



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.

Resource list /

Db2-4y Active Add tags ⚙

Details Actions... ▾

Manage

Getting started

Service credentials

Connections

Service credentials

You can generate a new set of credentials for cases where you want to manually connect an app or external consumer to an IBM Cloud service.

[Learn more](#)

Search credentials...

New credential +

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

Create credential

Name:

Role: ▼

[Advanced options ▼](#)

Cancel Add

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.

Service credentials

You can generate a new set of credentials for cases where you want to manually connect an app or external consumer to an IBM Cloud service. [Learn more](#)

Search credentials...

New credential

Key name

Date created

Service credentials-1

2021-09-20 12:30 PM

```
"db2": {
  "authentication": {
    "method": "direct",
    "password": "REDACTED",
    "username": "REDACTED"
  },
  "certificate": {
    "certificate_base64": "LS0tLS1CRUdjT1BDRVJUSU2JQ0FURS0tLS0tClk1JSURfaKNQDwZ20fSJb201kQVA1s0R32TNTkx1iTUErR0NTcUjTSW1zRFFFQkN3ViUFN01r4sFVRyJi1TYk0kFNTi1lWhFN0i0jFYkrc5Mvn0kV7WfJn0W1Gt1nYTXt1GaNOTwR01sTmVNRFF5TVRa=Vdn0wVmln3R2j7R"
  }
}
```

```
"db2AuthSource": "admin",
"db2AuthType": "replicaset",
"db2ReplicaSetName": "repset",
"db2User": "bludb",
"db2UserPw": "REDACTED",
"host": "db2:/1In96733:d10xWylFwKzIe0Y@fbdb88901-ebdb-4a4f-a32e-9822b9fb237b.c1ogj3sd0tgtu01qde00.databases.appdomain.cloud:32731/blu"
db2AuthSource=admin&replicaSet=repset"
},
```

```
"composed": [
  {
    "db2": "db2:/1In96733:d10xWylFwKzIe0Y@fbdb88901-ebdb-4a4f-a32e-9822b9fb237b.c1ogj3sd0tgtu01qde00.databases.appdomain.cloud:32731/blu"
    "db2AuthSource": "admin"
  }
],
```

```
"hosts": [
  {
    "hostName": "fbdb88901-ebdb-4a4f-a32e-9822b9fb237b.c1ogj3sd0tgtu01qde00.databases.appdomain.cloud",
    "port": 32731
  }
]
```

```
"jdbc_url": [
  "jdbc:db2://fbdb88901-ebdb-4a4f-a32e-9822b9fb237b.c1ogj3sd0tgtu01qde00.databases.appdomain.cloud:32731/bludb:user=<userid>;pass
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.

5. Once the instance is created from the dh2 instance name, choose **Management** from the left menu and click on **Create User**.

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

Resource list /

Db2-4y Active Add tags [Actions...](#)

Manage

Getting started

Service credentials

Connections

Getting started

Where can I find my credentials?
Get your username and password by clicking the "Service Credentials" link to the left and selecting "New Credentials".

Go to UI Getting started docs

