebc...	Brick and mortar	1.2 Decimal number
4d2db506-6773-4c8b-9d9d-3458a...	3fa4a725-d66b-436f-ac5-e653ebc...	Brick and mortar	1.2 Decimal number
d7497c46-911e-43f6-83d8-02057...	3fa4a725-d66b-436f-ac5-e653ebc...	Brick and mortar	1.2 Decimal number
07687634-050a-4000-be2d-0ee6b...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-13 18:00:00	1.2 Decimal number
281f466e-88f7-4c25-b2cb-27fa74c...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-09 07:00:00	1.2 Decimal number
f58e2d0e-be74-f3b3-bb3-b512fc9...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-07 11:00:00	1.2 Decimal number
b39d1841-1e34-4c9a-92f2-fd9ad9...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-16 15:00:00	1.2 Decimal number
18a9081a-d9cd-4f68-9832-5549f4...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-08 00:00:00	1.2 Decimal number
3680e835-1a35-4bd4-9ada-1a9071...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-04 11:00:00	1.2 Decimal number
3e7876a-a705-4ad4-a3fd-01b62f1...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-05 11:00:00	1.2 Decimal number
a047c0c4-6ee8-4d56-82c0-1205e8...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-01 20:00:00	1.2 Decimal number
0295eda-aab4-41ed-aa02-5dd2a2...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-04 00:00:00	1.2 Decimal number
7f60037e-7e34-42c3-860f-76070...	e11911b9-c88e-4d0b-9d89-10531...	2021-08-05 11:00:00	1.2 Decimal number

Completed (2.09 s) Columns: 9 Rows: 99+

Query settings

- Properties
- Name: session
- Entity type: Custom

Applied steps

- Source
- Navigation
- Navigation 1
- Imported CSV
- Promoted headers
- Changed column types

Step Cancel Save

23. Right-click the **msrc_sessionduration** column, go to **Change type**, and select **Decimal number**.

Power Query - Edit queries

Home Transform Add column View Help

Queries [3]

- contact
- transactions
- session

Table

fx Table.TransformColumnTypes(#"PromoteHeaders", {"msrc_sessiontimestamp", type datetime})

msrc_sessionchannel	msrc_sessionduration	msrc_sessioncustomersatisfaction	msrc_sessionprofilelogins
Brick and mortar	41.92540261984776	False	False
Brick and mortar	42.14446939764739	False	False
Brick and mortar	44.42984551415812	False	False
Instagram	43.9570606721701	False	False
Brick and mortar	43.82838526581899	False	False
App	43.87030969219853	False	False
Brick and mortar	42.645305292074464	False	False
Chat	44.71716663151871	False	False
Brick and mortar	43.6281015891612	False	False
Brick and mortar	41.92973041259731	False	False
Brick and mortar	42.664673823192565	1.2 Decimal number	1.2 Decimal number
App	40.38245266548846	False	False
Website	43.674947569130566	False	False
Website	43.41405259018818	False	False
Brick and mortar	43.204612939253934	False	False
Brick and mortar	44.1832832360634	False	False
Brick and mortar	41.858499667191	False	False
Brick and mortar	41.68512136188344	False	False

Completed (6.06 s) Columns: 9 Rows: 99+

Query settings

- Properties
- Name: session
- Entity type: Custom

Applied steps

- Source
- Navigation
- Navigation 1
- Imported CSV
- Promoted headers
- Changed column types

Step Cancel Save

24. Finally, right-click the **msrc_sessioncustomersatisfaction** column, go to **Change type**, and select **Whole number**.

Power Query - Edit queries

Home Transform Add column View Help

Queries [3] < Save

Applied steps

- Source
- Navigation
- Navigation 1
- Imported CSV
- Promoted headers
- Changed column

Completed (2.20 s) Columns: 9 Rows: 99+

msrc_sessionchannel	msrc_sessionduration	msrc_sessionpurpose	msrc_sessionprofilelogin
sk and mortar	41.92540262	Purchase	1 False
sk and mortar	42.1444694	Purchase	1 False
sk and mortar	44.42984551	Purchase	1 False
tagram	43.09570607	Purchase	1 False
sk and mortar	43.82838527	Purchase	1 False
>	43.87030969	Purchase	1 False
sk and mortar	42.84530529	Purchase	1 False
at	44.71716663	Purchase	1 False
sk and mortar	43.62810154	Purchase	1 False
sk and mortar	41.92973041	Purchase	1 False
sk and mortar	42.66467382	Purchase	1 False
>	40.38245227	Purchase	1 False
bsite	43.67494757	Purchase	1 False
bsite	43.41405259	Purchase	1 False
sk and mortar	43.20461294	Purchase	1 False
sk and mortar	44.18332832	Purchase	1 False
sk and mortar	41.85849997	Purchase	1 False
sk and mortar	41.68512133	Purchase	1 False
>	41.68512133	Purchase	1 False

