Hands-on Lab: Analyzing DB2 Data With Cognos Analytics

Objective for Exercise:

- To create a dashboard with Billing data on DB2 using Cognos Analytics and analyze the regionwise spend.

Prerequisites

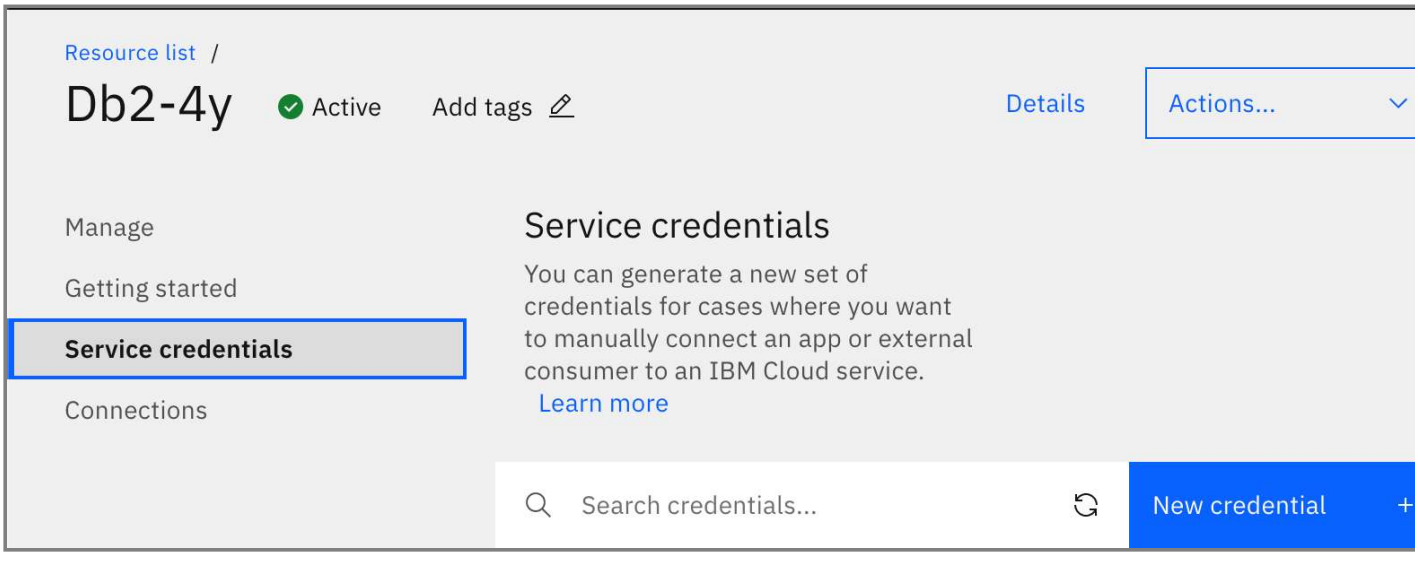
Prior to starting this lab please ensure you have completed the previous labs to:

- Create an IBM Cloud Account
- Provision an instance of DB2 on Cloud
- Provision an instance of Cognos Analytics

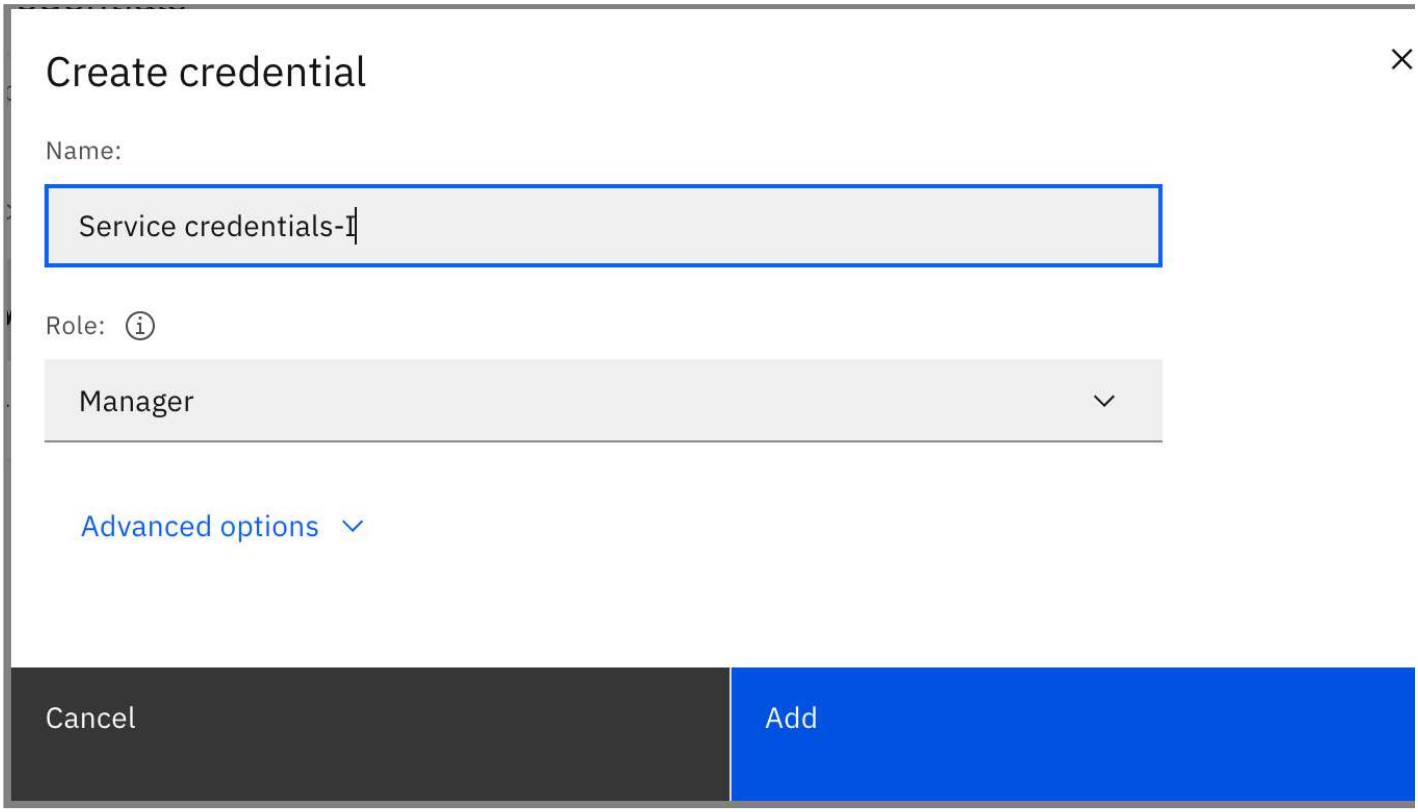
Task 1- Load the data in DB2

If you have service credentails created, skip steps 1 and 2.

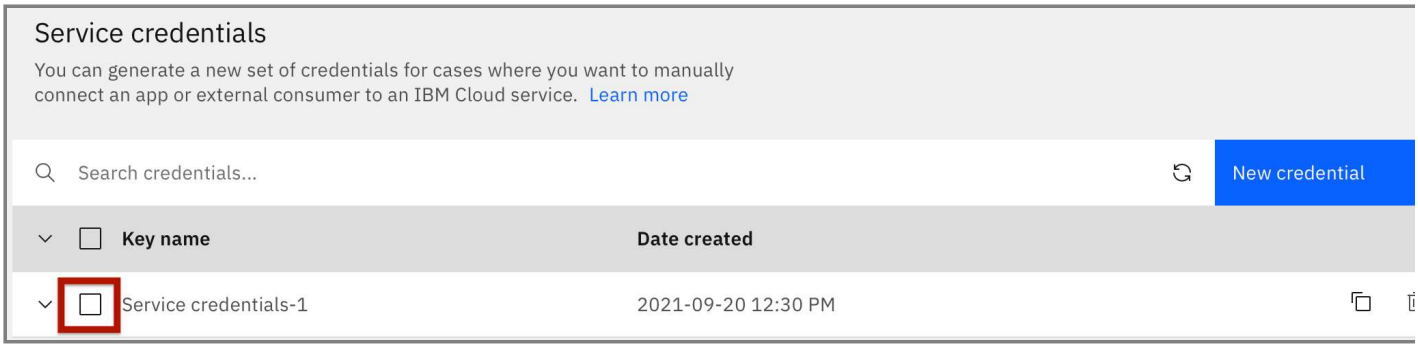
1. Click on **Service Credentials** and create new credentials.



2. Give the credential a name and **Manager** privilige and add it.



3. Click on the down arrow next to the credential. You will see the credential details. Make a note of the username, password and jdbc connection url. These will be used in later part of the lab to connect from Cognos.



```
    "db2": {
      "authentication": {
        "method": "direct",
        "password": [redacted],
        "username": [redacted]
      },
      "certificate": {
        "certificate_base64": "LS0tLS1CRUdJTiBDRVJUSUZJQ0FURS0tLS0tCk1JSURFakNDQWZxZ0F3SUJBZ0lKQVA1S0R3ZTNCTkxiTUEwR0NTcUdTSWIzRFFFQk
3VUFNQiR4SFRBYUJnTlVKQkFNTUUwbENUU0JEYkc5MVpDQkVZWEJoWW1GelpYTXdIaGNOTWpBd01qSTVNREE5TVRBeVdqY05NekF3TWpJMgpNREE5TVRBeVdqQWVNUnd3R2dZ
FZRUUREQk5KUWswZ1EyeHZkV1FnUkdGMFlXSmhjM1Z6TUlJQkIqQU5CZ2txCmhraUc5dzBCQVFFRkFBT0NBUThBTUlJQkNnS0NBUUVBdXUvbitpWW9xdkdGNU8xSGpEalpsK2
iYjE4UkR4ZGwKTzRUL3FoUGMxMTREY1FUK0plRXdhdG13aGljTGxaQnF2QWFMb1hrbmhqSVFOMG01L0x5YzdBY291VXNmSGR0QwpDVGcrSUsxbjBrdDMrTHM3d1dTakxqVE9
3M3M1ZUSU5yYmx3cnRIRU1vM1JWTkV6SkNHYW5LSXdZMWZVSUtrC1dNMlR0SDI5cnFsSGN0Z2pIUlFmRkVTRmlYaHJiODhSQmd0amIva0xtVGpCaTFBeEVadWNobWZ2QVRmNE
OY3EKY21QcHNqdDBPTnI0YnhjMVRyUWxEemNiN1hMSFBrWW91SUprdnVzMUZvaTEySmRNM1MrK3labFZPMUZmZkU3bwpKMjhUdGJoZ3JGOGtIU0NMSkJvTTFSZ3FPZG9OVm5C
C9EOWZhamNNN0lWd2V4a0lSOTNKR1FJREFRQUJvMU13ClVUQWRCZO5WSFE0RUZnUVVlQ3JZanFJQzc1VUpxVmZEMDh1ZWdqeDZiUmN3SHdZRFZSMGpCQmd3Rm9BVWVDclkKar
JQzc1VUpxVmZEMDh1ZWdqeDZiUmN3RHdZRFZSMFRBUUgvQkFVd0F3RUIvekFOQmdrcWhraUc5dzBCQVFzRgpBQU9DQVFFQUkyRTBUOUt3MlN3RjJ2MXBqaHV4M0lkWWV2SGFV
kRMb0tPd0hSRnFSOHgxZ2dRcGVEcFBnMk5SCkx3R08yek85SWZUMmhLaWd1d2orWnJ5SGxxcHlxQ0pLOHJEU28xZUVPekIyWmE2S1YrQTVscEttMWdjV3VHYzMKK1UrVTFzTE
lUjd3ZFFuVjU0TVU4aERvNi9sVHRMRVB2Mnc3V1NPS1FDK013ejgzTFJMdjVHSW5BNlJySWNhKwozM0wxNnB4ZEttd1pLYThWcnBnMXJ3QzRnY3d1YUhYMUNEWE42K0JIbzhv
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        "name": "1cbbb1b6-3a1a-4d49-9262-3102a8f7a7c8"
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        "db2://lfn96733:dl0xxWy1FWkzIe0Y@fbd88901-ebdb-4a4f-a32e-9822b9fb237b.c1ogj3sd0tgtu0lqde00.databases.appdomain.cloud:32731/bl
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      ],
      "hosts": [
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          "hostname": "fbd88901-ebdb-4a4f-a32e-9822b9fb237b.c1ogj3sd0tgtu0lqde00.databases.appdomain.cloud",
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      ],
      "jdbc_url": [
        "jdbc:db2://fbd88901-ebdb-4a4f-a32e-9822b9fb237b.c1ogj3sd0tgtu0lqde00.databases.appdomain.cloud:32731/bludb:user=<userid>;pas
word=<your_password>;sslConnection=true;"
```
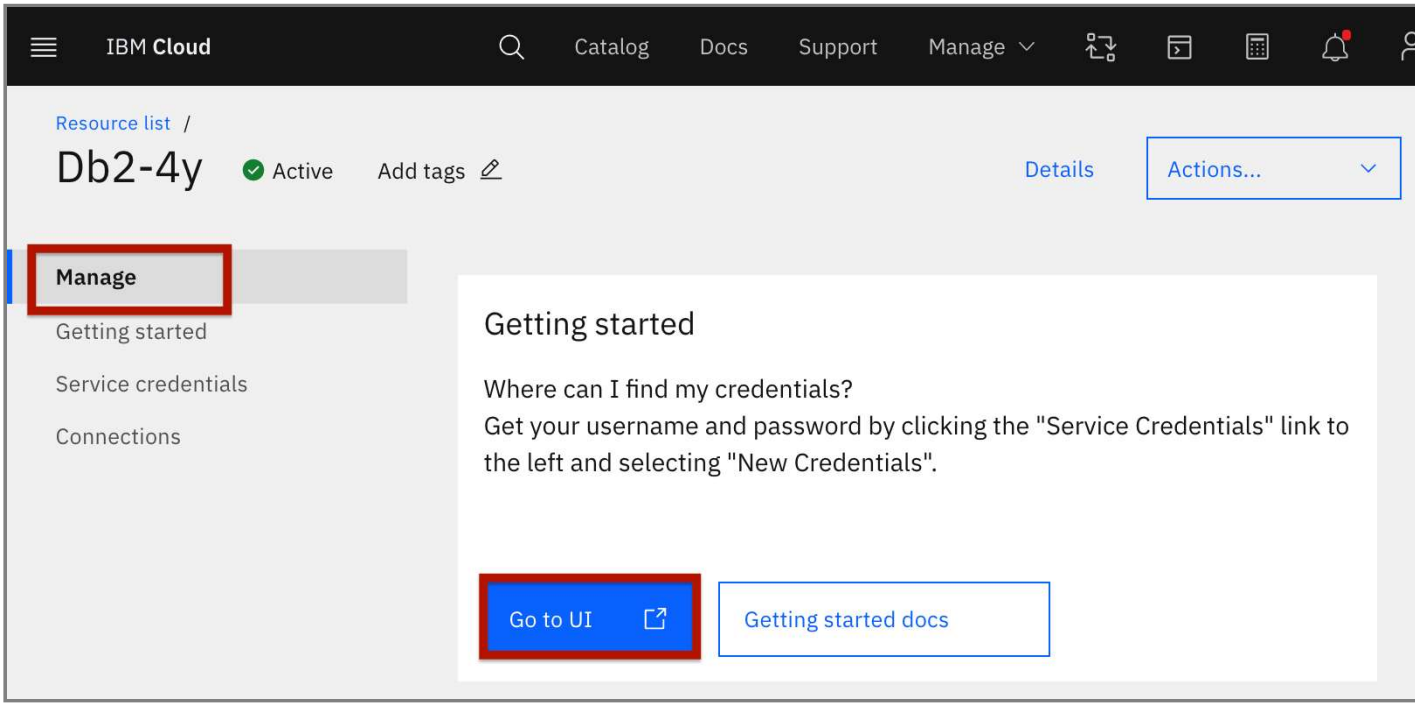


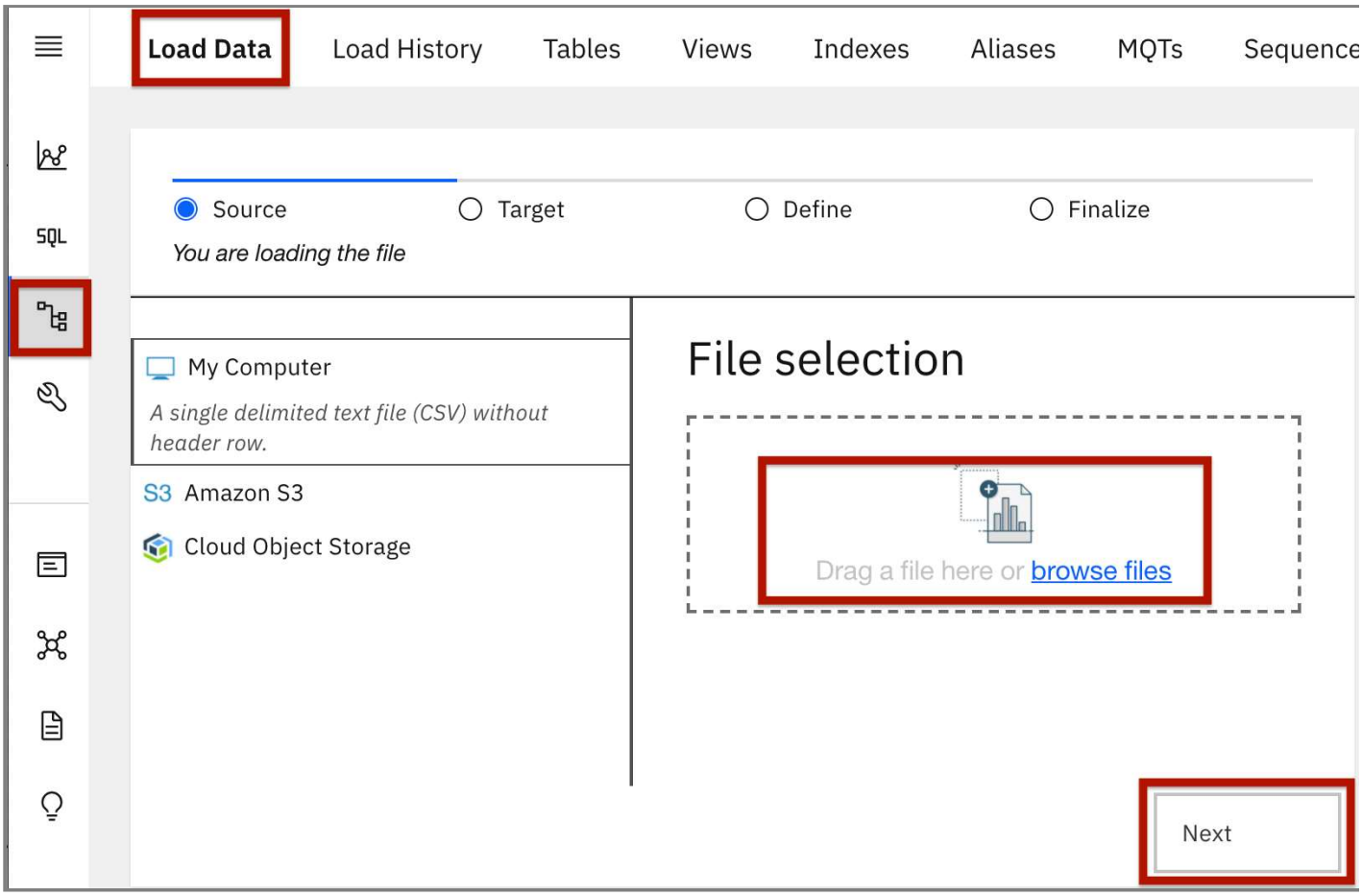
**Note:You have to replace the placeholder for username and password in the jdbc url string with actual username and password. Remove the angle brackets.*

4. Go to the data link. Right-click and choose **Save AS...**. Save the file in your local system as *cloud-billing-dataset.csv*.