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

Load Data Load History Tables Views Indexes Aliases MQTs Sequences

Source Target Define Finalize

You are loading the file

File selection

Drag a file here or [browse files](#)

Next

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

Source Target Define Finalize

You are loading the file cloud-billing-dataset.csv

Select a load target

Schema XQR63068

Table [New table +](#)

Create a new table

BillingData

Create

Back Next

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

Source Target Define Finalize
You are loading the file **cloud-billing-dataset.csv** into **XQR63068.BILLINGDATA**

Select a load target

Schema Table

Find schemas Find tables in XQR63068

XQR63068 **BILLINGDATA**

Refresh Back Next

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.

Source Target Define Finalize
You are loading the file **cloud-billing-dataset.csv** into **XQR63068.BILLINGDATA**

	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

Header in first row: Time & date format:

Back Next

month
VARCHAR(6)

2009-1

2009-1

2009-1

2009-1

2009-1

country
VARCHAR(22)

Indonesia

United States

China

Russia

Chile

Close
OK
Close
OK

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

Source Target Define Finalize

You are loading the file **cloud-billing-dataset.csv** into **XQR63068.BILLING DATA**

Code page (character encoding): 1208 (UTF-8) Separator: , Header in first row: Time & date format:

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

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

Source Target Define Finalize

You are loading the file **cloud-billing-dataset.csv** into **XQR63068.BILLINGDATA**

Review settings

Summary		Option
Code page:	1208 (Default)	Maximum number of warnings
Separator:	, (Default)	1000
Time format:	HH:MM:SS (Default)	
Date format:	YYYY-MM-DD (Default)	
Timestamp format:	YYYY-MM-DD HH:MM:SS (Default)	
String delimiter:	(Default)	

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

 My computer Target cloud-billing-data.csv XQR63068.BILLING_DATA

Status	Settings	Errors 0	Warnings 0
	132,000 Rows read 132,000 Rows loaded 0 Rows rejected Start time 09/20/2021 12:24:04 PM End time 09/20/2021 12:24:08 PM	The data load job succeeded. You can now work with your data.	
		No errors	

Task 2 - Connect Cognos to DB2

1. Go to myibm.ibm.com, login with your IBM Cloud credentials and launch Cognos Analytics.