25. Click **Save** and monitor the Data source as it refreshes. This step should take a few minutes.

Power Query - Edit queries

Home Transform Add column View Help

Queries [3] < Save

Applied steps

- Source
- Navigation
- Navigation 1
- Imported CSV
- Promoted headers
- Changed column

Completed (1.63 s) Columns: 9 Rows: 99+

msrc_sessionchannel	msrc_sessionduration	msrc_sessionpurpose	msrc_sessionsatisfaction	msrc_sessionprofilelogin
sk and mortar	41.92540262	Purchase	1 False	
sk and mortar	42.1444694	Purchase	1 False	
sk and mortar	44.42984551	Purchase	1 False	
tagram	43.09570607	Purchase	1 False	
sk and mortar	43.82838527	Purchase	1 False	
>	43.87030969	Purchase	1 False	
sk and mortar	42.84530529	Purchase	1 False	
at	44.71716663	Purchase	1 False	
sk and mortar	43.62810154	Purchase	1 False	
sk and mortar	41.92973041	Purchase	1 False	
sk and mortar	42.66467382	Purchase	1 False	
>	40.38245227	Purchase	1 False	
bsite	43.67494757	Purchase	1 False	
bsite	43.41405259	Purchase	1 False	
sk and mortar	43.20461294	Purchase	1 False	
sk and mortar	44.18332832	Purchase	1 False	
sk and mortar	41.85849997	Purchase	1 False	
sk and mortar	41.68512133	Purchase	1 False	
>	41.68512133	Purchase	1 False	

Validating queries

Task 2: Unify Your Data

1. In Customer Insights, expand **Data** and go to **Unify**. Under **Map**, click **+ Select entities**.

Audience insight... Primary target audience Individual consumers

Home Customers Segments Measures Intelligence Data Data sources Entities

Unify Enrichment Activities Relationships

Map Match Merge

Define customer data in your entities
At least 2 entities are required to configure and generate Customer Profiles, prior to setting up Segments, Measures and Activities.

+ Select entities

2. Select all **three** entities and click **Apply**.

Audience insight... Primary target audience Individual consumers

Home Customers Segments Measures Intelligence Data Data sources Entities

Unify Enrichment Activities Relationships

Exports

Save Discard changes

Map Match Merge

Define customer data in your entities
At least 2 entities are required to configure and generate Customer Profiles, prior to setting up Segments, Measures and Activities.

+ Select entities

Edit fields
Select which fields to include in your unified customer entity.

Search

session (RetailGroceryChurn2)
contact (RetailGroceryChurn2)
transactions (RetailGroceryChurn2)

Apply Cancel

3. Select the **contact** entity, then select **contactid** as the primary key.

Unify

Map Match Merge

To unify customer data, define the fields found in your datasets.

Imported data	Fields
Entities ↑ RetailGroceryChurn2 contact	Select the primary key contactid
RetailGroceryChurn2 Session	Review mapped fields Column ↑ Type birthdate Person.BirthDate contactid ID genderCode Person.Gender msrc_creditscore Identity.Service.Phone
RetailGroceryChurn2 transactions	

Intelligent mapping
What's this?

4. Select the **session** entity, then select **msrc_sessionid** as the primary key.

The screenshot shows the 'Unify' interface for mapping datasets. The 'Fields' tab is active. Under 'Imported data', the 'session' entity is selected. In the 'Fields' section, 'msrc_sessionid' is chosen as the primary key. Other mapped fields include 'msrc_customerid' (Calendar.Date) and 'msrc_sessionid' (ID). A note at the bottom suggests defining unmapped fields.

5. Select the **transactions** entity, then select **msrc_transactionid** as the primary key. Click **Save**.

The screenshot shows the 'Unify' interface for mapping datasets. The 'Fields' tab is active. Under 'Imported data', the 'transactions' entity is selected. In the 'Fields' section, 'msrc_transactionid' is chosen as the primary key. Other mapped fields include 'msrc_customerid' (ID), 'msrc_productcatalogid' (ID), 'msrc_transactionid' (ID), 'msrc_transactionlocationid' (ID), and 'msrc_transactionsessionid' (ID).

6. While still under Unify, click **Match**, and then click **+ Set order**.

Unify

Map Match Merge

Define your rules for the matching and deduplication process that will consolidate source records into unique customer profiles.

Matched records details + Add entity Custom



Set the order of entities to match + Set order

7. In the pop-out, click + Add at the bottom to add a third entity.

Edit

Add, reorder, remove entities, and select if each should include all records. Entities can't be removed if they have been merged.