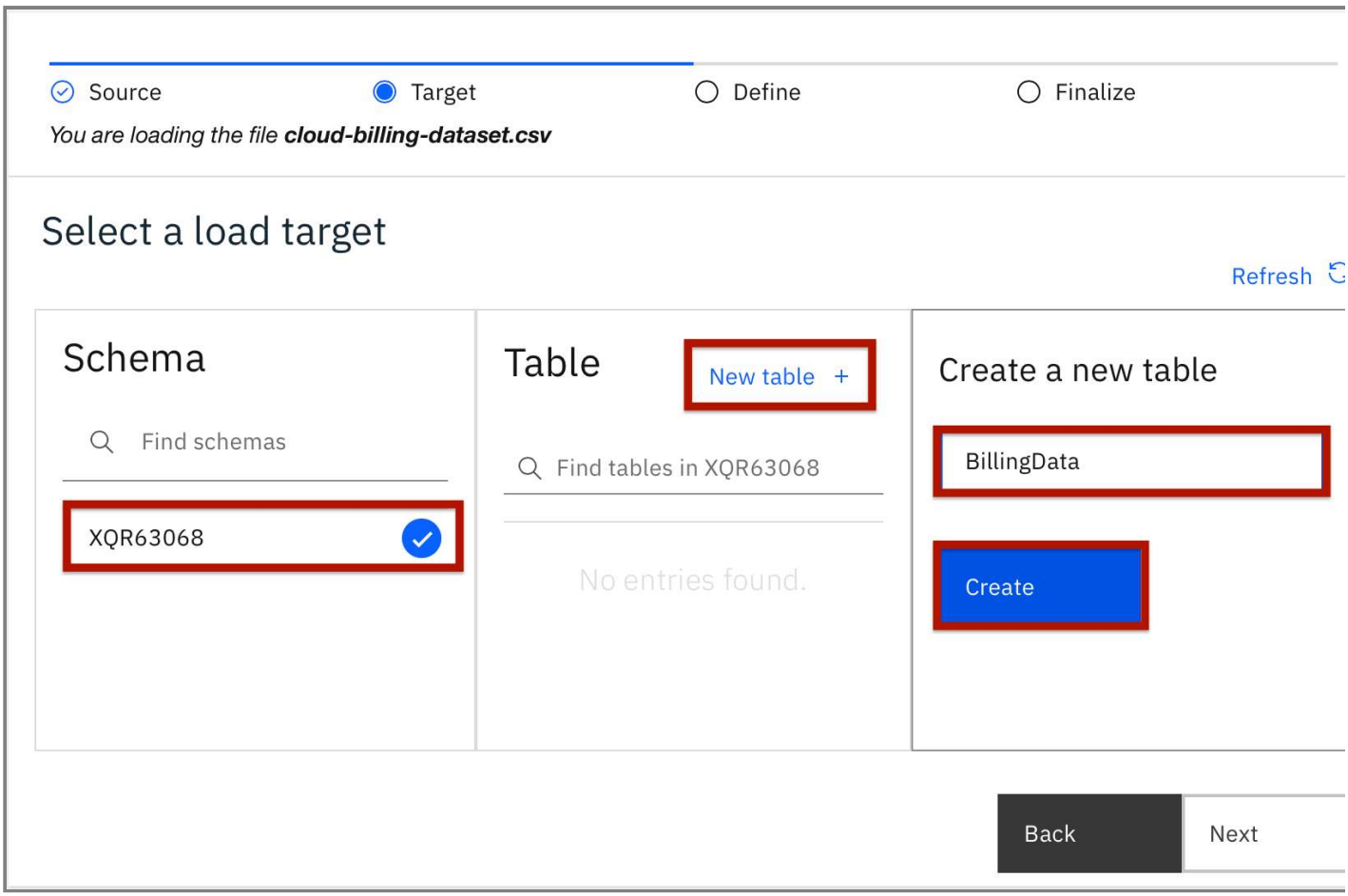
5. Once the instance is created from the db2 instance page, choose **Manage** from the left menu and click on **Go to UI**.



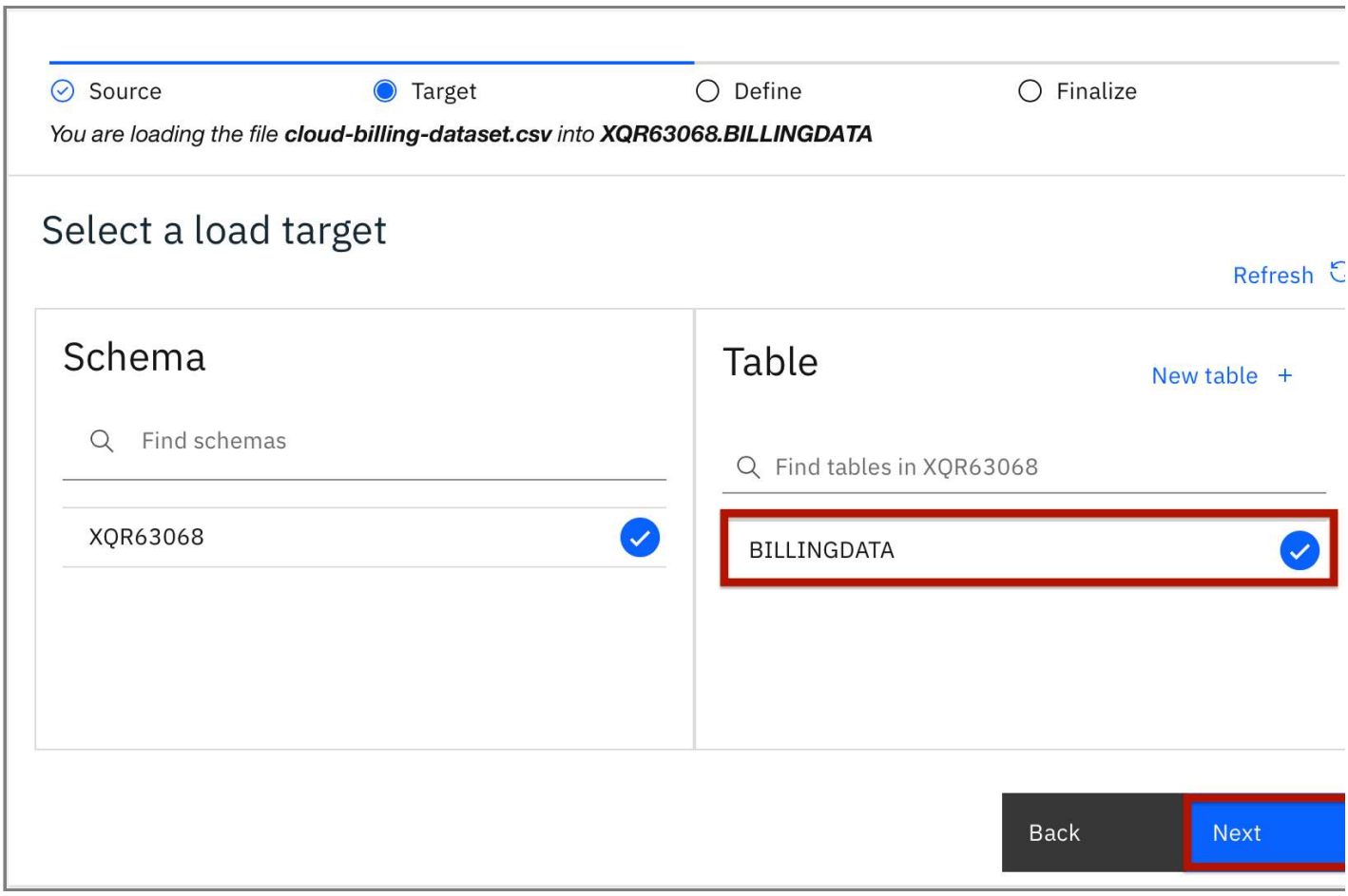
6. Click on the **Data** icon on the left menu, choose **Load Data** and broswe and select the file, **cloud-billing-dataset.csv** which you saved in your local system.



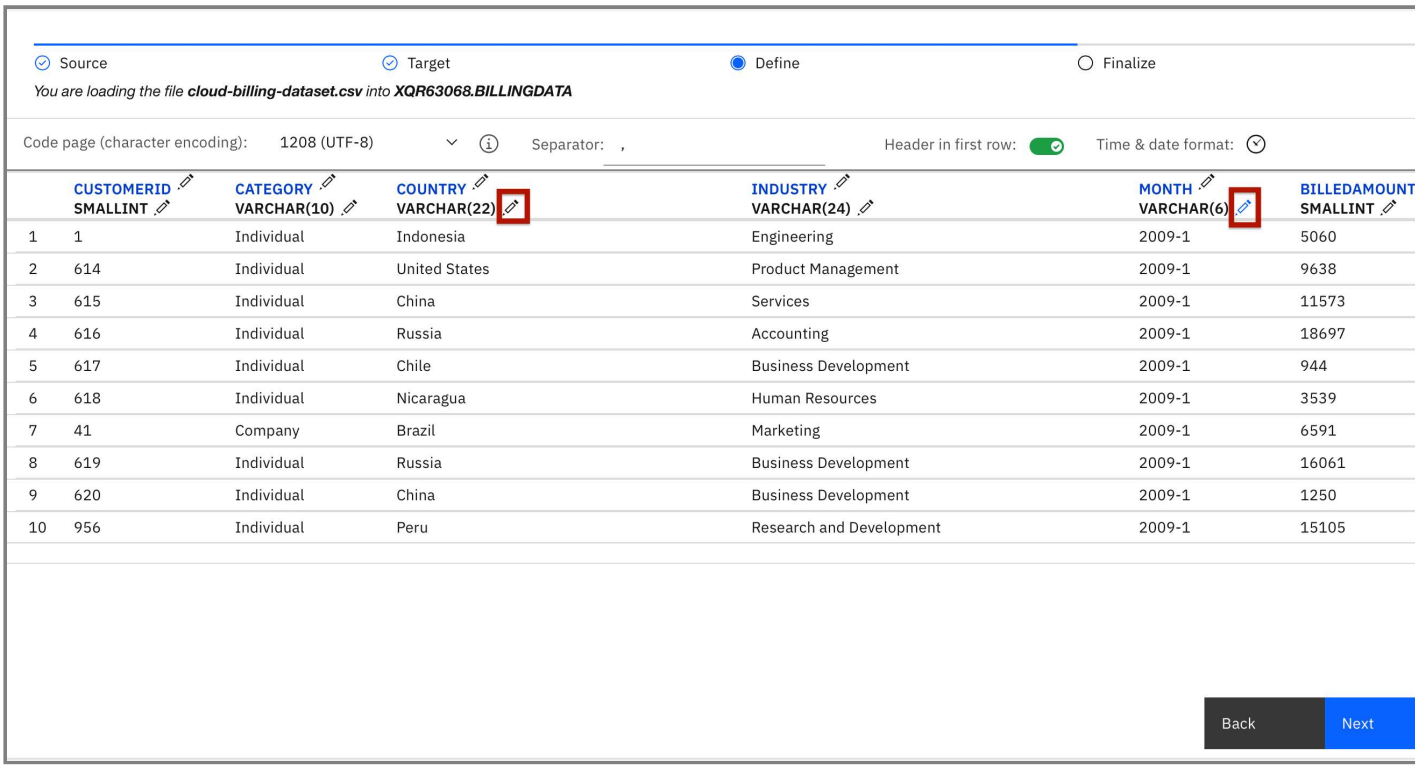
7. Choose the **Schema**, click on **New Table +** and create a new table with the name **BillingData** and click on Create.



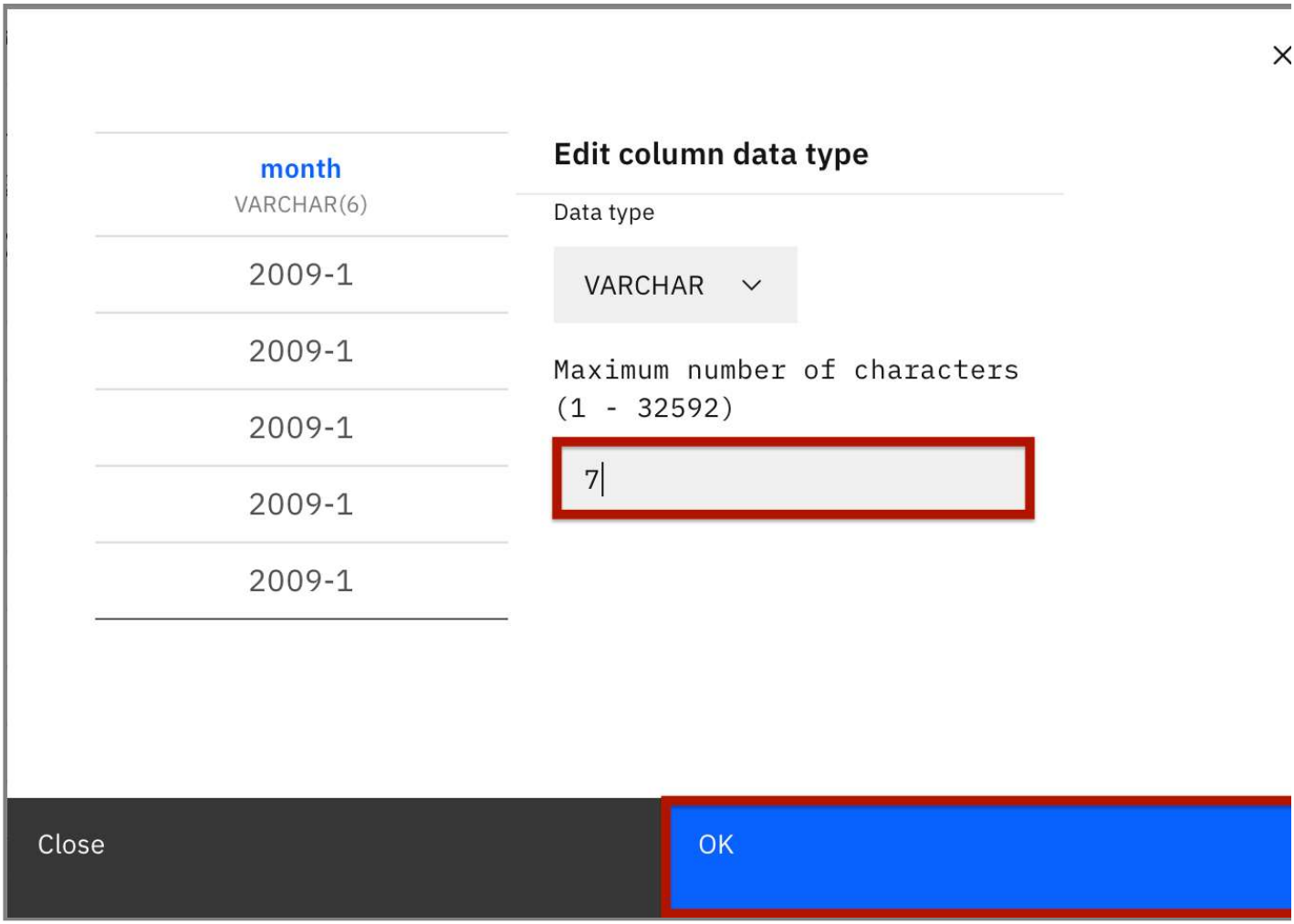
8. You will see the table is added to the schema. Click on **Next** to load the data from the file.