The screenshot shows the IBM My IBM interface. At the top, there's a navigation bar with 'My IBM' (which is underlined), 'Profile', and 'Billing'. Below this, the word 'Products' is displayed in a large, bold, dark grey font. Under 'Products', there's a section titled 'Trials' with the sub-section 'Offerings'. It says '2 Offerings'. There are two cards: one for 'IBM Cloud' (Active, Launch, Manage) and one for 'IBM Cognos Analytics on Cloud - Trial' (Active, Expires on 16 Oct 2021, Launch, Manage).

2. Choose the hamburger menu on the upper left and select **Manage**.

The screenshot shows the IBM Cognos Analytics interface. On the left, there's a dark sidebar with a hamburger menu icon. Below it, the text 'IBM Cognos Analytics' and 'Home' are visible. The sidebar contains several options: '+ New', 'Upload files', 'Content', 'Recent', and 'Manage'. The 'Manage' option is highlighted with a red rectangle.

3. Choose the **Data Server Connection**.

The screenshot shows the 'IBM Cognos Analytics' interface. The sidebar has the same structure as the previous screenshot. The 'Data server connections' option is highlighted with a red rectangle. The main content area shows a list of connection types: People, Data server connections, Customization, Collaboration, and Secure Gateways.

4. Click on + to add a data server and choose IBM DB2 from the list shown.

< Data server connections

Name	Modified
Weather Company	25/05/2021 8:57 PM

Select a type

- Amazon Athena
- Amazon Redshift
- Cloudera Impala
- Hive
- IBM Big SQL
- IBM Db2
- IBM Db2 for i
- IBM Db2 Warehouse
- IBM Informix Dynamic Server
- IBM Netezza
- IBM Planning Analytics

5. Choose to Connect Anonymously and enter the jdbc url with your db2 user name and password that you copied earlier in Task 1. Click on Test to test the connection.

IBM Cognos Analytics

New data server connection

Owner: Unknown Created: Modified: Type: Connection

General Settings Schemas Permissions

Connection details Edit >

Authentication method:

- Connect anonymously
- Prompt for the user ID and password
- Use an external namespace
- Use the following signon:

Test Not tested

JDBC URL: [jdbc:db2://fb88901-e0db-4a4f-a32e-9822b9fb237bc10gj3sd0tgu0lqde00.databases.appdomain.cloud:32731/bludb?user=fn96733;password=_&sslConnections_]

Driver class name: com.ibm.db2.jcc.DB2Driver

Restore Example URL

Connection properties: (?)

Save Close

6. If the test succeeded and Cognos managed to connect to the Db2 instance, you will see Success with a green tick next to it. Click on the pencil icon, give the connection a name, MyDB2, and save it.

MyDB2 

Owner: Unknown Created: Modified: Type: Connection

General Settings Schemas Permissions

Connection details Edit >

Authentication method:

- Connect anonymously