Rule conditions that have conflicts as a result of the change will be removed.

Entity order	Entity name	Move up/down	Include all
Primary	Select entity	▼	<input type="checkbox"/>
2	Select entity	^	<input type="checkbox"/>

+ Add Done Cancel

8. Select the entities in the following order: **contact, transactions, session**. Ensure **Include all** is checked for all entities and click **Done**.

Edit

Add, reorder, remove entities, and select if each should include all records. Entities can't be removed if they have been merged.

Rule conditions that have conflicts as a result of the change will be removed.

Entity order	Entity name	Move up/down	Include all
Primary ⓘ	contact : RetailGroc ...	▼	<input checked="" type="checkbox"/>
2	transactions : Retail ...	^ ▼	<input checked="" type="checkbox"/>
3	session : RetailGroc ...	^	<input checked="" type="checkbox"/>

Done **Cancel**

9. Click **+ Add rule** next to the **transactions** entity.

Unify

Map Match Merge

Define your rules for the matching and deduplication process that will consolidate source records into unique customer profiles.

Unique source records	Matched and non-matched records	Matched records only
--	--	--
How does deduplication work?	How are links determined?	What happens to excluded records?

Matched records details

Order	Name	Source records	Unique records	Records matched	Include all records
1	RetailGroceryChurn2 : contact	0	0		<input checked="" type="checkbox"/>
2	RetailGroceryChurn2 : transacti... NEEDS RULES	0	0		<input checked="" type="checkbox"/>
3	RetailGroceryChurn2 : sessi... NEEDS RULES	0	0		<input checked="" type="checkbox"/>

+ Add entity **Custom** **Edit**

10. Select **contactid** and **msrc_customerid**, then name the rule “contacttransactions”. Click **Done**.

Create rule

Make a rule for how to handle duplicate data by setting conditions that compare fields from differing entities. [Learn more](#)

Conditions

Condition 1

Select entity * contact : RetailGroceryChurn2

Select field * contactid

Entity transactions : RetailGroceryChurn2

Select field * msrc_customerid

Precision

Basic

Exact

Name *

contacttransactions

+ Add Done Cancel

11. Scroll down and click + Add rule next to the session entity.

Matched records details						+ Add entity	Custom	Edit
Order	Name	Source records	Unique records	Records matched	Include all records			
1	RetailGroceryChurn2 : contact	0	0	0	✓			
2	RetailGroceryChurn2 : transactions	0	0	0	✓			
1	contacttransactions							
	+ Add rule							
3	RetailGroceryChurn2 : sessi... NEEDS RULES	0	0	0	✓			
	+ Add rule							

12. Choose the **transactions** entity and then select the **msrc_transactionsessionid** and **msrc_sessionid** fields. Name the rule "transactionssession" and click **Done**.

Edit “transactionssession”

X

Make a rule for how to handle duplicate data by setting conditions that compare fields from differing entities. [Learn more](#)