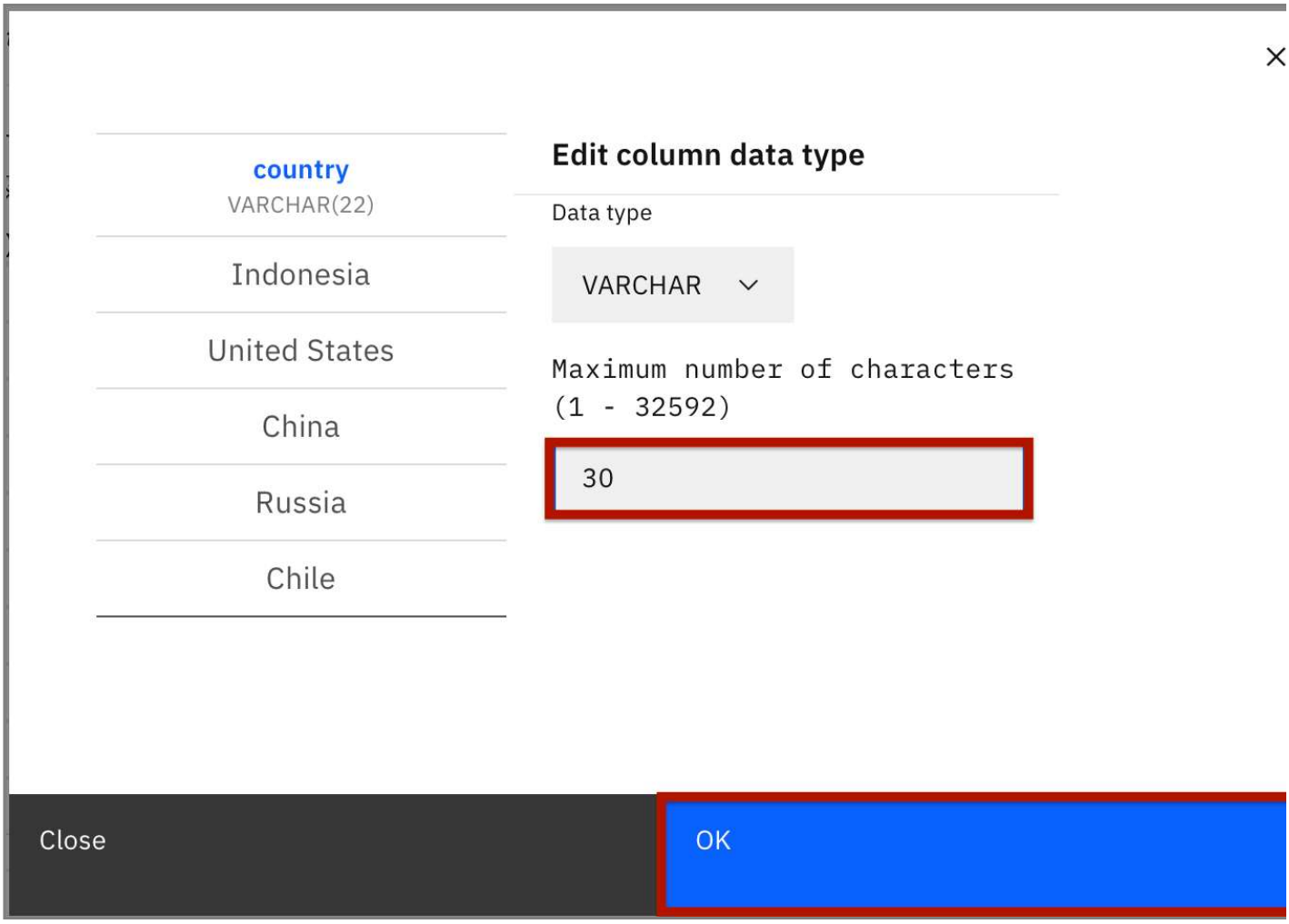


9. The table is loaded. You will see that each column has data type and column width auto generated based on the content. Edit column attributes by clicking on the pencil icon next to the respective attributes to change the width of **country** column to varchar of 30 and **month** column to varchar of 7.

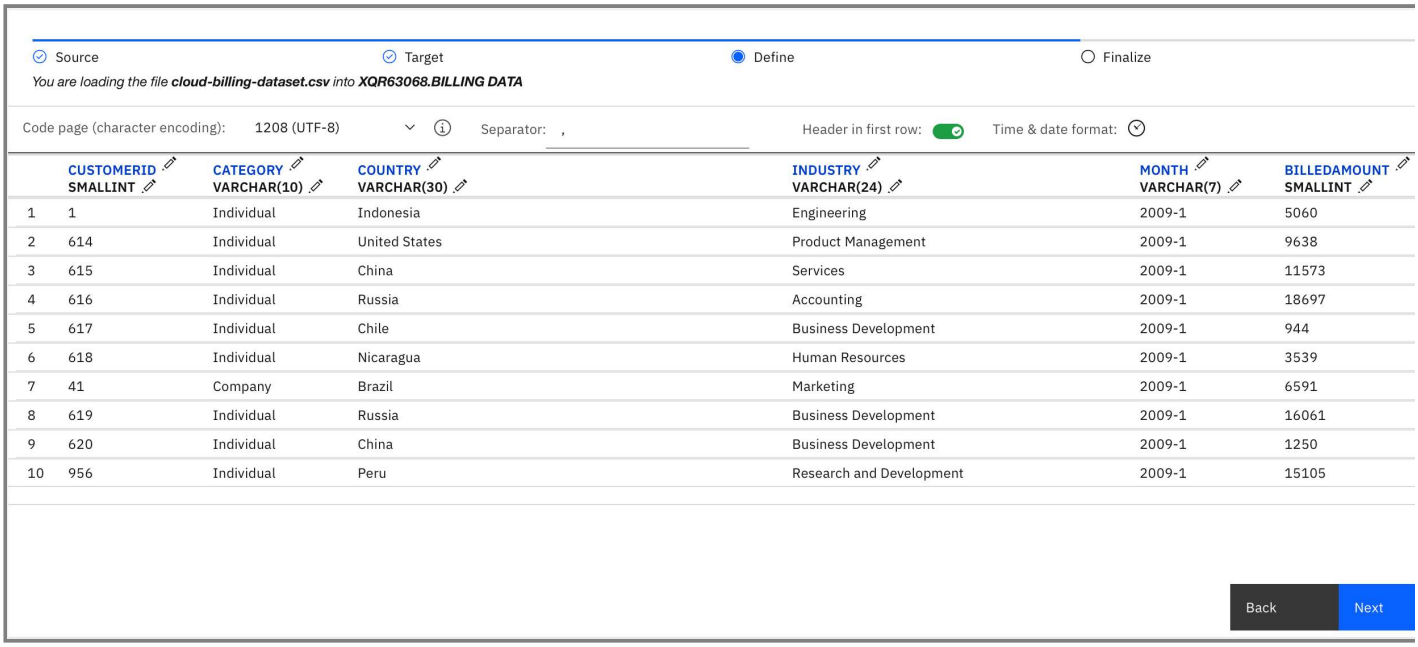


	CUSTOMERID SMALLINT	CATEGORY VARCHAR(10)	COUNTRY VARCHAR(22)	INDUSTRY VARCHAR(24)	MONTH VARCHAR(6)	BILLEDAMOUNT SMALLINT
1	1	Individual	Indonesia	Engineering	2009-1	5060
2	614	Individual	United States	Product Management	2009-1	9638
3	615	Individual	China	Services	2009-1	11573
4	616	Individual	Russia	Accounting	2009-1	18697
5	617	Individual	Chile	Business Development	2009-1	944
6	618	Individual	Nicaragua	Human Resources	2009-1	3539
7	41	Company	Brazil	Marketing	2009-1	6591
8	619	Individual	Russia	Business Development	2009-1	16061
9	620	Individual	China	Business Development	2009-1	1250
10	956	Individual	Peru	Research and Development	2009-1	15105


month
VARCHAR(6)
2009-1
2009-1
2009-1
2009-1
2009-1
Edit column data type
Data type
VARCHAR
Maximum number of characters
(1 - 32592)
7
Close
OK

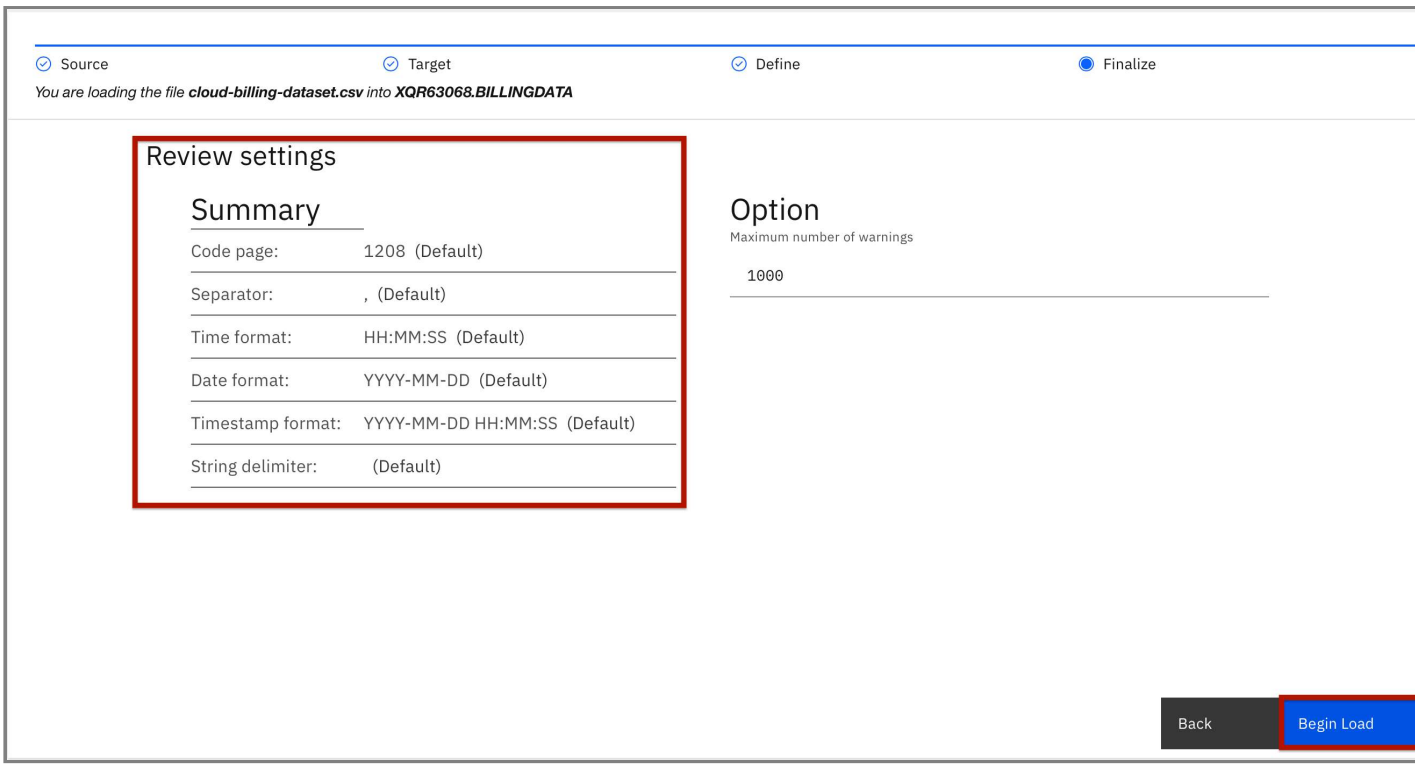


10. Once the column attributes are changed, check to see if it reflects and then click on **Next**

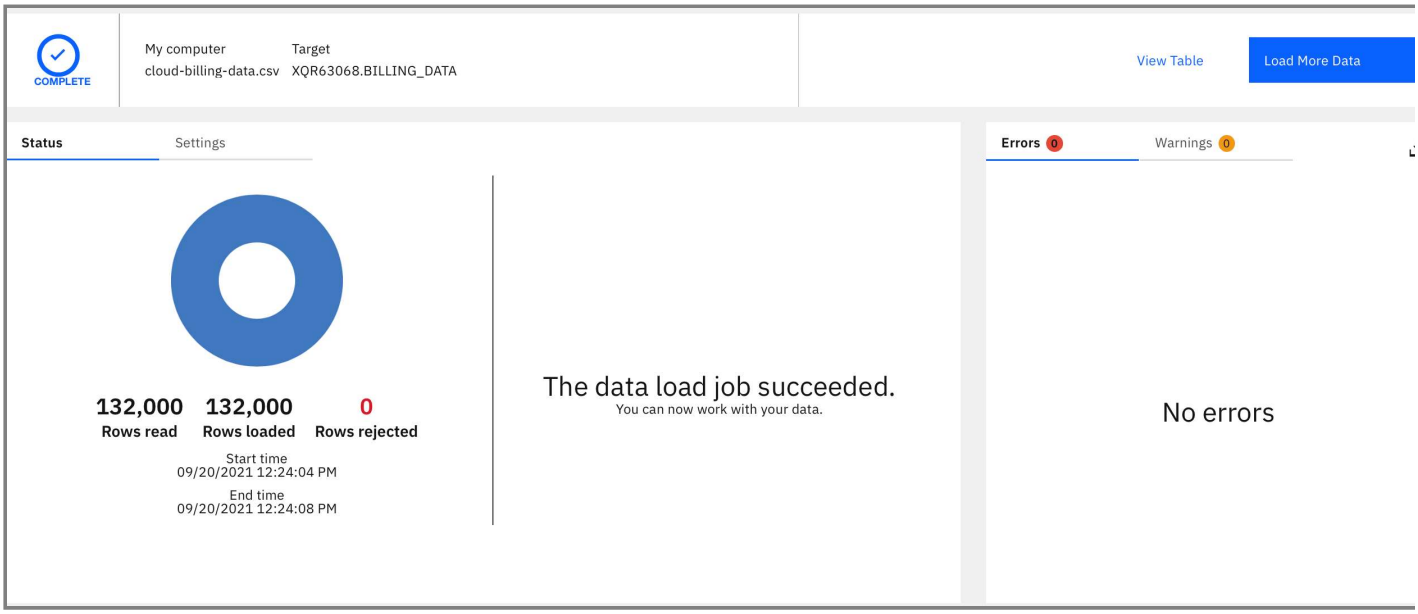


	CUSTOMERID SMALLINT	CATEGORY VARCHAR(10)	COUNTRY VARCHAR(30)	INDUSTRY VARCHAR(24)	MONTH VARCHAR(7)	BILLEDAMOUNT SMALLINT
1	1	Individual	Indonesia	Engineering	2009-1	5060
2	614	Individual	United States	Product Management	2009-1	9638
3	615	Individual	China	Services	2009-1	11573
4	616	Individual	Russia	Accounting	2009-1	18697
5	617	Individual	Chile	Business Development	2009-1	944
6	618	Individual	Nicaragua	Human Resources	2009-1	3539
7	41	Company	Brazil	Marketing	2009-1	6591
8	619	Individual	Russia	Business Development	2009-1	16061
9	620	Individual	China	Business Development	2009-1	1250
10	956	Individual	Peru	Research and Development	2009-1	15105

11. Review the settings and click on **Begin Load** to load the data.

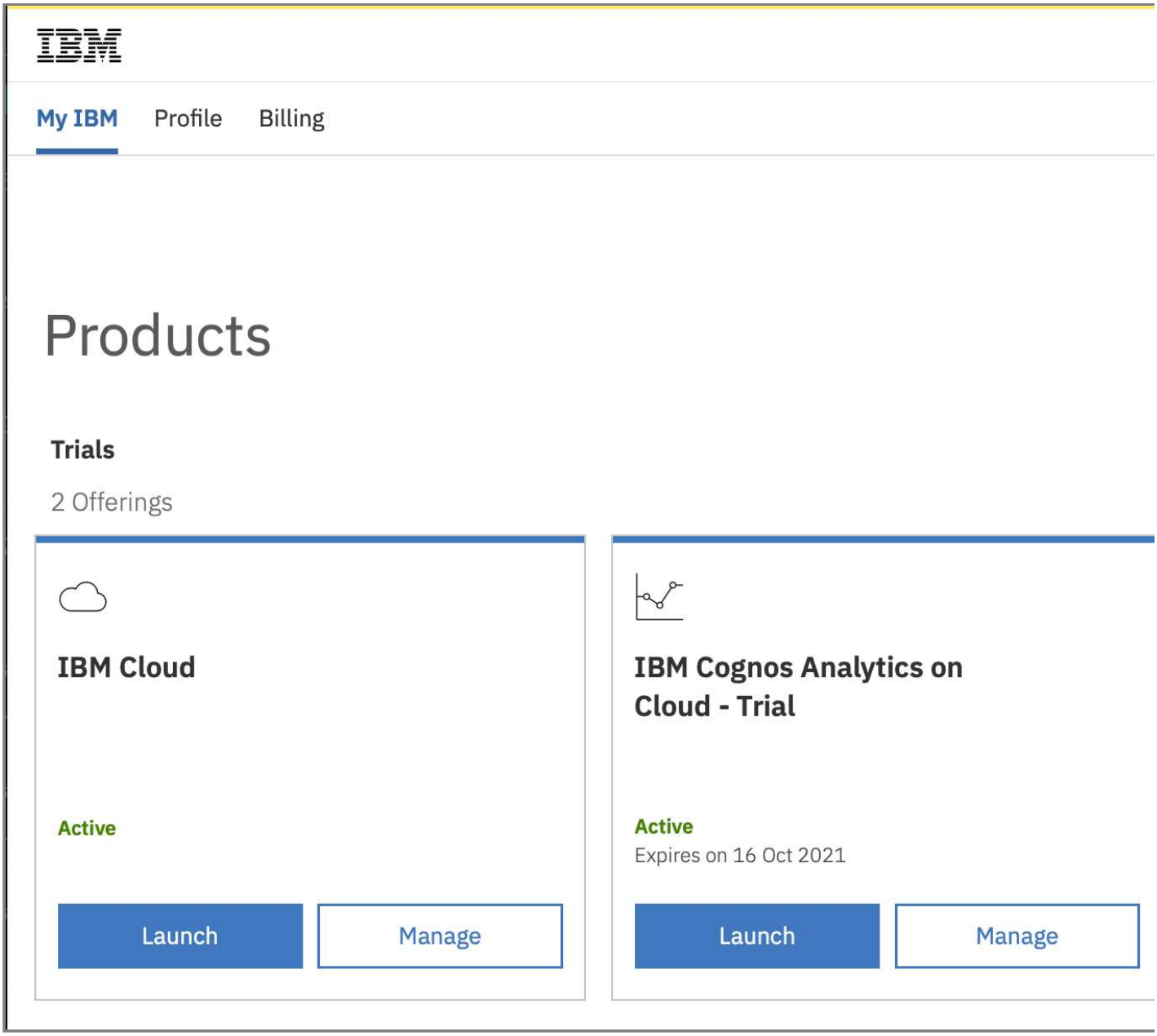


12. If the data is successfully loaded, you get a message on the screen indicating the number of rows that have been loaded.