- Prompt for the user ID and password
- Use an external namespace
- Use the following signon:

Test Success

JDBC URL: [jdbc:db2://fb88901-e0db-4a4f-a32e-9822b9fb237bc10gj3sd0tgu0lqde00.databases.appdomain.cloud:32731/bludb?user=fn96733;password=_&sslConnections_]

Driver class name: com.ibm.db2.jcc.DB2Driver

Restore Example URL

Connection properties: (?)

Cloud certificate details (?)

Secure Gateway destination (?)

Save

7. Go to the Schema and click on the '...' next to the schema name. Choose Load Metadata from the menu that appears.

MyDB2

Owner: Sriram ... 39657 | Created: 16/09/2021 3:20 AM | Modified: 16/09/2021 7:48 AM | Type: Connection

General Settings Schemas **Schemas** Permissions

Status	Schema name	Tables loaded
<input type="radio"/>	AUDIT	
<input type="radio"/>	DB2INST1	
<input type="radio"/>	ERRORSCHEMA	
<input type="radio"/>	LFN96733	

Load metadata Load options

8. Once the metadata is loaded you will see a green check mark next to the schema name and it will also indicate how many tables are available in the schema for analysis.

MyDB2

Owner: Sriram ... 39657 | Created: 16/09/2021 3:20 AM | Modified: 16/09/2021 7:48 AM | Type: Connection

General Settings Schemas **Schemas** Permissions

Status	Schema name	Tables loaded
<input type="radio"/>	AUDIT	
<input type="radio"/>	DB2INST1	
<input type="radio"/>	ERRORSCHEMA	
<input checked="" type="radio"/>	LFN96733	2 / 2

Task 3 - Create Data Module in Cognos

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

IBM Cognos Analytics

Home

+ New

Upload files

Content

Recent

Manage

New

Data module

Explore

Exploration

Present

Dashboard

Report

Story

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

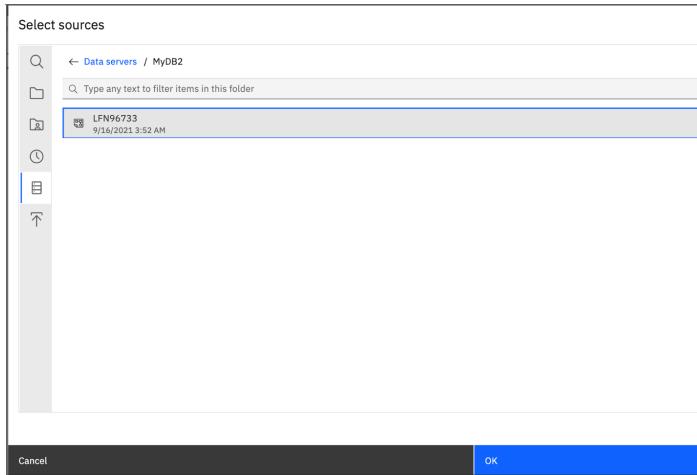
Select sources

Data servers

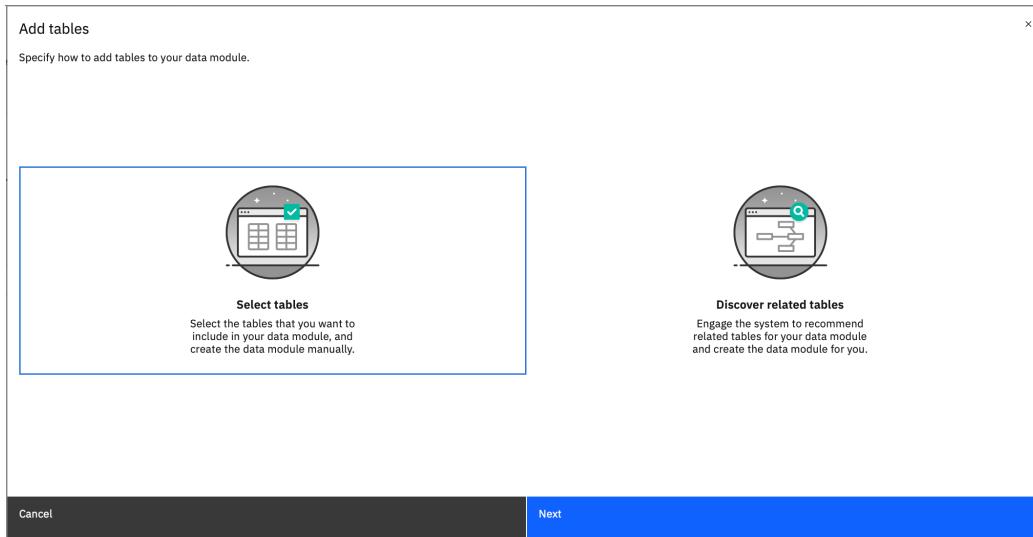
Type any text to filter items in this folder

- MyDB2
9/16/2021 3:20 AM
- Weather Company
5/25/2021 8:57 PM

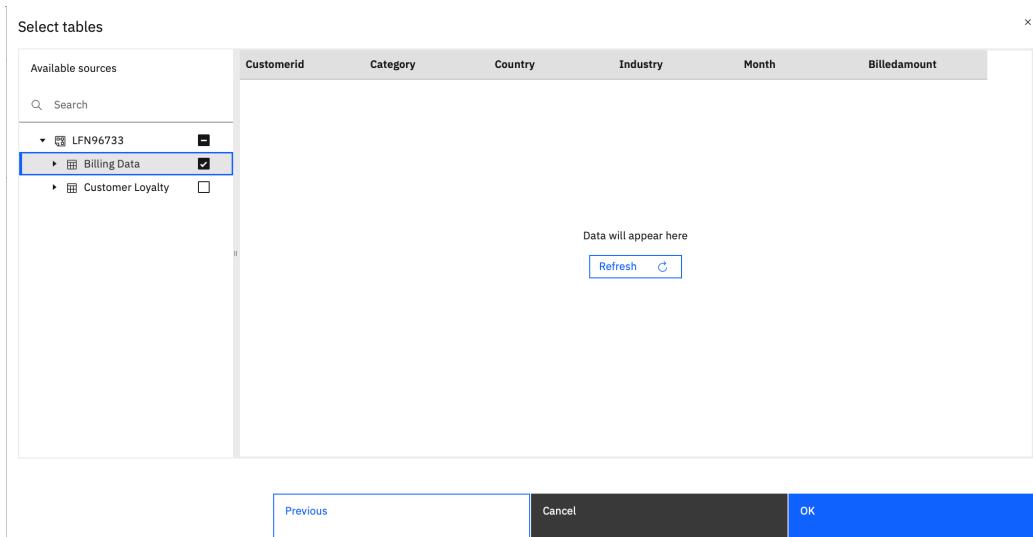
3. Choose the schema from where you want to load data.



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



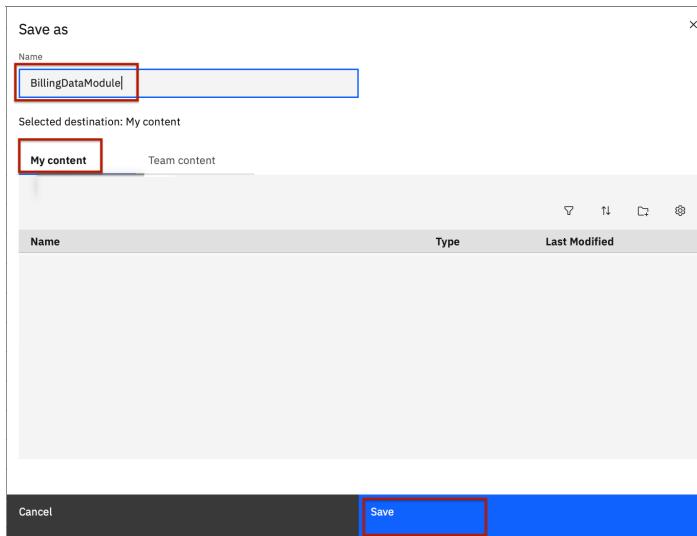
5. It will list the tables available in the schema. For this lab, we will use the **Billing data** table. Choose the table and click on **OK**. If you want to view the data you may click on **Refresh**.



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

The screenshot shows the IBM Cognos Analytics interface. On the left, there's a sidebar with a 'Data module' section containing a 'Billing Data' entry. The main area is a grid showing data for 15 rows across columns: Customerid, Category, Country, Industry, Month, and Billedamount. The data includes various countries like Indonesia, United States, China, Russia, Chile, Nicaragua, Brazil, and Angola, with industries ranging from Engineering to Services.