Conditions

Condition 1

Select entity *

transactions : RetailChurnModel

Select field *

msrc_transactionsessionid

Entity

sessions : RetailChurnModel

Select field *

msrc_sessionid

Precision

Basic

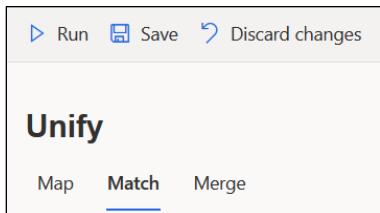
Exact

+ Add ▾

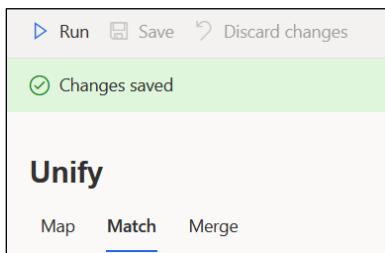
Done

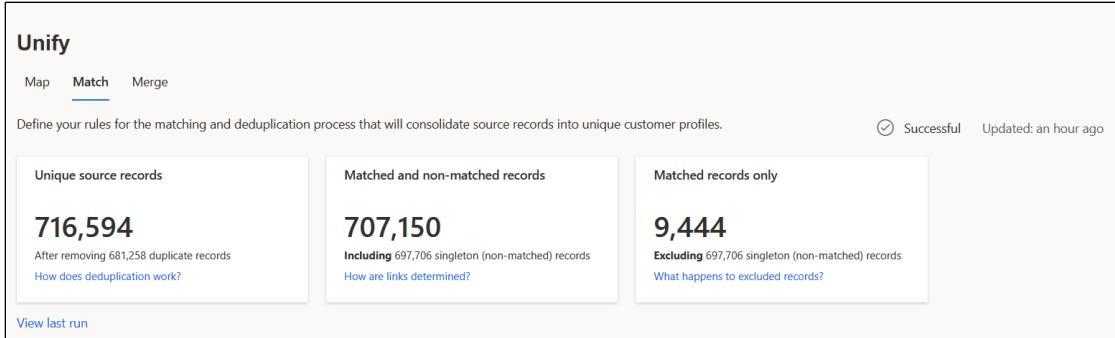
Cancel

13. Click **Save**.

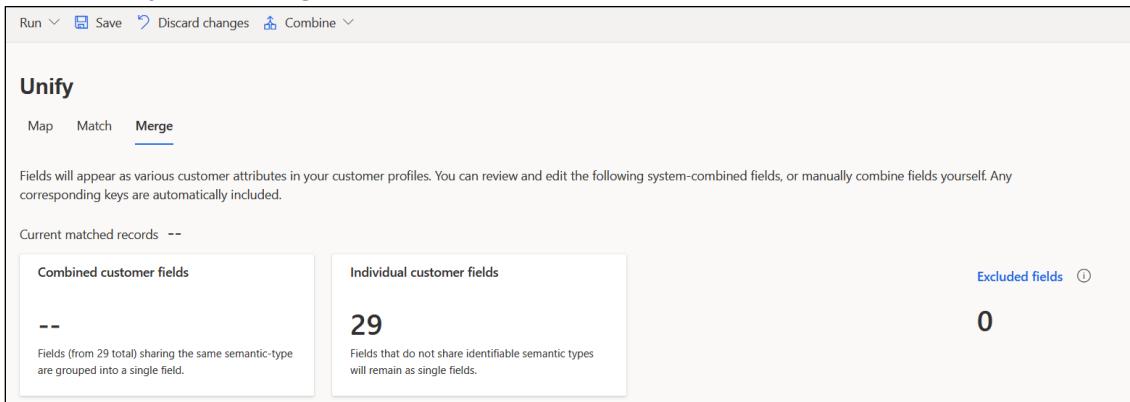


14. Click **Run**. This step will take several minutes to complete. Once it is done, we will then merge the data.

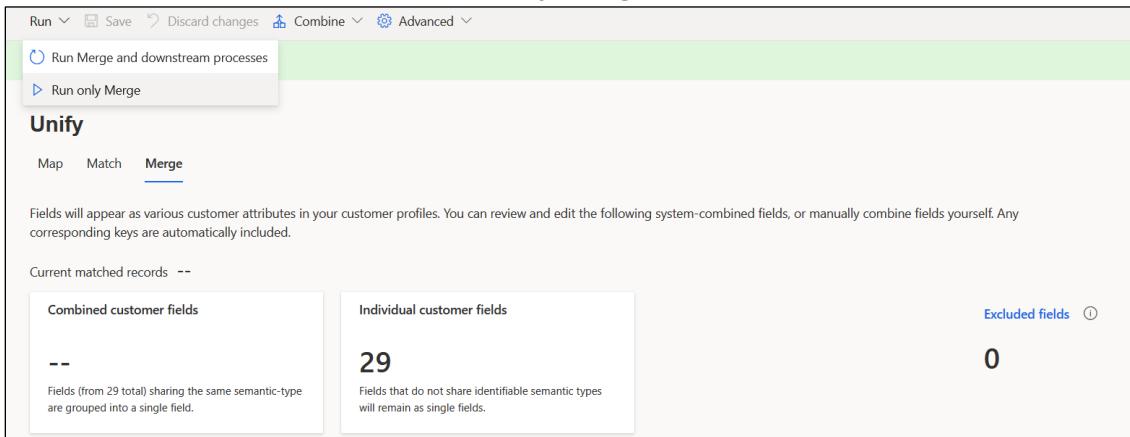




15. Under **Unify**, click **Merge** and then click **Save**.



16. Once saved, click **Run** and select **Run only Merge**. This will take several minutes to complete.



Congratulations! The model should be visible and ready to train, follow the next steps to train the model.

Task 3: Train the model

1. Navigate to **Predictions** on the left menu, select Create and then click the **Retail channel churn (preview) Use model** button.

The screenshot shows the Microsoft Audience Insights interface. On the left, there's a navigation sidebar with options like Home, Customers, Segments, Measures, Intelligence, Predictions, Data, Reports (Preview), and Admin. Under the Intelligence section, there are two cards: 'Customer churn model (preview)' and 'Retail channel churn (preview)'. The 'Retail channel churn (preview)' card is highlighted with a red box around its 'Use model' button. The main area has a heading 'Intelligence' and a sub-heading 'Plan, market, and sell strategically with machine-learning models that use your data to predict customer behavior. Pick a pre-built model, or use your own.' Below the cards, there are 'Create' and 'My predictions' buttons.