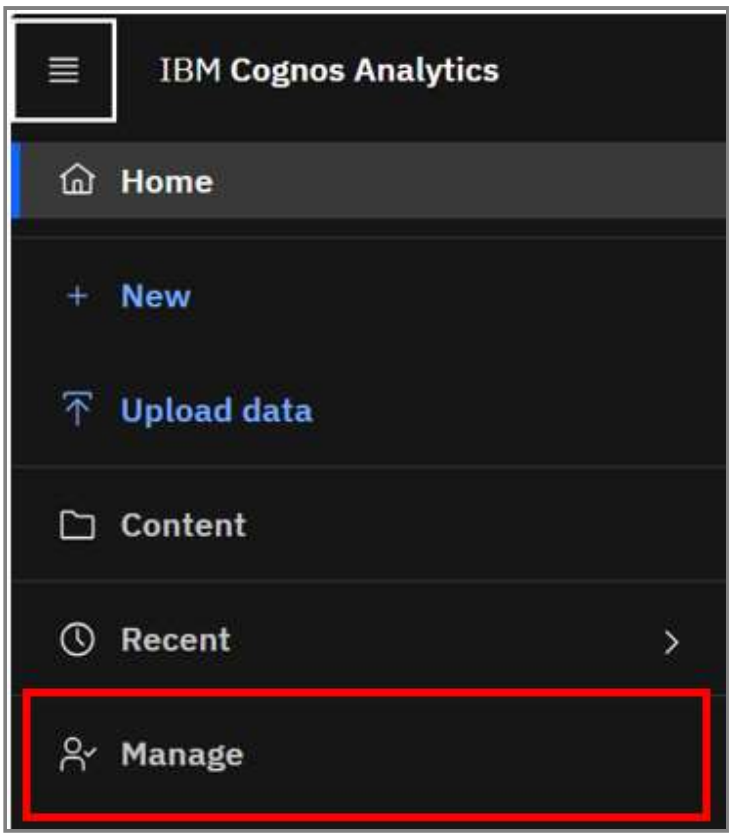


Task 2 - Connect Cognos to DB2

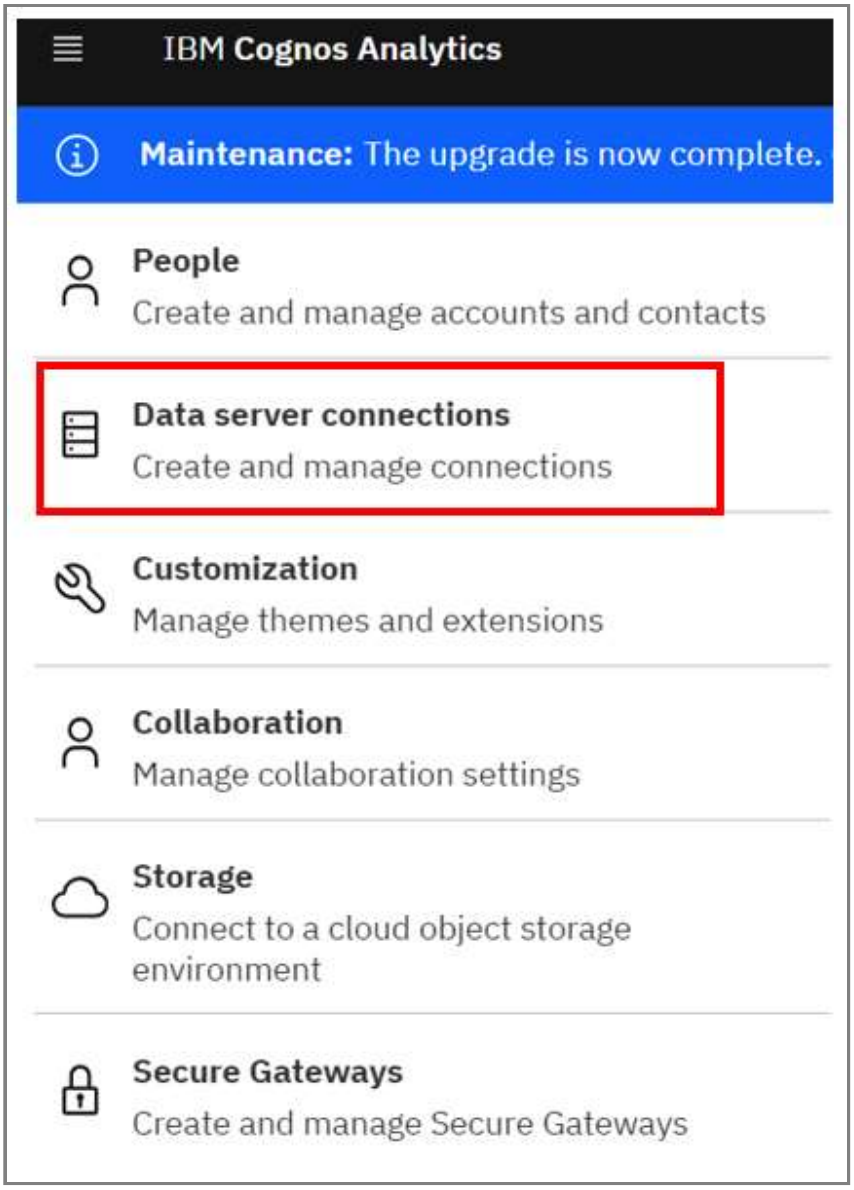
1. Navigate to myibm.ibm.com. Login with your IBM Cloud credentails and launch **Cognos Analytics**.



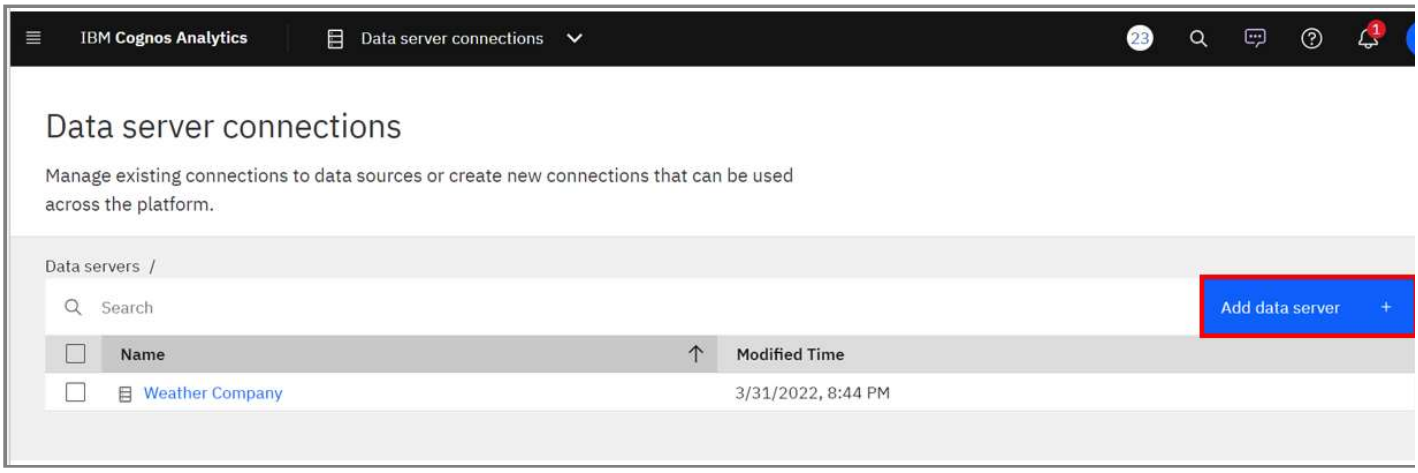
2. Click the hambuger menu on the upper left and select **Manage**.



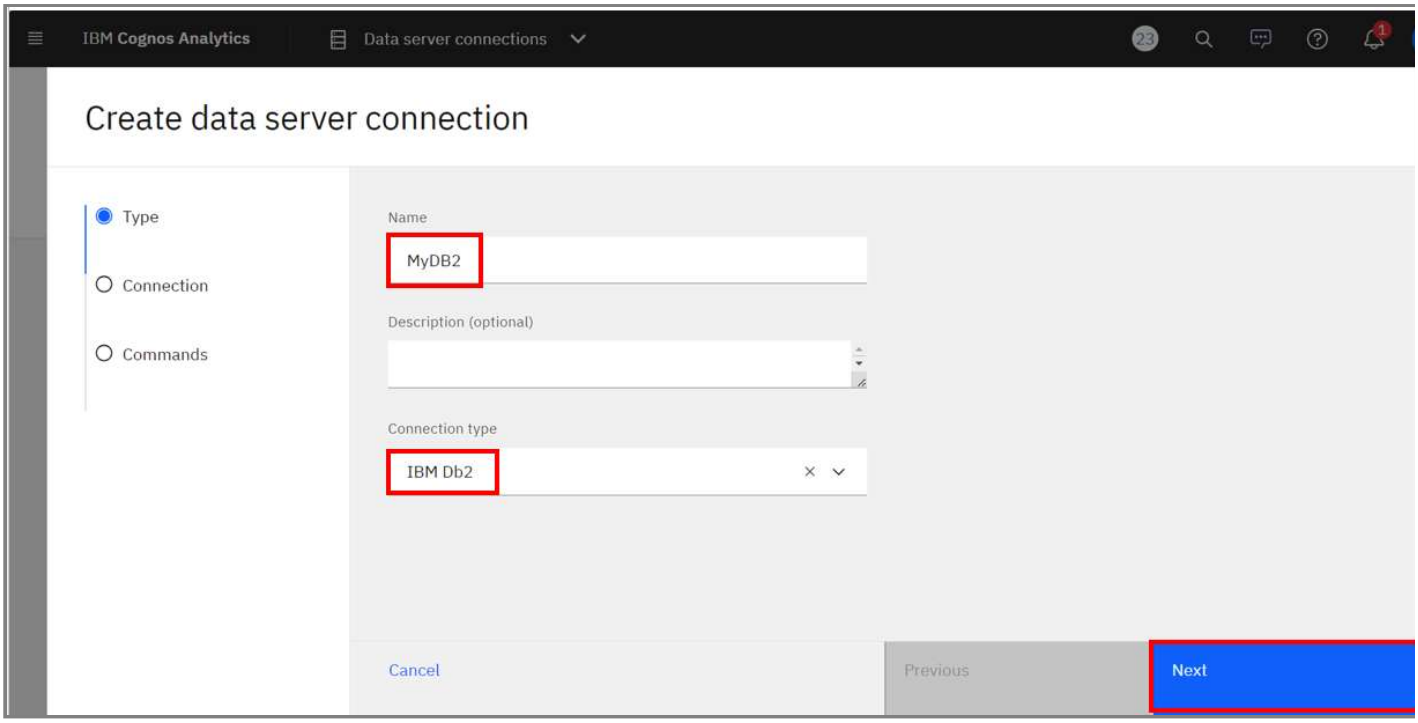
3. Select **Data Server Connections**.



4. Click on **Add data Server** to add a new server.

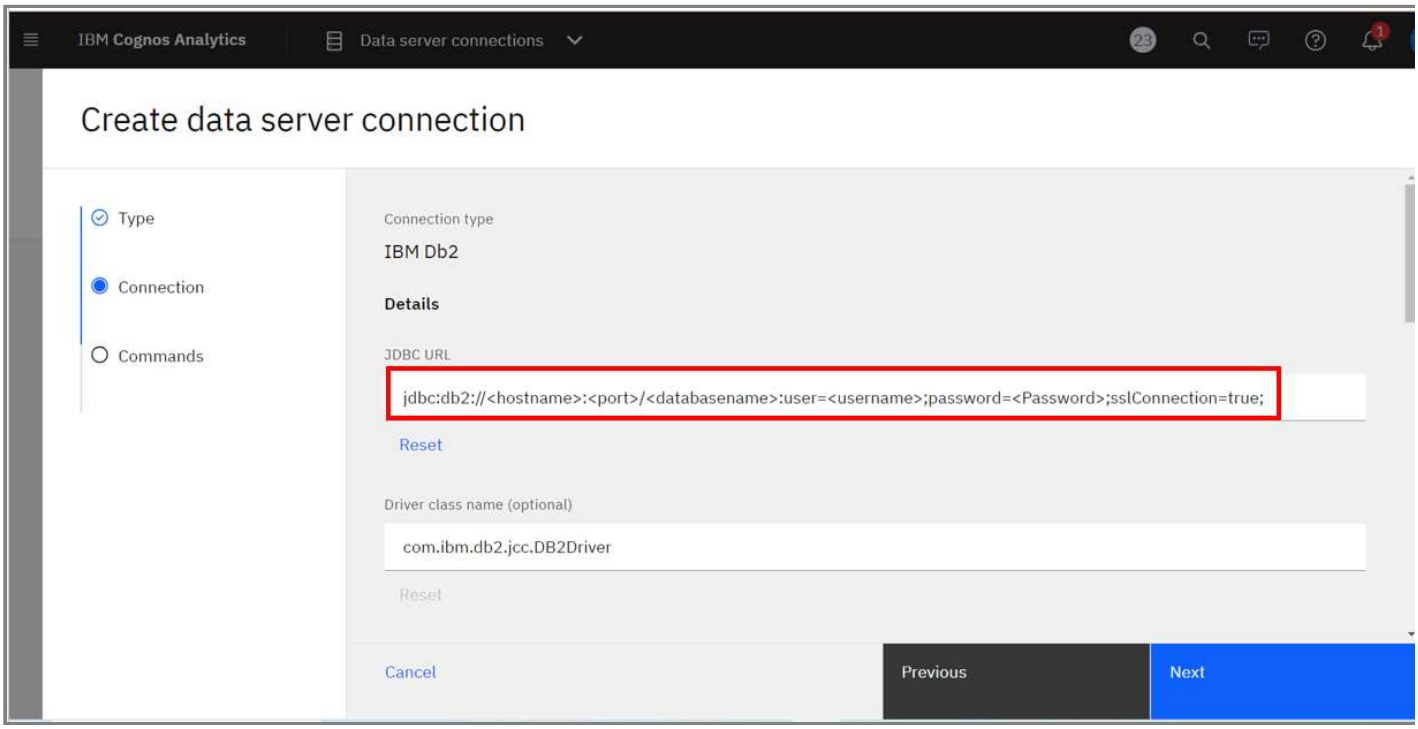


5. Provide a name **MyDB2** to the connection. Select **IBM DB2** from the list in the Connection type. Click on **Next**.