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



Task 4 - Create Dashboard

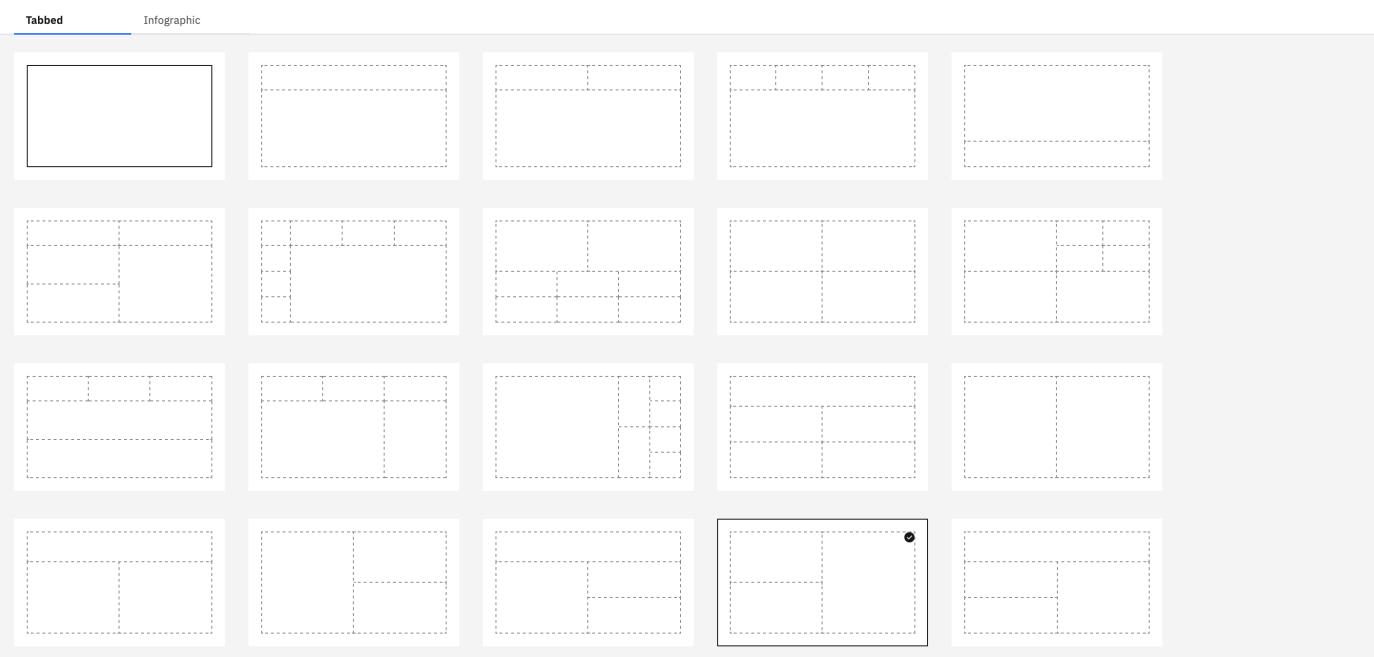
1. From the IBM Cognos menu, choose, New and click on Dashboard.

The screenshot shows the IBM Cognos Analytics home screen. On the left, there's a sidebar with 'Home', 'Content' (selected and highlighted with a red box), 'Recent', and 'Manage' items. On the right, under the 'New' heading, there are three categories: 'Data', 'Explore', and 'Present'. Under 'Present', 'Dashboard' is selected and highlighted with a red box. Other options include 'Report' and 'Story'.

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

Create a dashboard

Select a template for your dashboard

[Cancel](#) [Create](#)3. Click on **Select Source** to choose the source for the template.

A screenshot of the IBM Cognos Analytics interface. At the top, it says "IBM Cognos Analytics" and "New dashboard *". Below that is a toolbar with icons for Edit, Save, Undo, Redo, and others. On the left, there's a sidebar with icons for Data, Report, Scorecard, and Model. The main area shows a grid with a tab labeled "Tab 1" and the instruction "Drag and drop data here...". On the left side of the main area, there's a section titled "Data" with a "Select a source" button and the sub-instruction "Click select a source to add data to use to build a dashboard." A blue button at the bottom left of this section says "Select a source +".

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

A screenshot of a "Select a source" dialog box. At the top, it says "Select a source". Below that are tabs for "My content" (which is selected) and "Team content". The main area is a table with columns "Name", "Type", and "Last Modified". There is one item listed: "BillingDataModule" (Type: Data module, Last Modified: 20/09/2021 4:18 AM). At the bottom of the dialog are "Cancel" and "Add" buttons, with "Add" being a large blue button.

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.

IBM Cognos Analytics | New dashboard * | Search Cognos Analytics | Filters | Fields | Properties

Selected sources /

BillingDataModule

All tabs

Drag and drop data here to filter all tabs.

This tab

Drag and drop data here to filter this tab.

Tab 1

Billedamount

Drop here to maximize

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.