2. When the pane pops out, click the **Get started** button.

This screenshot shows the same interface as above, but with a modal dialog box overlaid. The dialog is titled 'Retail channel churn (preview)' and contains descriptive text about the model. To the right of the text, there's a section titled 'You'll need the following data' which lists 'Customer ID', 'Source contact ID', 'Transaction ID', 'Customer ID', and 'Transaction timestamp'. At the bottom of the dialog are 'Get started' and 'Close' buttons.

3. Name the model and output entity "RetailChurnModel".

Predictions > Retail channel churn (preview)

Model name

Preferences

Required data

Additional data (optional)

Data updates

Review and run

Model name
Select the names for your model

Name

Output entity name ⓘ

Next

4. Adjust the Model preferences as needed and click **Next**.

Model name

Preferences

Required data

Additional data (optional)

Data updates

Review and run

Model preferences
Identify customers most likely to stop making purchases in the digital channel or brick & mortar channel by examining their profiles and transaction history.

Prediction period
Days to look into the future to predict churn:

Transaction volume decline threshold
Proportional threshold for the decline in the number of transactions for a customer to be determined as churned (0.1 means that the transaction volume drops to 10%)

Transaction value decline threshold
Proportional threshold for the decline in the value of transactions for a customer to be determined as churned (0.1 means that the value of transactions drops to 10%)

Back **Next** **Save draft** **Cancel**

5. Click on the **+ Add data** button below the Customer session on the middle pane. It will open a right pane to let you add the required customer data from the customer entity. Click **Save** when done to return to the middle pane.

Predictions > Retail channel churn (preview)

Required data

Customer
The model examines your customer entity along with any supporting data added in the next step to estimate churn over a given period of time.

Transaction
This model examines the transaction history of the customers to estimate churn over a given period of time.

Add data

Back Next Save draft Cancel

Add customer data

Step 1 of 1: Map your field names

Loyalty membership
System.Customer.msrc_loyaltymembership

Occupation status
System.Customer.msrc_occupationstatus

Birth date
System.Customer.birthdate

Gender code
System.Customer.genderCode

Annual income
System.Customer.annualincome

Relationship duration
System.Customer.msrc_customerrelationshipduration

Distance to nearest store
System.Customer.msrc_distancetoneareststore

Save **Cancel**

6. Repeat the process with the Transaction data by clicking the second **+ Add data** button below the Transaction section on the middle pane. Fill out the transaction entity information on the right pane and click on **Save**. Click **Next** on the middle pane.

Add customer data

Step 1 of 1: Map your field names

Transaction entity *

transactions : RetailGroceryChurn2

Map these required attributes to the corresponding labels in your data.

Transaction ID *

RetailGroceryChurn2.transactions.msrc_transactionid

Customer ID *

RetailGroceryChurn2.transactions.msrc_customerid

Transaction timestamp *

RetailGroceryChurn2.transactions.msrc_transactiontimestamp

Transaction session ID

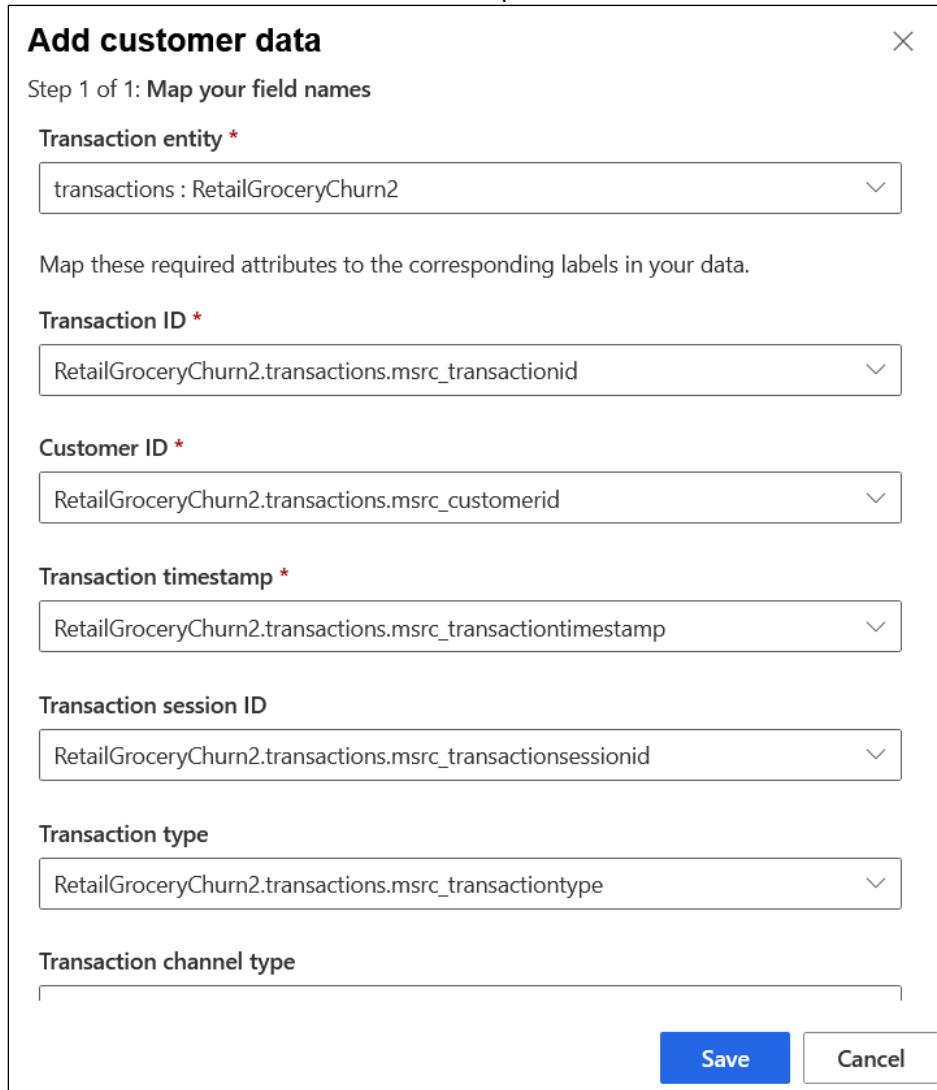
RetailGroceryChurn2.transactions.msrc_transactionsessionid