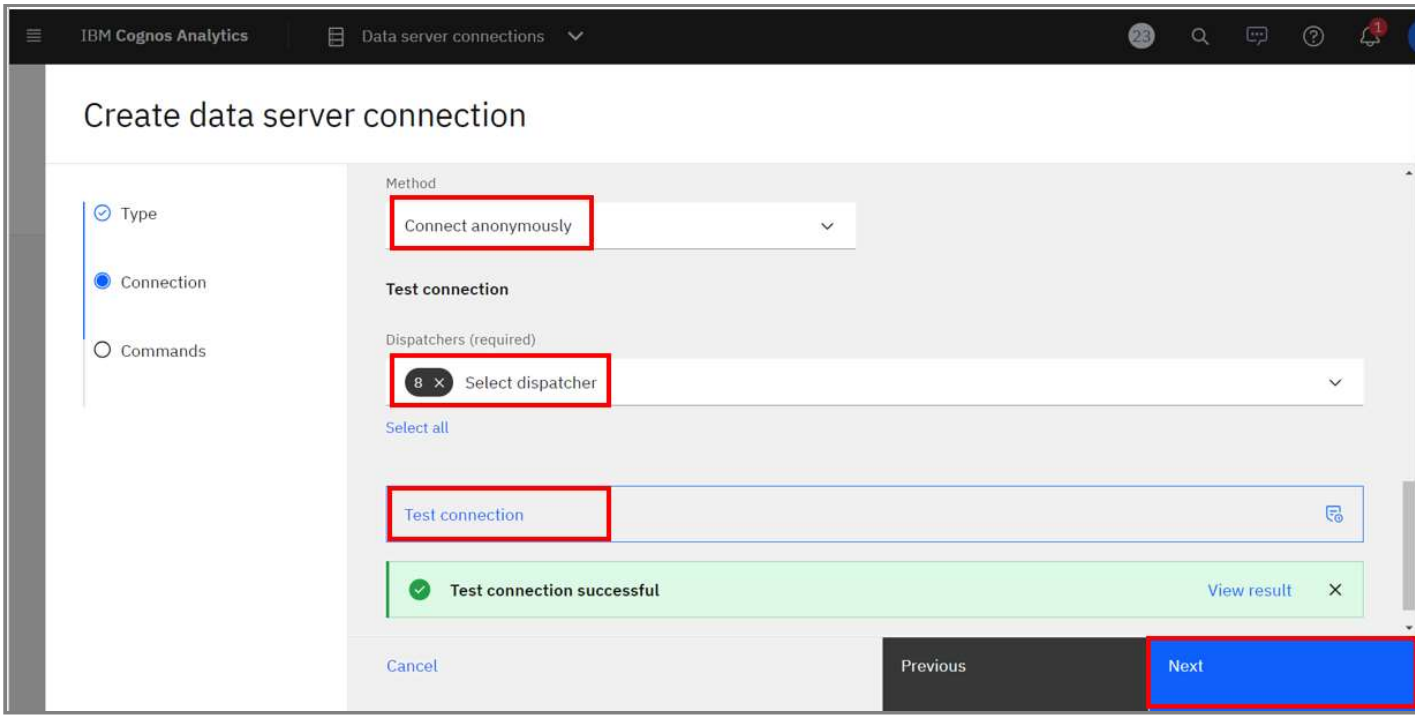


6. Provide hostname, port, and database for JDBC URL. (While adding the database, make sure to add the username, password, and the SSL connection to true as shown below:

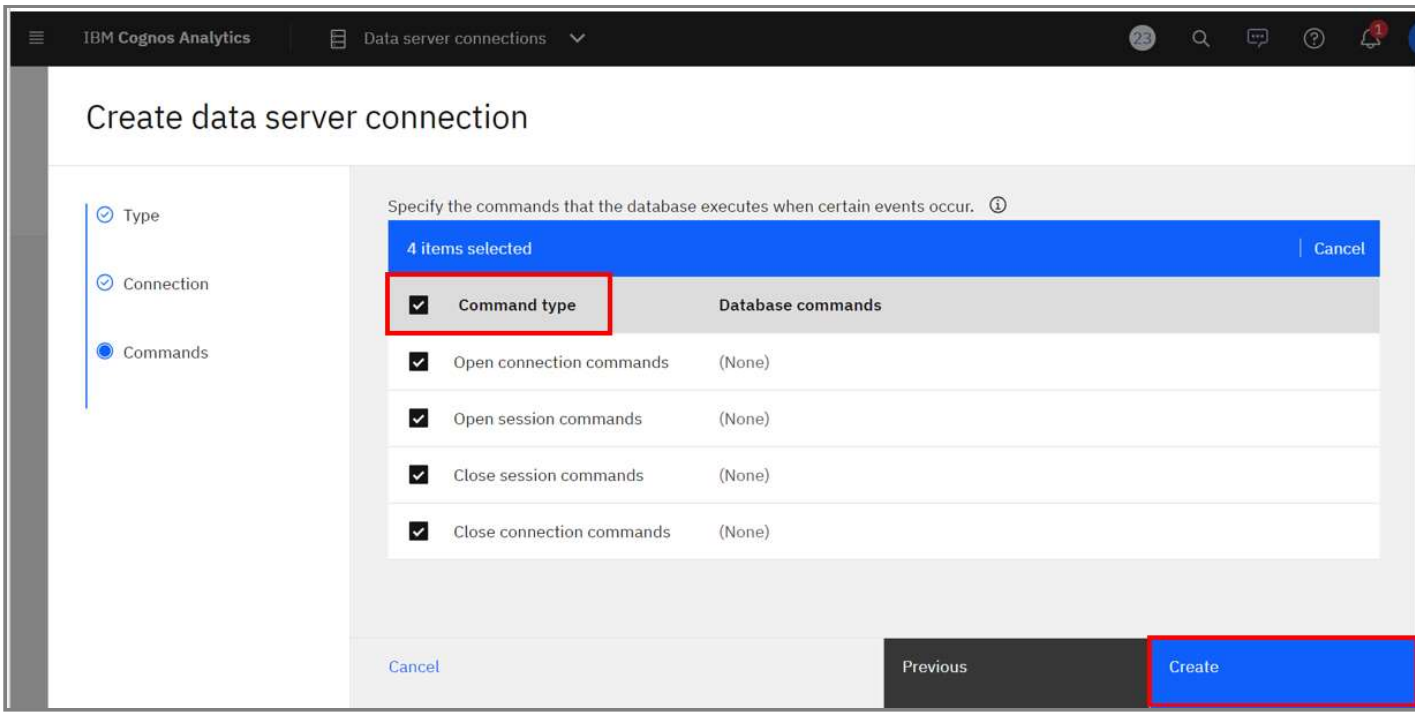
```
1    jdbc:db2://<Hostname>:<Port>/<Database>:user=<username>;password=<Password>;sslConne
```



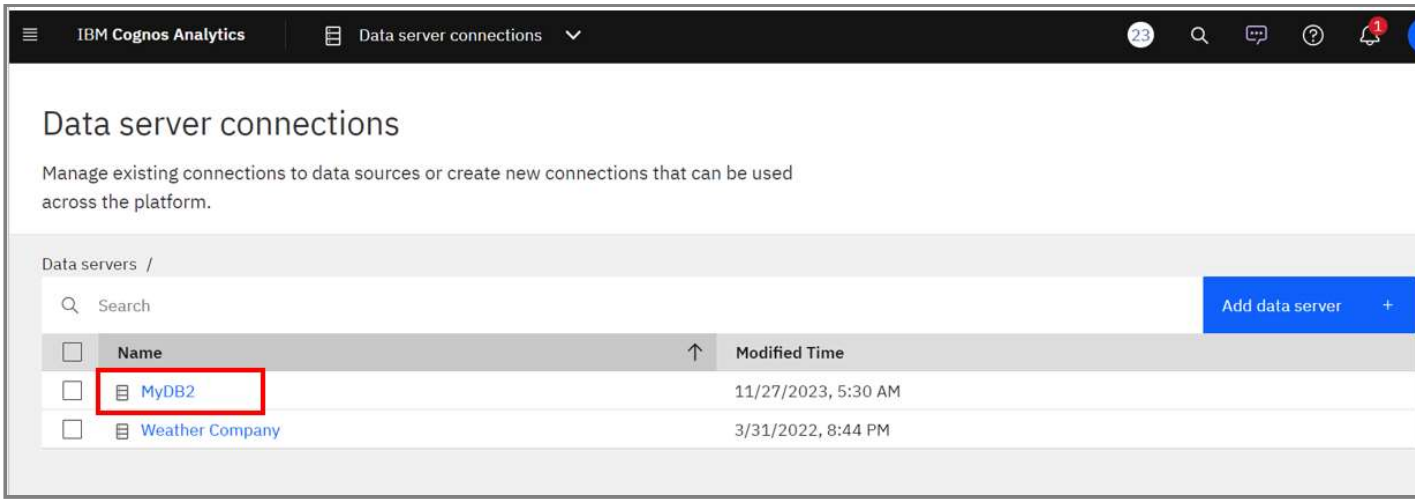
7. Then **Scroll down**. Select **Connect Anonymously** from the **Method** drop-down list. Select **Select all** in **Dispatcher**. Then Click on **Test Connection** to test the connection. If the test succeeded you will see **Test connection successfull**. Click on **Next**.



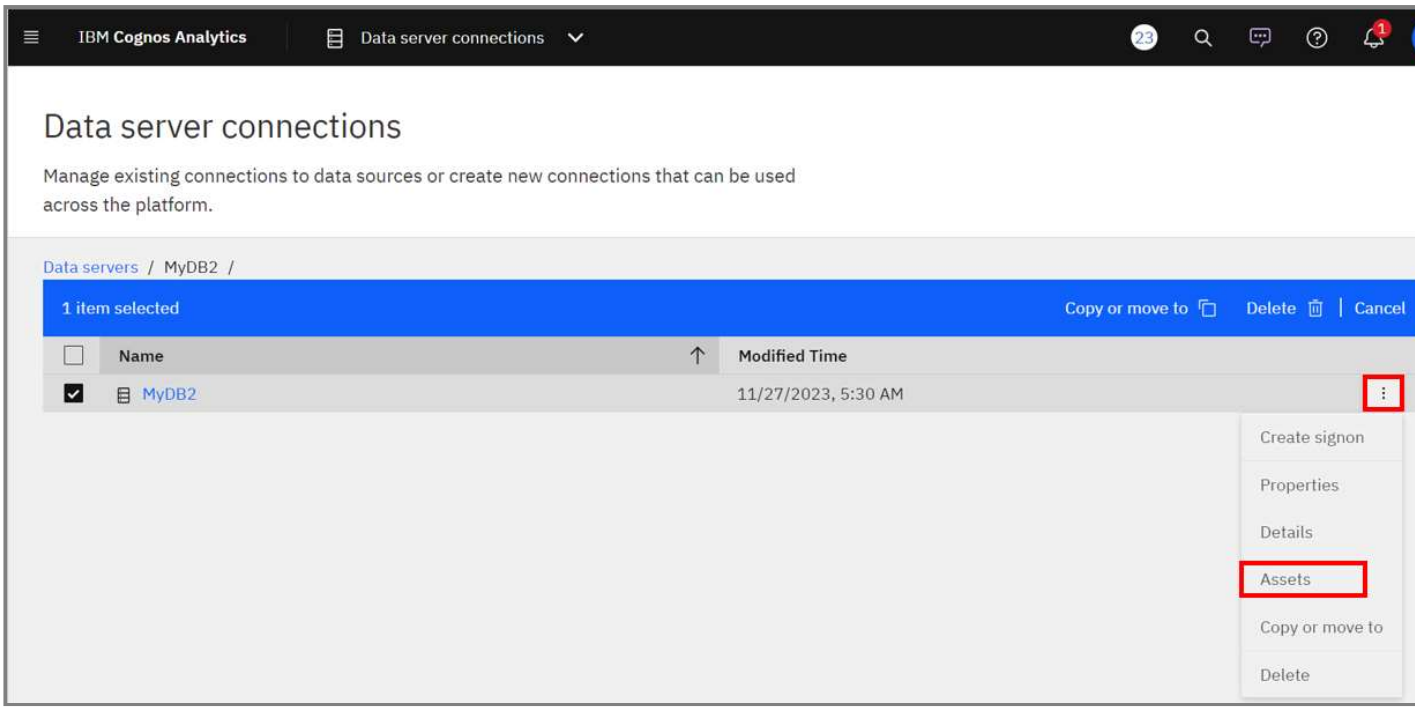
8. Select all check boxes for Command type and Click on **Create**.



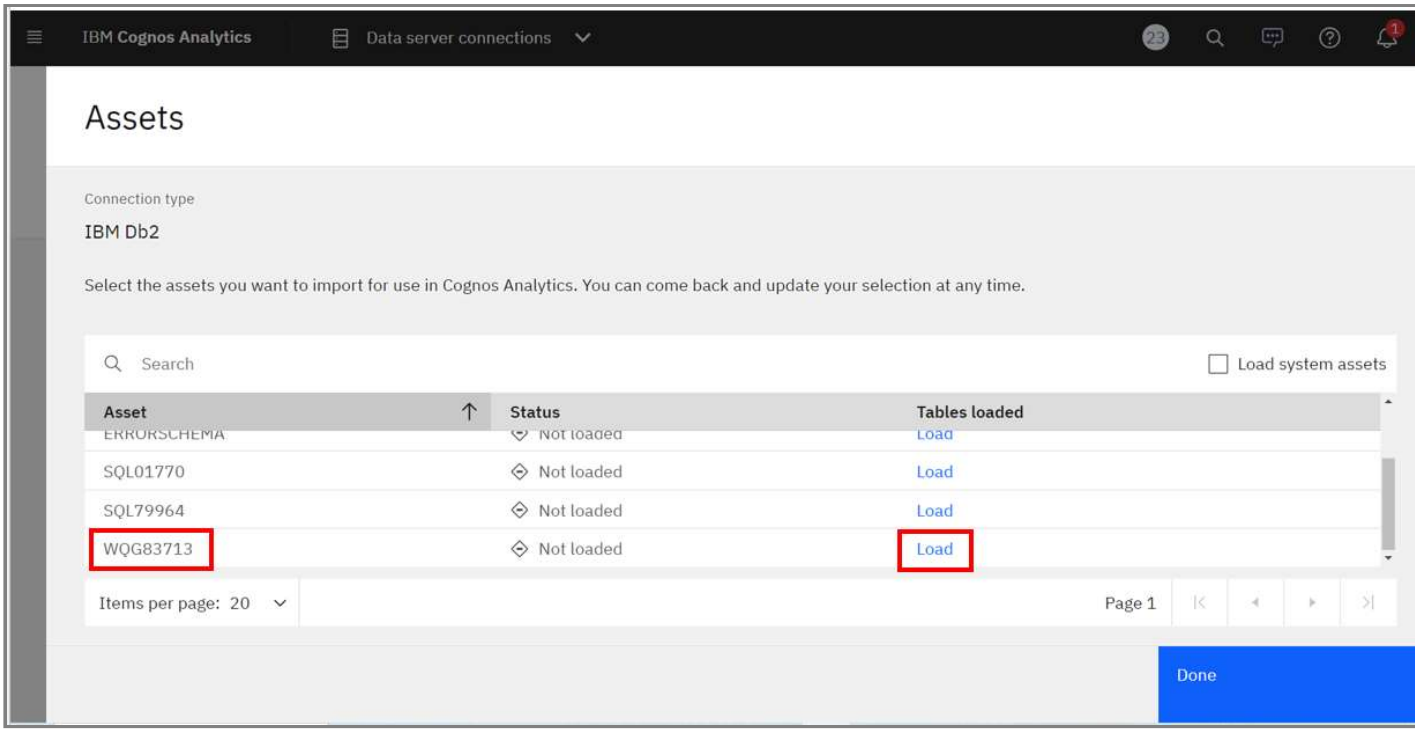
9. Click on the Data Server **MyDB2** created previously.



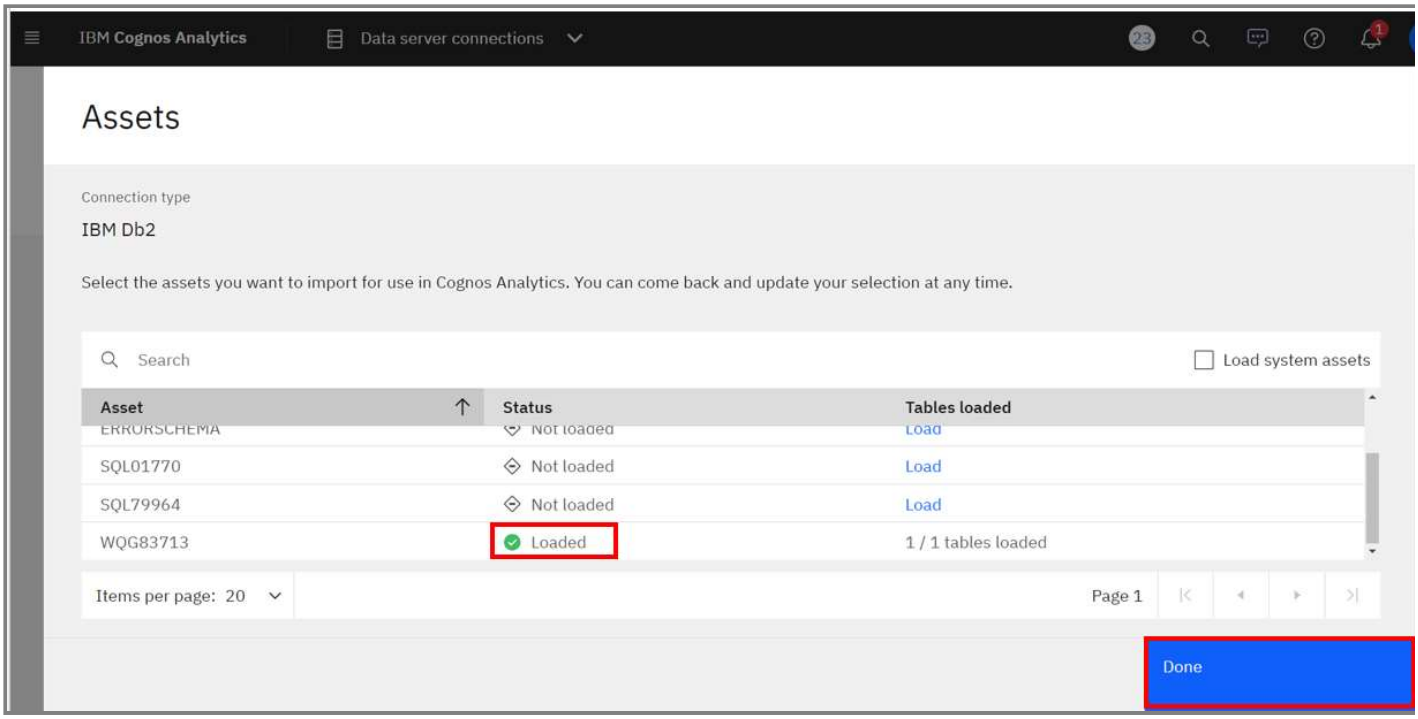
10. On the right side, click on the three dots and select **Assets** from the menu that appears.



11. Select the **schema** in which you have loaded the tables in DB2 and click on **Load**.

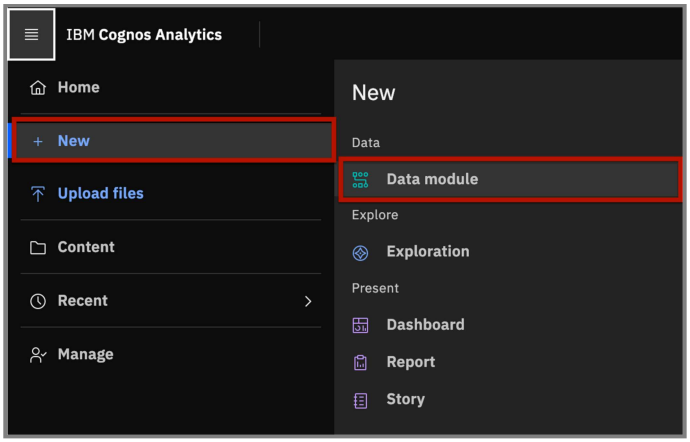


12. Once the data is loaded, you can see that how many tables available in the schema for analysis.

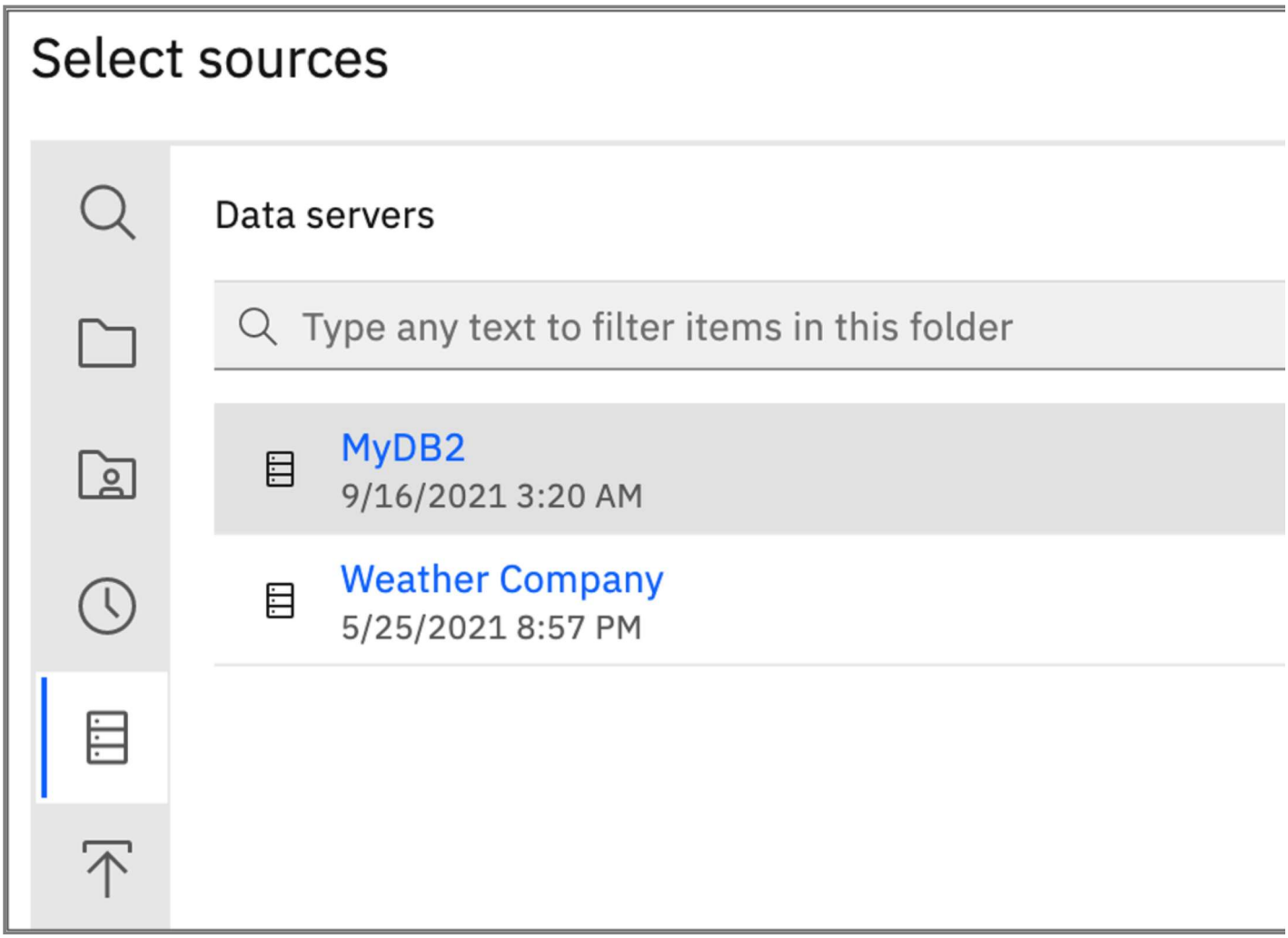


Task 3 - Create Data Module in Cognos

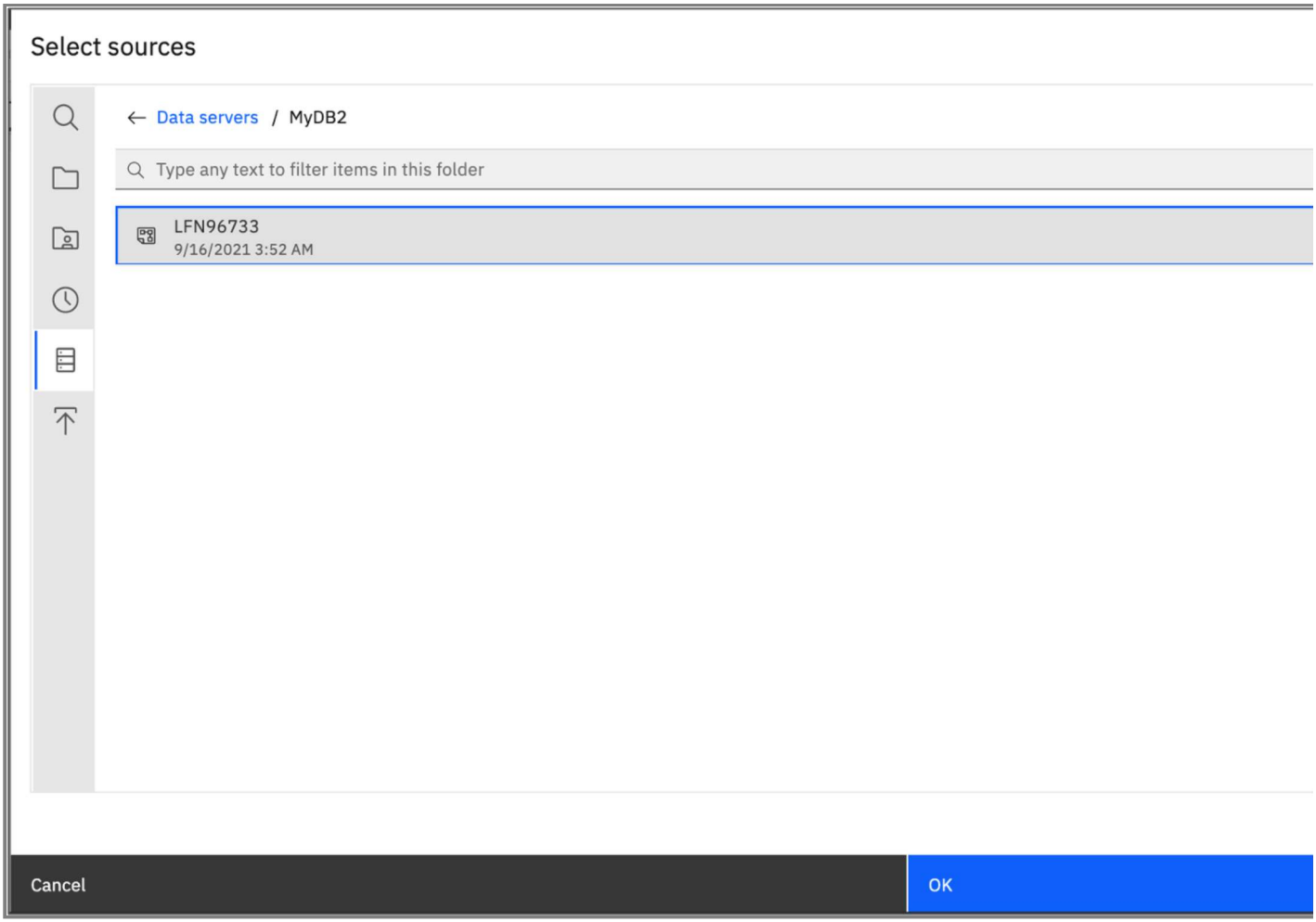
1. From the menu, choose **New** and then from the submenu choose **Data Module**.



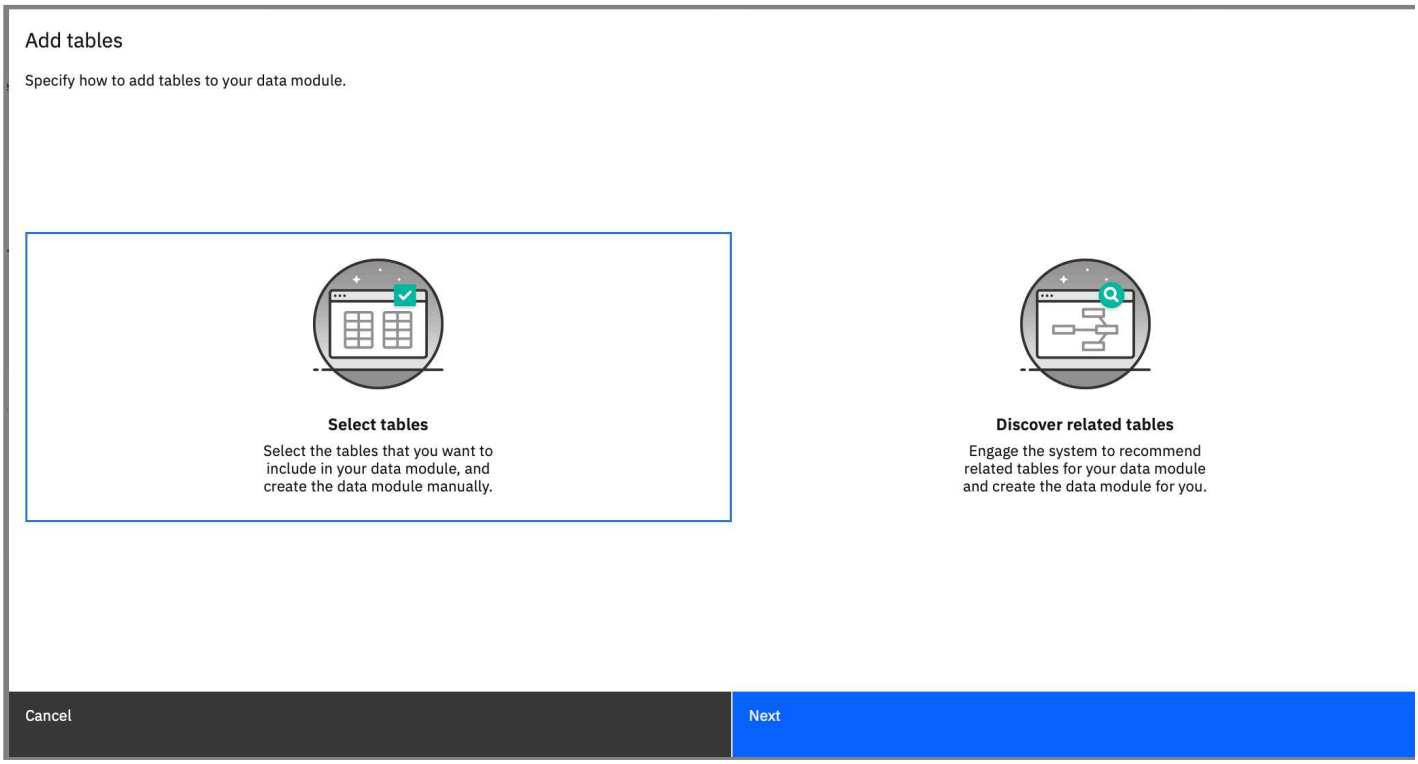
2. Click the **Data servers** icon and choose the **MyDB2** connection that we created in the previous task.



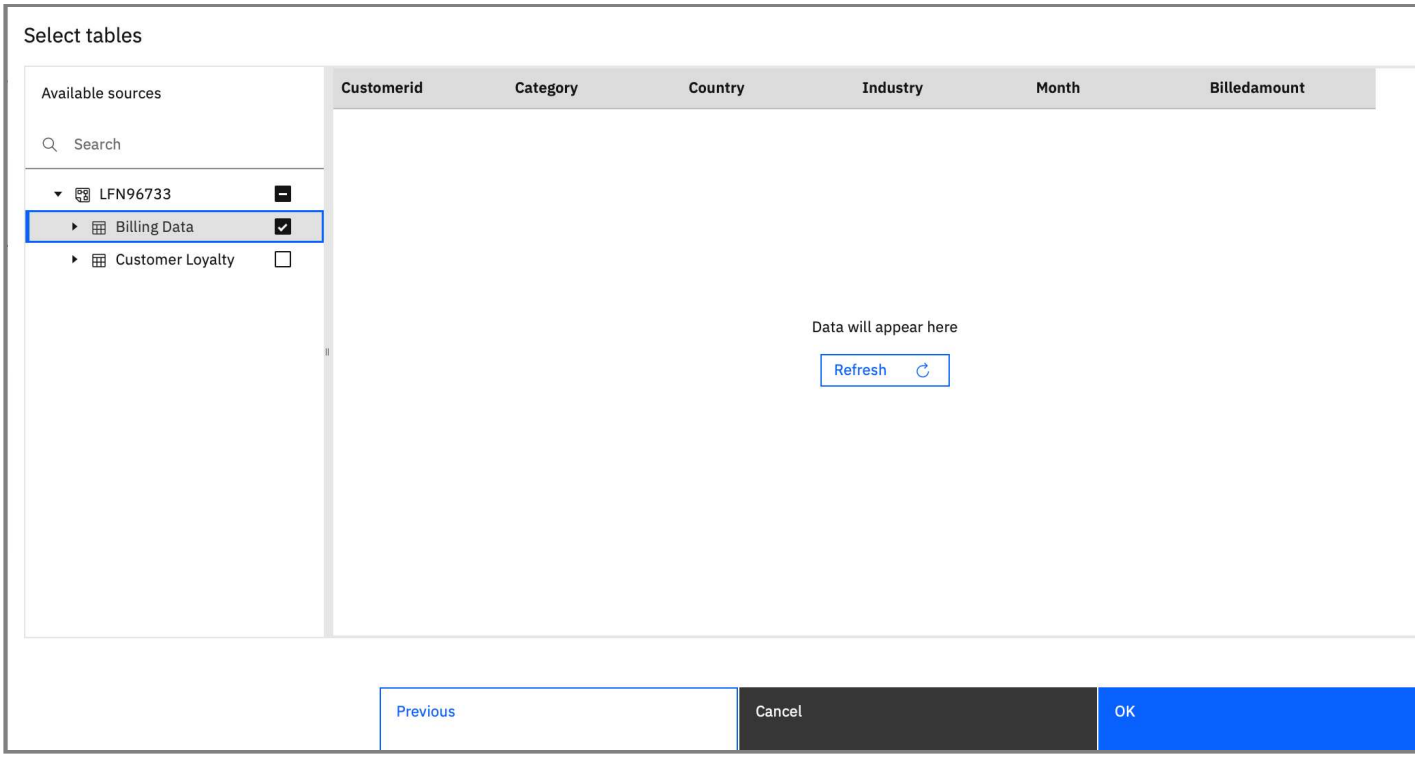
3. Choose the schema from where you want to load data.