Transaction type

RetailGroceryChurn2.transactions.msrc_transactiontype

Transaction channel type

Save Cancel



7. Once both required data entities are complete, click **Next** to go to Additional data.

Predictions > Retail channel churn (preview)

To add an activity, there must be an available entity with date/time based fields. Go to data sources

Required data

Customer

The model examines your customer entity along with any supporting data added in the next step to estimate churn over a given period of time.

Entity ↑	Attributes	Status
Customer : CustomerInsights	10	Complete

Transaction

This model examines the transaction history of the customers to estimate churn over a given period of time.

Entity ↑	Attributes	Status
transactions : RetailGroceryChurn2	13	Complete

Back **Next** **Save draft** **Cancel**

8. Click + **Add data** to enter the Session information, **save** it and click **Next**.

Predictions > Retail channel churn (preview)

To add an activity, there must be an available entity with date/time based fields. Go to data sources

Additional data (optional)

Add additional data to help the model predict which customers are most likely to churn.

Session

This model examines the sessions history of the customers to estimate churn.

+ Add

Add customer data

Step 1 of 1: Map your field names

Session entity *

session : RetailGroceryChurn2

Map these required attributes to the corresponding labels in your data.

Session ID *

RetailGroceryChurn2.session.msrc_sessionid

Customer ID *

RetailGroceryChurn2.session.msrc_customerid

Session timestamp *

RetailGroceryChurn2.session.msrc_sessiontimestamp

Session visit type

RetailGroceryChurn2.session.msrc_visittype

Session channel

RetailGroceryChurn2.session.msrc_sessionchannel

Session purpose

Save **Cancel**

Back **Next**

Predictions > Retail channel churn (preview)

To add an activity, there must be an available entity with date/time based fields. Go to data sources

Model name
 Preferences
 Required data
 Additional data (optional)
 Data updates
 Review and run

Additional data (optional)
Add additional data to help the model predict which customers are at a higher risk of churn.

Session
This model examines the sessions history of the customers to estimate churn over a given time period.

Entity ↑	Attributes	Status
session : RetailGroceryChurn2	9	Complete

Back **Next** Save draft Cancel

9. Set the data update schedule as **Weekly** and click **Next**.

Predictions > Retail channel churn (preview)

Model name
 Preferences
 Required data
 Additional data (optional)
 Data updates
 Review and run

Data update schedule
Periodically importing new data to your model helps it spot new patterns and make smarter, more informed suggestions.
[Show example](#)

Automatically import updated data:
 Weekly
 Monthly

Back **Next** Save draft Cancel

10. Confirm everything looks correct and click **Save and Run**.

Predictions > Retail channel churn (preview)

- Model name
- Preferences
- Required data
- Additional data (optional)
- Data updates
- Review and run

Review your model details

Model name [Edit](#)
Name: RetailChurnModel
Output entity name: RetailChurnModel

Preferences [Edit](#)
Prediction period: 90
Transaction volume decline threshold: 0.1
Transaction value decline threshold: 0.1

Required data [Edit](#)
Customer: Completed
Transaction: Completed

Additional data (optional) [Edit](#)
Session: Completed

Data updates [Edit](#)
Automatically import updated data: Weekly

[Back](#) [Save and run](#) [Save draft](#) [Cancel](#)

11. Confirm that the model is running and click on **Done**.

Predictions > Retail channel churn (preview)

- Model name
- Preferences
- Required data
- Additional data (optional)
- Data updates
- Review and run

Your model is configured and running!