4. Choose the **Select Tables** option and click **OK**.



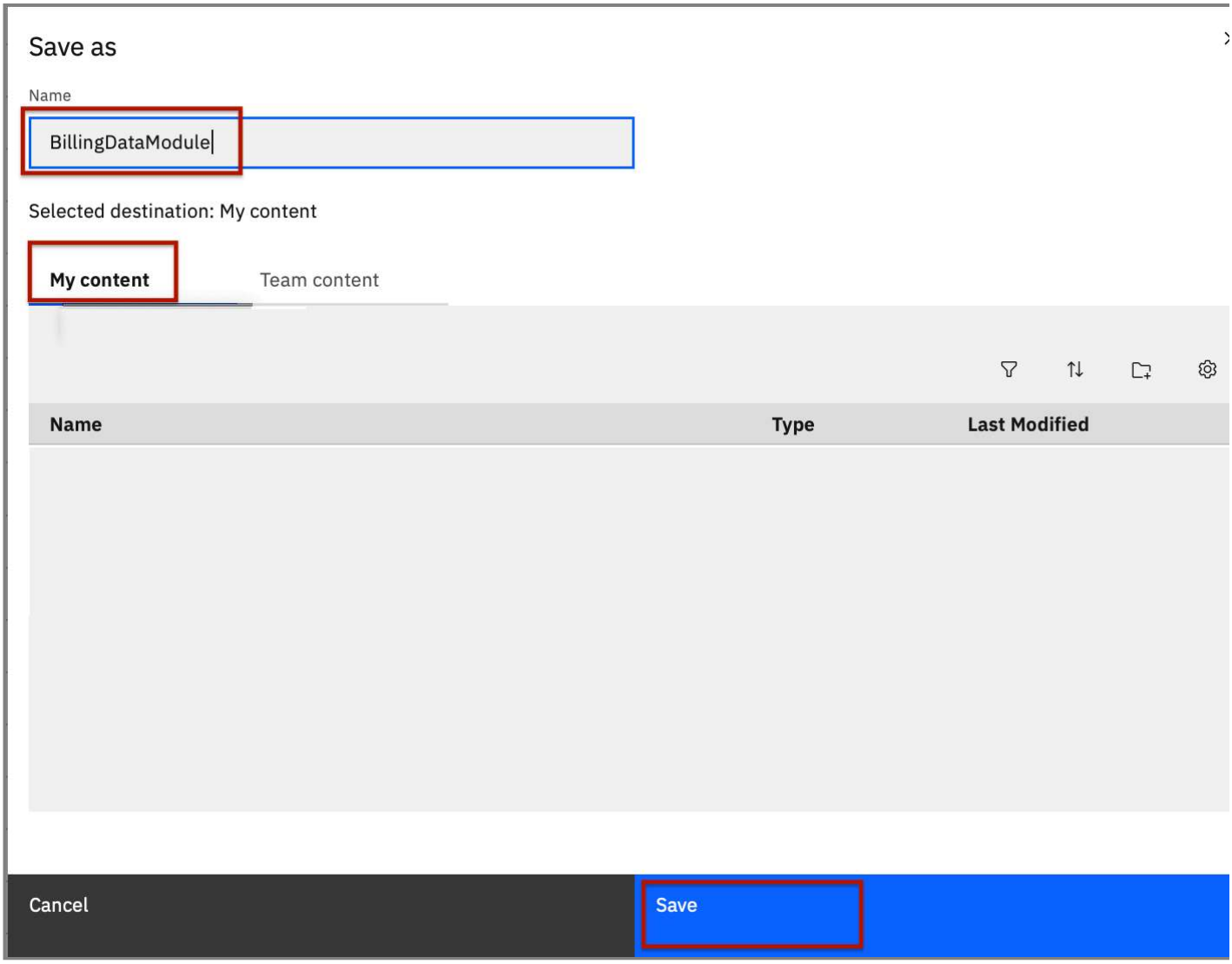
5. It will list the tables available in the schema. For this lab, we will use the **Billing data** table. Choose the table and click on **OK**. If you want to view the data you may click on **Refresh**.



6. The **Data module** loaded with the data appears. Click on **Save**, once you see that the data is correctly loaded.

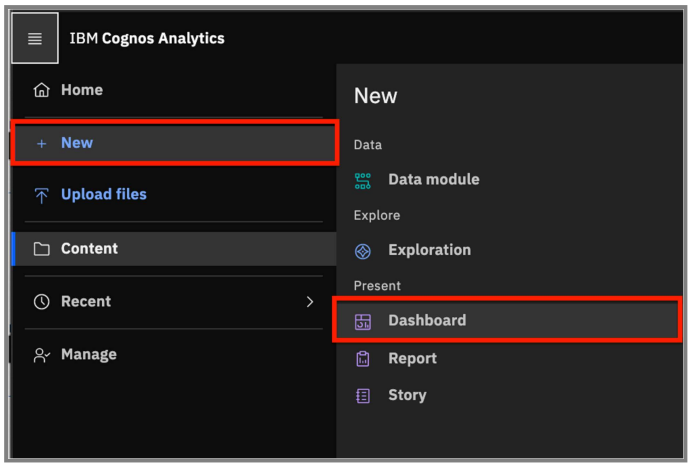
Customerid	Category	Country	Industry	Month	Billedamount
1	Individual	Indonesia	Engineering	2009-1	5060
614	Individual	United States	Product Management	2009-1	9638
615	Individual	China	Services	2009-1	11573
616	Individual	Russia	Accounting	2009-1	18697
617	Individual	Chile	Business Development	2009-1	944
618	Individual	Nicaragua	Human Resources	2009-1	3539
41	Company	Brazil	Marketing	2009-1	6591
619	Individual	Russia	Business Development	2009-1	16061
620	Individual	China	Business Development	2009-1	1250
956	Individual	Peru	Research and Development	2009-1	15105
621	Individual	Angola	Services	2009-1	6644

7.You can now save it with an appropriate name under **My Content**.

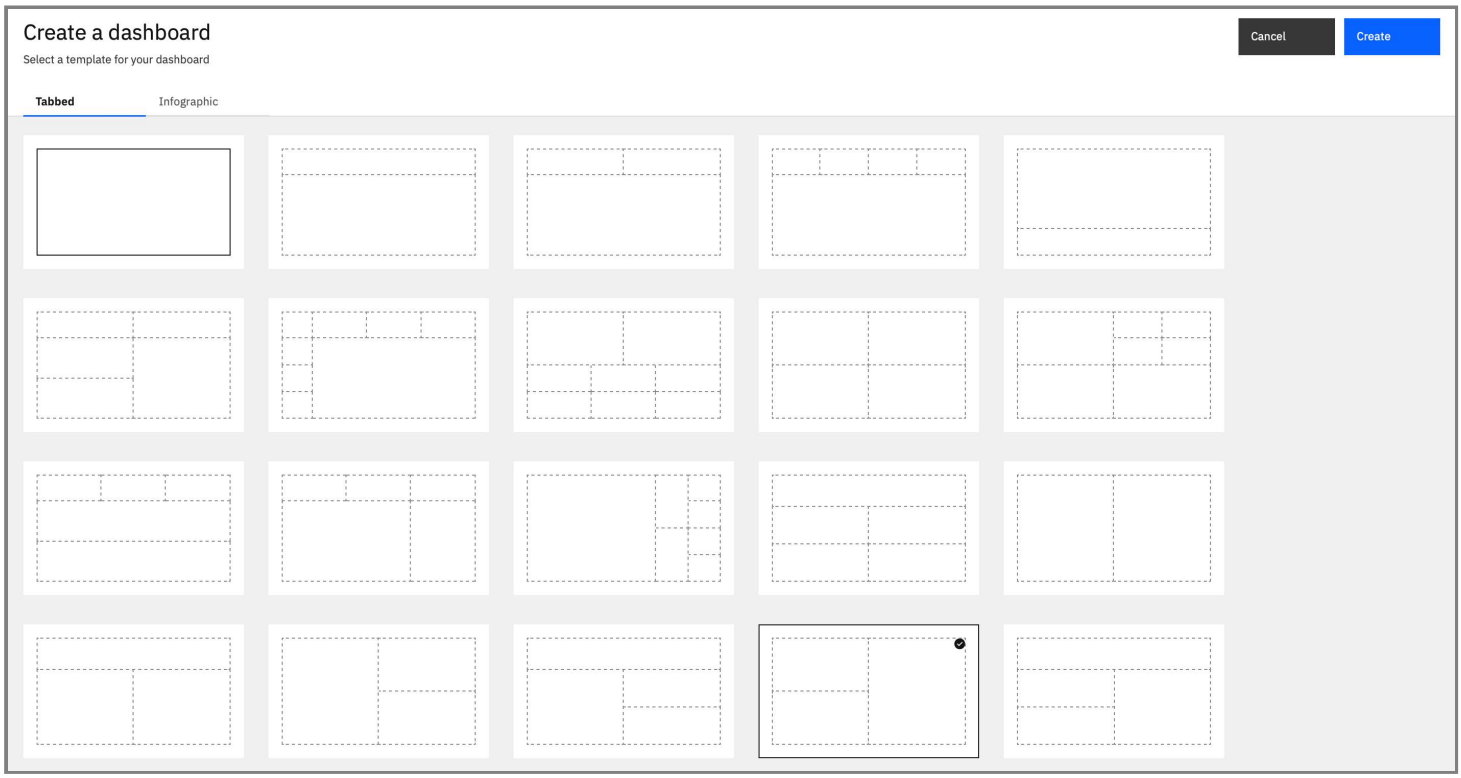


Task 4 - Create Dashboard

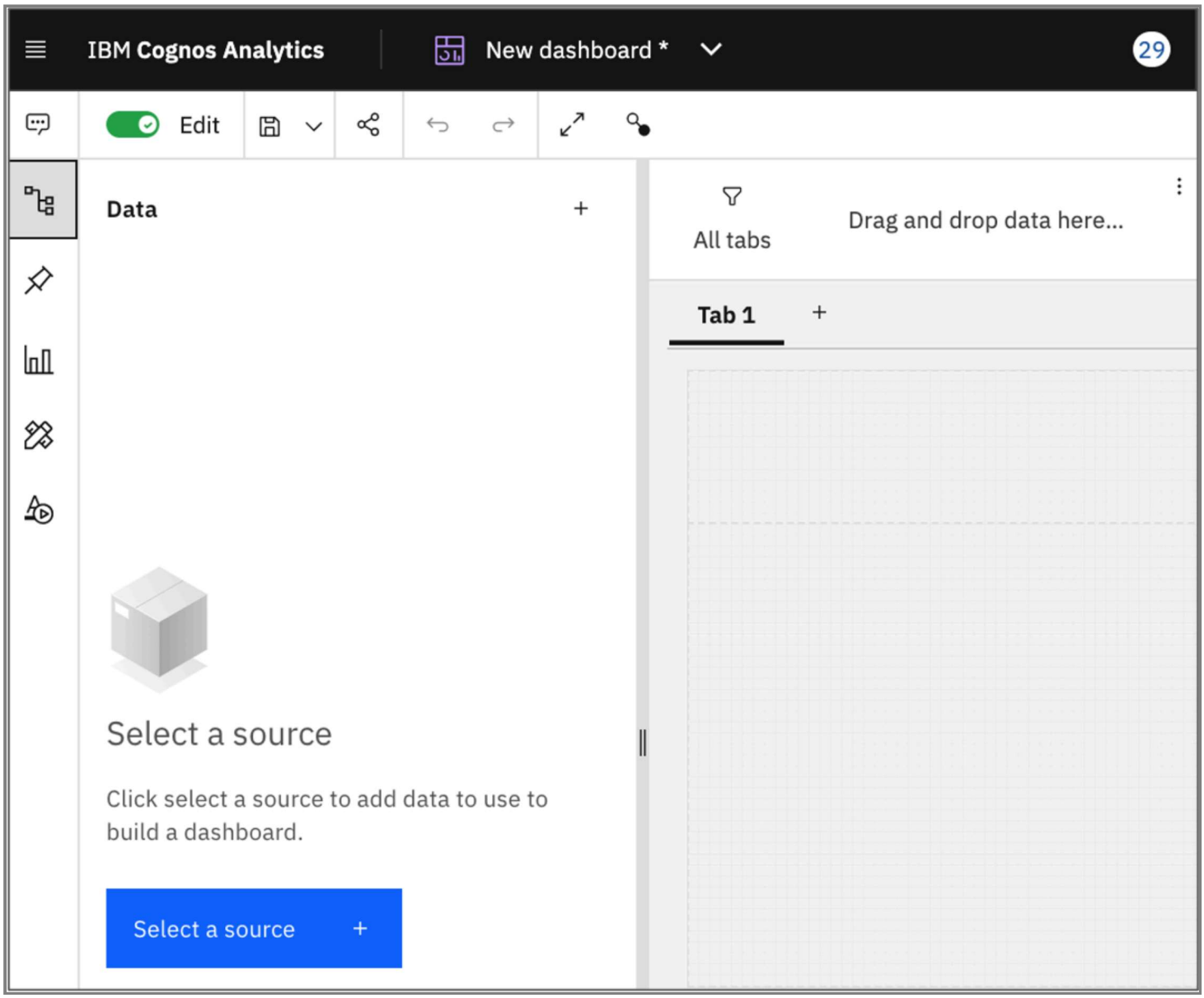
1. From the IBM Cognos menu, choose, **New** and click on **Dashboard**.



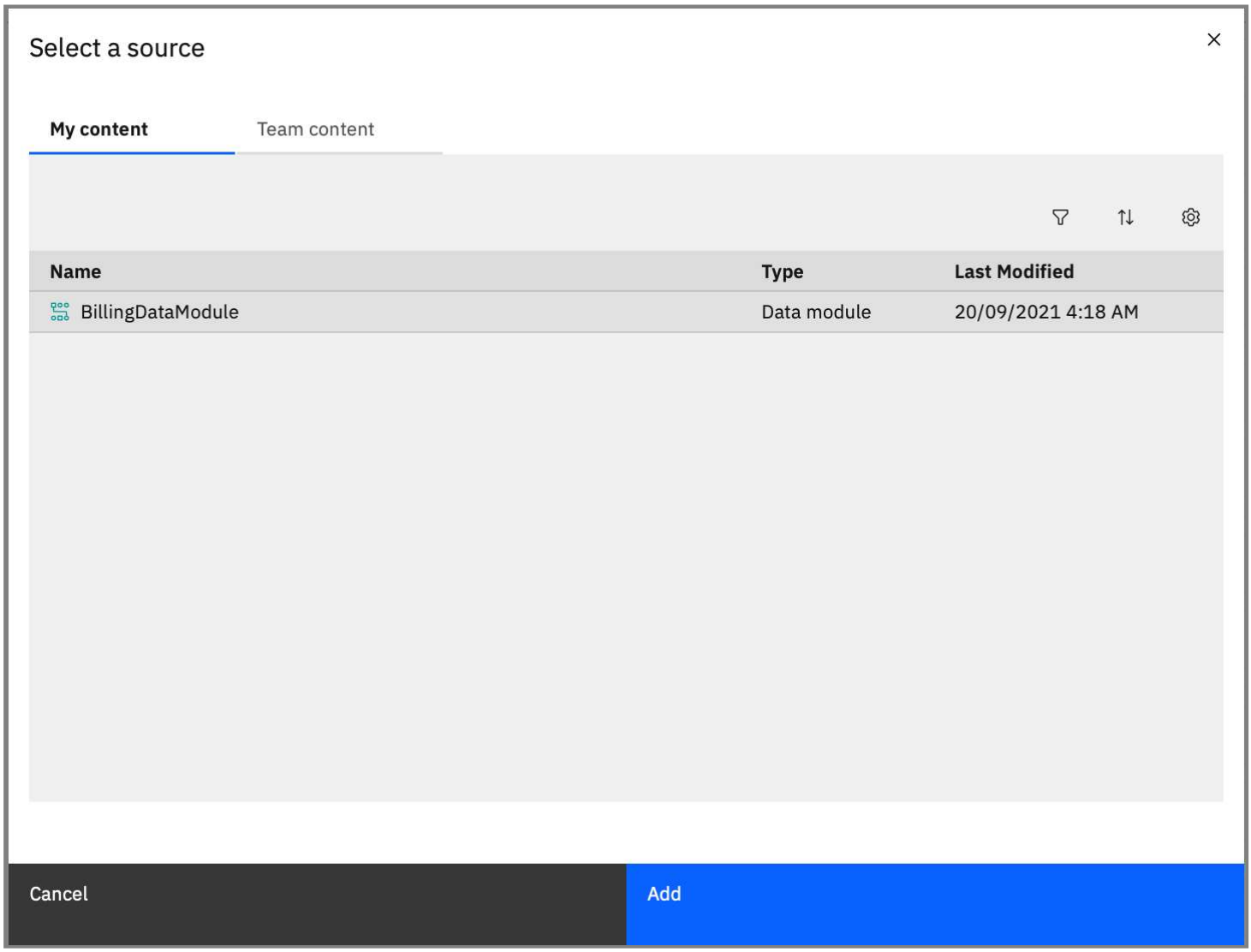
2. Choose the **Tabbed** as shown in the following image.



3. Click on **Select Source** to choose the source for the template.



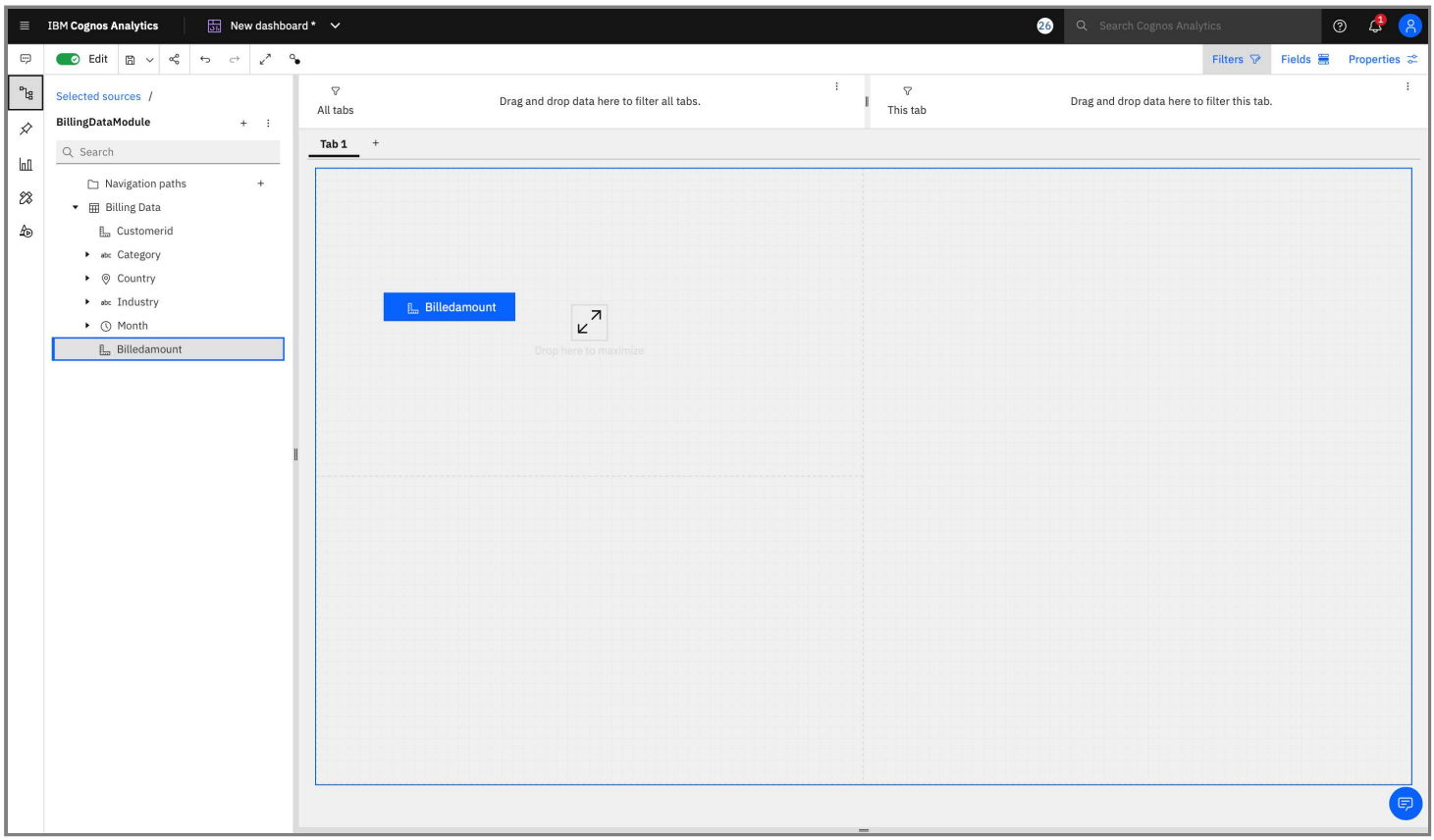
4. From the list, choose the data module we just created and click on **Add**.



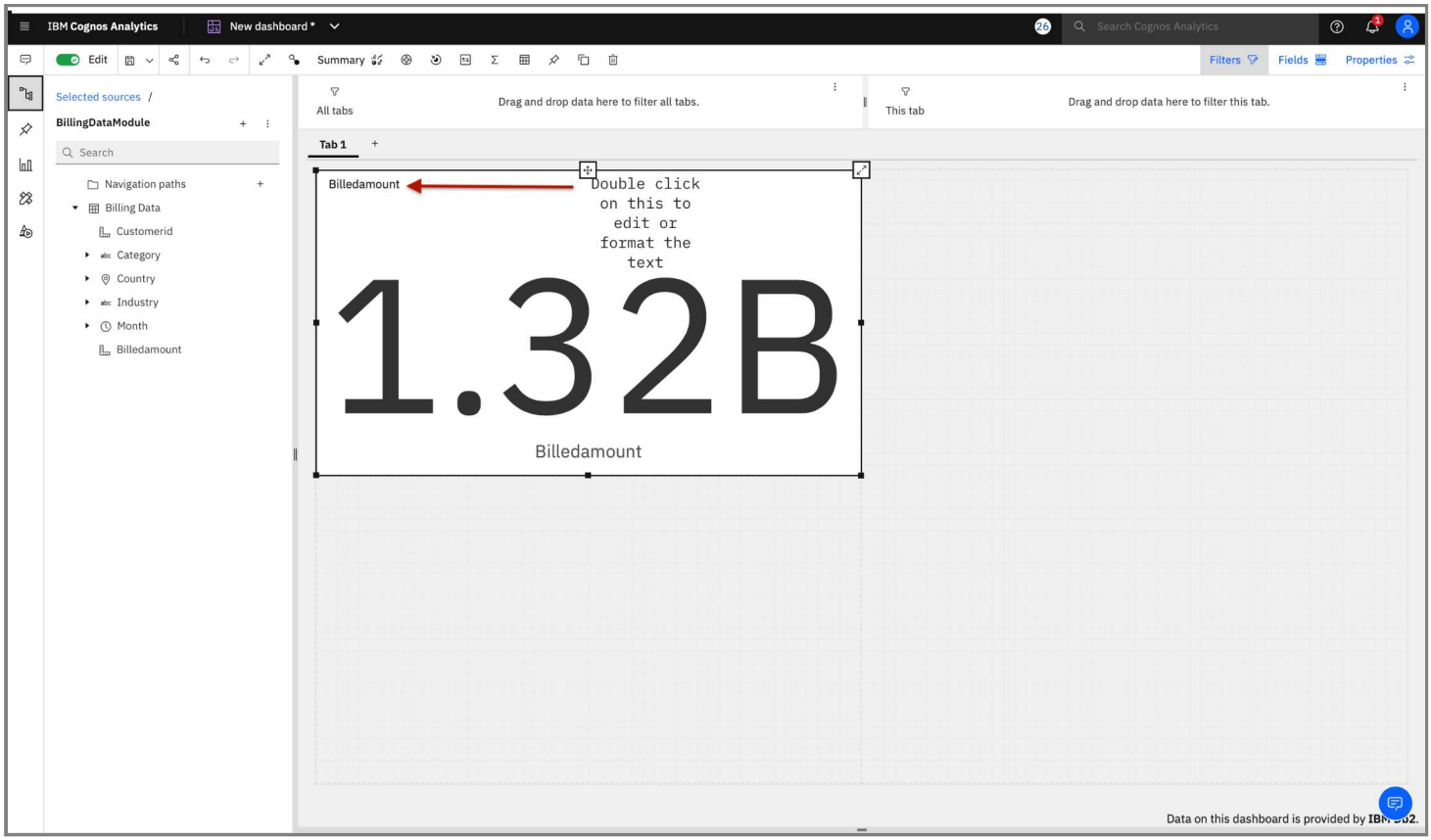
Task 5 - Visualization

You will now see the table listed on the left panel with all the attributes.

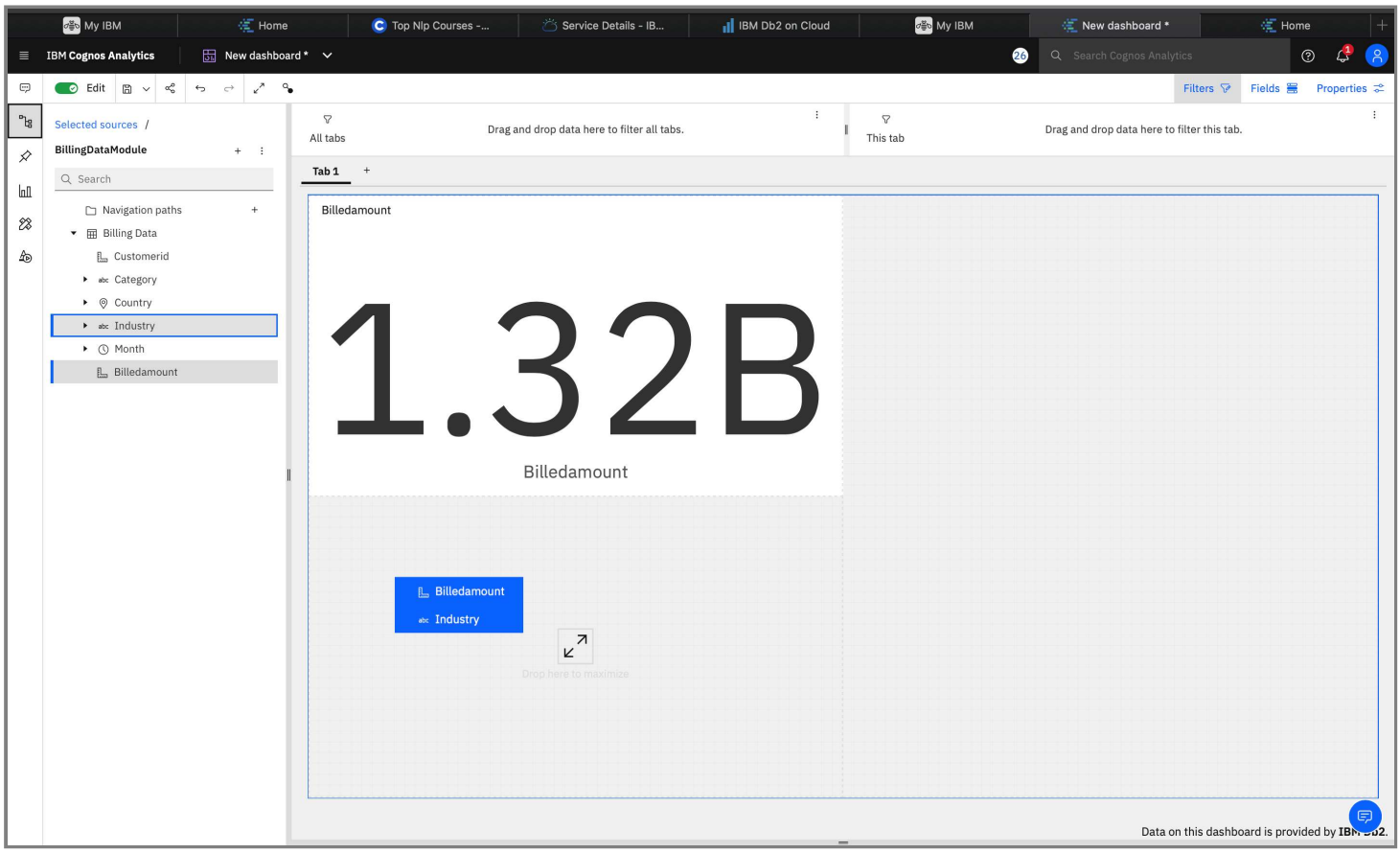
1. Drag and drop the **Billed Amount** on the template.



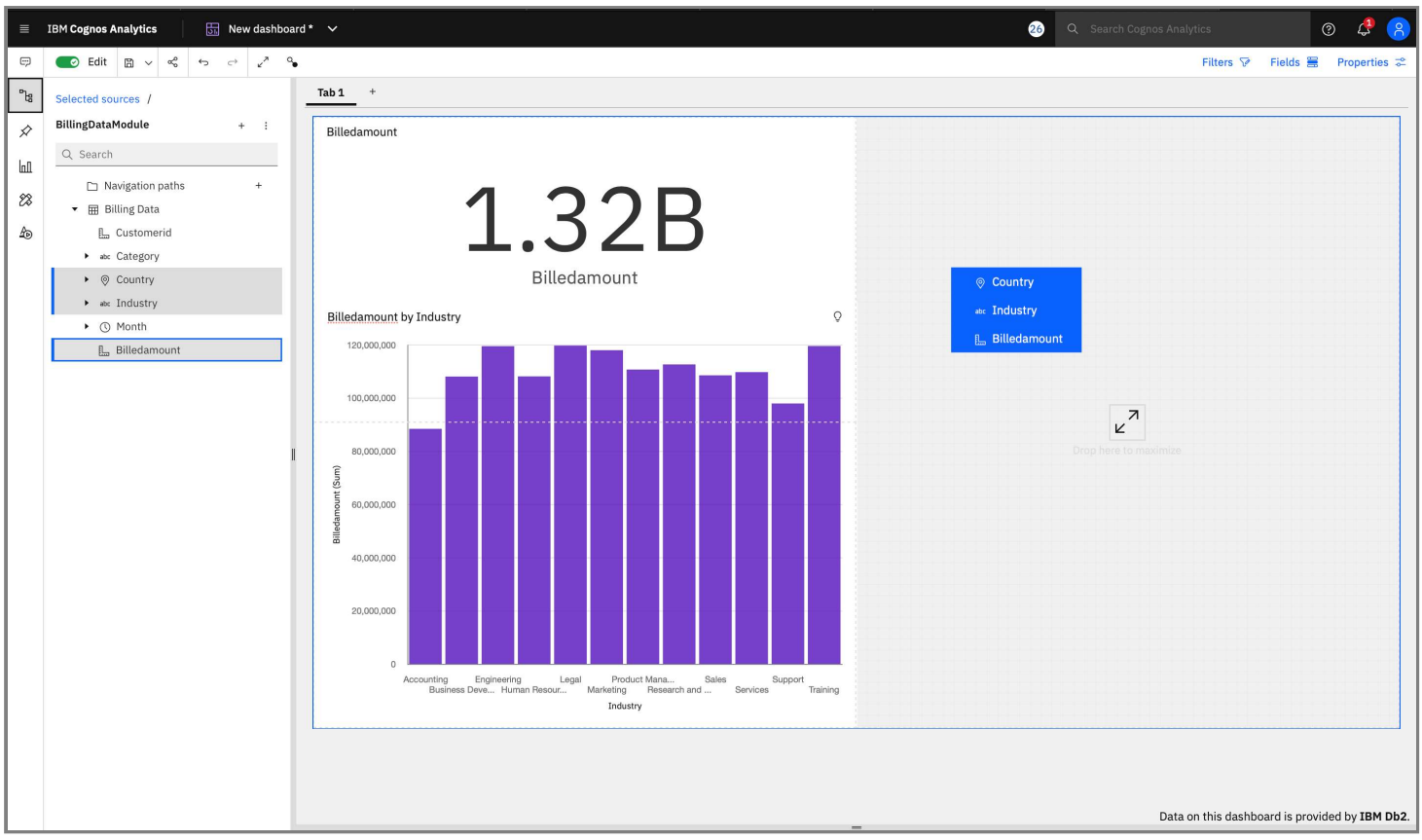
2. The total billed amount will now appear on the Dashboard. The size and position can be adjusted as per requirement and the text display can be edited and formatted by double-clicking on it.



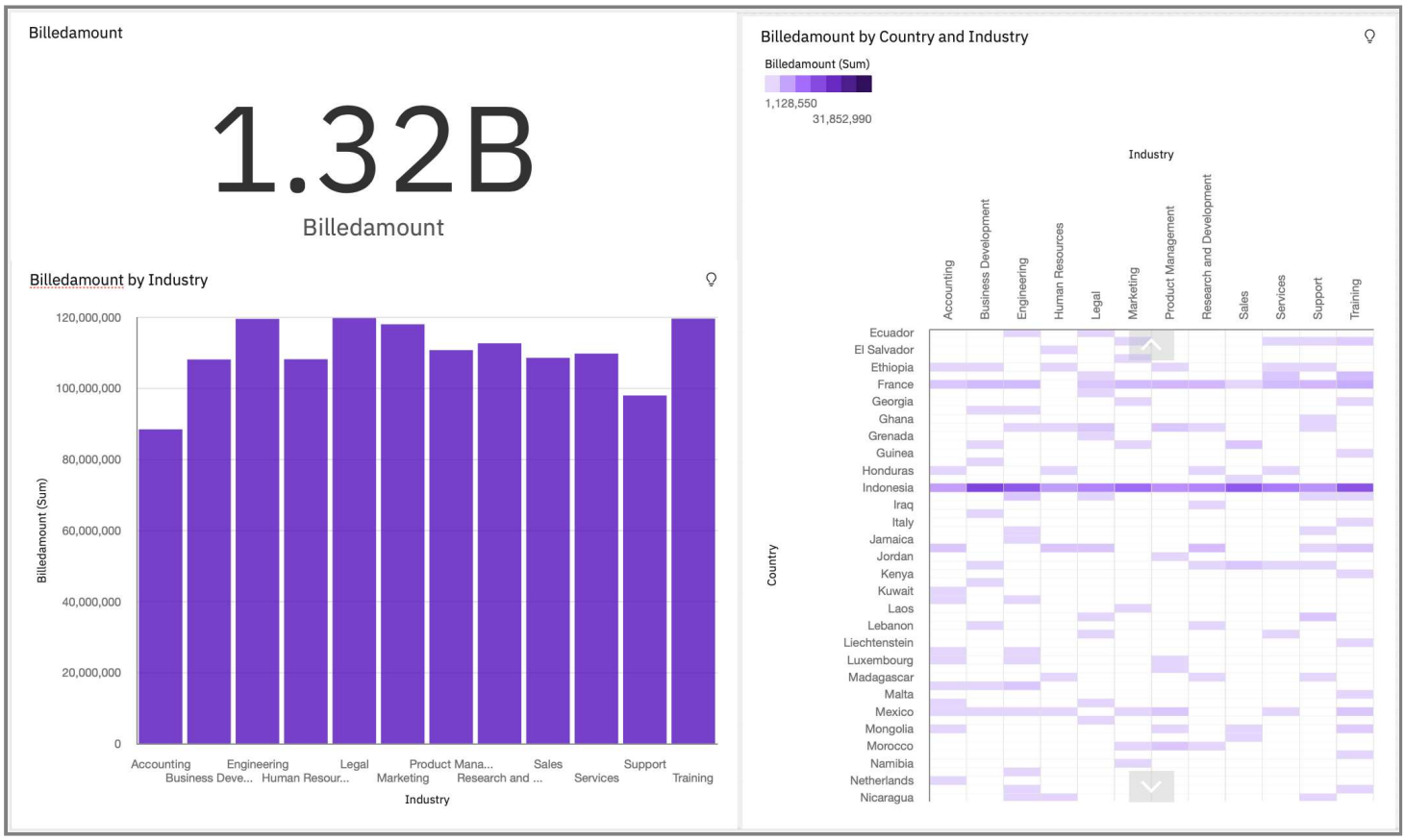
3. Drag and drop **Billed Amount** and **Industry** onto the dashboard as shown in the following image. With this, we can visualize the build amount per industry.



4. Drag and drop **Billed Amount, Country and Industry** onto the dashboard as shown in the following image. This will generate a heat map of spending by country and by industry.



5. The finished dashboard will appear as in the following image.



6. Optionally, try to change the properties and settings to see how the dashboard changes. You can also observe the billed amount changing as you click on a region on the heat map or the bar graph.

Credits

Author(s)

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Changelog

Date	Version	Changed by	Change Description
2020-09-20	1.0	Lavanya	Created the lab
2021-10-07	1.1	Steve Hord	Copy Edit lab
2023-05-07	1.2	Vladislav Boyko	Indented images and added pages