Give it some time (a few hours at least) to review all the data, find patterns, and score probable outcomes. You'll find it in [My Predictions](#) when it's ready.

[Done](#)

12. Monitor the status of the request to see when it is finished. There is a chance you may receive an error on the first run. If you receive an error, simply run the prediction model again and it typically works on the second try.

Audience insights

Primary target audience: Individual consumers

Intelligence

Create [My predictions](#)

Prediction name ↑	Prediction type	Output entity	Predicted field	Status	Edited	Last refreshed
RetailChurnModel	Retail channel churn (preview)	RetailChurnModel		Queued	a minute ago	Never

13. It is possible you may receive an error on the first run, simply click Refresh all to run the model again.

The screenshot shows the Microsoft Power BI Intelligence interface. At the top, there is a search bar labeled "Search predictions" and a button "Refresh all". Below this, the title "Intelligence" is displayed, followed by two tabs: "Create" and "My predictions", with "My predictions" being the active tab. A table lists a single prediction named "RetailChurnModel". The columns are: Prediction name ↑, Prediction type, Output entity, Predicted field, Status, Edited, and Last refreshed. The entry for "RetailChurnModel" has a status of "Failed" with a red circle icon, and was last refreshed 3 minutes ago. The row was edited 17 minutes ago.

This screenshot shows the same Microsoft Power BI Intelligence interface as the previous one. However, a modal dialog box is overlaid on the page. The dialog is titled "Update predictions?" and contains the message "All prediction data will be replaced by new predictions." At the bottom of the dialog are two buttons: "Cancel" and "Update".

The screenshot shows the Microsoft Power BI Intelligence interface again. The table now shows the "RetailChurnModel" prediction with a status of "Refreshing" indicated by a blue circle icon. The "Last refreshed" column shows "19 minutes ago" and the "Edited" column shows "Never".

Congratulations! You have run the Retail channel churn predictive model.

Exercise 3: Understand the Churn Model Output

In this exercise, you will review the output of the Retail Churn model.

1. Open the Retail churn model to view its contents. Here you will find three main areas:
 - a) **Training model performance** will display a letter grade of how well the model has performed.
 - b) **Likelihood to churn (number of customers)** that can be read as X customers are Y% likely to churn.
 - c) **Most influential factors** considered by the AI in predicting the model. This will vary depending on the data set.

Training model performance

This model may be ready to use to predict churn based on the analysis of data that was added during configuration.

Likelihood to churn (number of customers)

A bar chart titled "Likelihood to churn (number of customers)" showing the count of customers at various risk levels. The x-axis represents "Churn risk" in 10% increments from 0% to 100%. The y-axis represents the number of customers, ranging from 0 to 10,000. The data shows a sharp peak at 0-10% risk (~6,000), a smaller peak at 10-20% (~1,000), and a very low count for higher risk levels.

Churn risk range	Number of customers
0% - 10%	~6,000
10% - 20%	~1,000
20% - 30%	~200
30% - 40%	~100
40% - 50%	~50
50% - 60%	~20
60% - 70%	~10
70% - 80%	~5
80% - 90%	~2
90% - 100%	~1

Most influential factors

Factors	Impact on churn risk
Physical transaction related factors	37.680%
Digital transaction related factors	35.714%
Physical session related factors	14.378%
Digital session related factors	10.646%

2. To view a customer's full profile in Dynamics 365 Customer Insights, navigate to Customers and open any of the sample records.

16.4K customers

Primary target audience
Individual consumers

Home

Customers

Segments

Measures

Intelligence

Predictions

Custom models

Data

Reports (Preview)

Admin

Search & filter index | Clear filters | Show filters | Expand cards | Sort by | Search customer

Customer ID	msrm_creditsscore	Count
f3f1acffbf14cb76a040ce8820ee3df9f	503.03	5
4236bb6b232f1b337f369a01c66d26...	503.03	5
CustomerID	570.903	5
msrc_creditsscore	793.602	7
CustomerID	570.903	5
msrc_creditsscore	793.602	7
CustomerID	904.028	9
msrc_creditsscore	607.556	6
CustomerID	904.028	9
msrc_creditsscore	607.556	6
CustomerID	7607df4c4fa397e2a5457989695fd...	8
msrc_creditsscore	848.195	8

The screenshot shows the Microsoft Power BI Audience insights interface. On the left, there's a navigation sidebar with icons and labels: Audience insights (selected), Primary target audience (Individual consumers), Home, Customers, Segments, Measures, Intelligence (with Predictions and Custom models), Data (with Reports (Preview)), and Admin. At the top right, there are links to "Back to Customers" and "Profile add-ons". The main area displays a large green circle with the number "5" and "503.03" next to it, along with a blue phone icon. Below this, there's a table of customer data:

CustomerId	4236b6b232f1b337f369a01c66d26002
genderCode	N/A
birthdate	4/23/1981
msrc_creditsc...	503.03
Address	--
Additional fields	
msrc_loyaltymembe...	False
msrc_agreementto...	True
annualincome	24,173
msrc_occupationsta...	Partially employed
msrc_customerrelati...	359
msrc_distancetonea...	12.25

3. To view the calculated churn scores, navigate to **Data** and then under **Entities**, open the **RetailChurnGrocery** entity that was created when you ran the churn model

The screenshot shows the Microsoft Power BI Audience Insights interface. On the left, there's a navigation pane with the following structure:

- Primary target audience**: Individual consumers
- Home**
- Customers**
- Segments**
- Measures**
- Intelligence** (selected)
 - Predictions
 - Custom models
- Data**
 - Data sources
- Entities** (selected)
- Unify
- Enrichment

The main area is titled "Entities" and contains a table with the following data:

Name ↑	Source
Intelligence (1)	
RetailChurnGrocery	Customer Insights
Profiles (1)	
Customer	Customer Insights
System (4)	
ConflationMatchPairs	Customer Insights
Deduplication_retailchurngrocery_c...	Customer Insights
Deduplication_retailchurngrocery_se...	Customer Insights
Deduplication_retailchurngrocery_tr...	Customer Insights
User (3)	
contact	retailchurngrocery
session	retailchurngrocery
transaction	retailchurngrocery

- On the Attributes tab, you will find various new columns created by the model that factor into the score. Here is a breakdown of some of these attributes:
 - ExpFeature1 = Contact related factors
 - ExpFeature2 = Digital transaction factors
 - ExpFeature3 = Physical transaction factors
 - ExpFeature4 = Digital session factors
 - ExpFeature5 = Physical session factors

The screenshot shows the Dynamics 365 Customer Insights interface. On the left, there is a navigation sidebar with various sections like Home, Customers, Segments, Measures, Intelligence, Data, Data sources, Entities, Unify, Enrichment, Activities, and Relationships. The 'Intelligence' section is expanded, showing 'Predictions' and 'Custom models'. The main area is titled 'Customer Insights' and 'RetailChurnGrocery'. It has tabs for 'Attributes' (which is selected) and 'Data'. The 'Attributes' table lists the following columns:

Name ↑	Data type
CustomerID	String
ExpFeature1	Double
ExpFeature2	Double
ExpFeature3	Double
ExpFeature4	Double
ExpFeature5	Double
ModelSignature	String
Publisher	String
Score	Double

5. Click the **Data** tab to see the calculated churn score for each of the **CustomerIDs** in the dataset.

The screenshot shows the same Dynamics 365 Customer Insights interface as above, but the 'Data' tab is selected. The main area displays a table with the following columns: CustomerID, Score, ScoreDigitalChannel, ScorePhysicalChannel, and Timestamp. The data rows are:

CustomerID	Score	ScoreDigitalChannel	ScorePhysicalChannel	Timestamp
00004770b2be629b0a47ebbabcb67e01	0.97	0.977	0.97	2/24/2022, 4:00:00 PM
006d1ef11a78c75687ce52a27652e5a9	0.945	0.945	0.955	2/24/2022, 4:00:00 PM
006e6961ee86aa585e625ec94b091d30	0.004	0.004	0.007	2/24/2022, 4:00:00 PM
006ea21704b83a46a435da0f017a9e62a	0.004	0.004	0.013	2/24/2022, 4:00:00 PM
00cab8ed3c96c5a352a8b64244d0565c	1	1	1	2/24/2022, 4:00:00 PM
00cc633a28e668a0606029d688ef85a8	0.186	0.186	0.201	2/24/2022, 4:00:00 PM
00d54bc0a28bd427c3376d982b3d22c	0.013	0.013	0.013	2/24/2022, 4:00:00 PM
00d747757eeb6d412d2334a1265579c8	1	1	1	2/24/2022, 4:00:00 PM

Congratulations! You have successfully run the Retail Churn Model in Dynamics 365 Customer Insights.

Summary

Nice work! You have completed the lab for Microsoft Coud for Retail channel churn predictive model.

In this lab, you learned how to do the following:

1. Create Retail channel churn predictive model
2. Train the model
3. Understand the model output