The screenshot shows the IBM Cognos Analytics interface with a 'New dashboard' tab selected. On the left, the 'Selected sources / BillingDataModule' sidebar lists various navigation paths like 'Billing Data', 'Customerid', 'Category', 'Country', 'Industry', and 'Month'. A specific field 'Billedamount' is highlighted with a blue border. In the main workspace, a single text box labeled 'Billedamount' contains the value '1.32B'. The interface includes standard dashboard controls like 'Edit', 'Search', and 'Properties' at the top.

IBM Cognos Analytics | New dashboard * | Search Cognos Analytics | Filters | Fields | Properties

Selected sources /

BillingDataModule

All tabs

Drag and drop data here to filter all tabs.

This tab

Drag and drop data here to filter this tab.

Tab 1

Billedamount

Double click on this to edit or format the text

1.32B

Billedamount

Data on this dashboard is provided by IBM Big Data.

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.

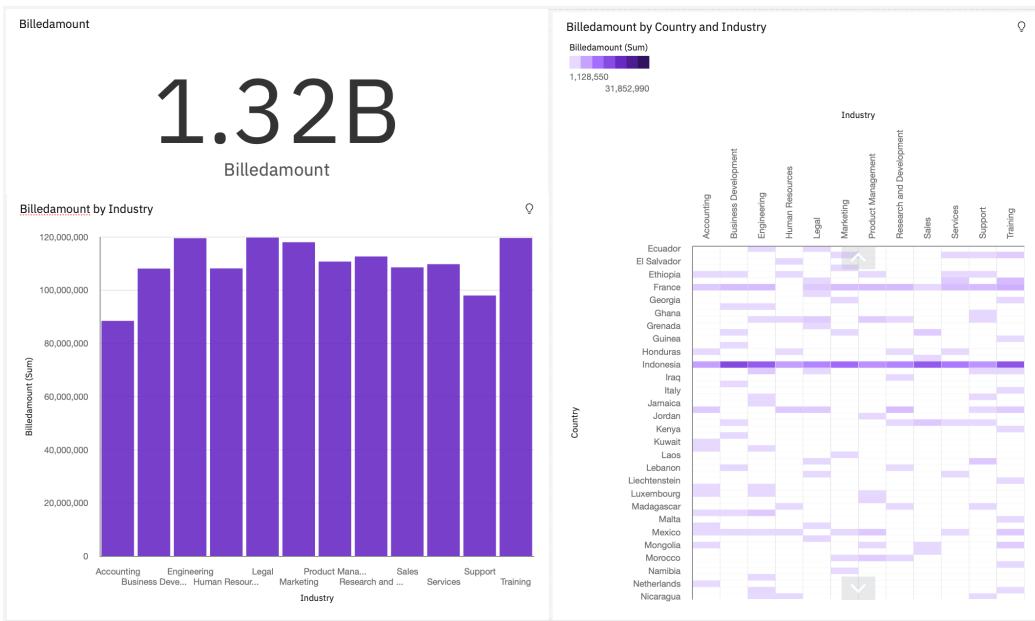
This screenshot shows the same dashboard setup as the previous one, but with a larger, bolded text '1.32B' displayed prominently. Below it, a smaller text box also labeled 'Billedamount' is visible. A red arrow points to the top-left corner of the large text box, with the text 'Double click on this to edit or format the text' overlaid. The bottom right corner of the screen displays a watermark: 'Data on this dashboard is provided by IBM Big Data.'

The screenshot shows the IBM Cognos Analytics dashboard editor interface. On the left, the 'Selected sources /' sidebar lists 'BillingDataModule' with 'Navigation paths' expanded, showing 'Billing Data' with 'Customerid', 'Category', 'Country', 'Industry', 'Month', and 'Billedamount'. The main area contains a large number '1.32B' labeled 'Billedamount' and a placeholder for a heatmap with 'Billedamount' and 'Industry' fields.

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.

The screenshot shows the IBM Cognos Analytics dashboard editor interface. On the left, the 'Selected sources /' sidebar lists 'BillingDataModule' with 'Navigation paths' expanded, showing 'Billing Data' with 'Customerid', 'Category', 'Country', 'Industry', 'Month', and 'Billedamount'. The main area contains a bar chart titled 'Billedamount by Industry' with 'Billedamount' on the Y-axis and 'Industry' on the X-axis, and a placeholder for a heatmap with 'Country', 'Industry', and 'Billedamount' fields.

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

**Credits****Author(s)**[Lavanya T S](#)**Changelog**

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

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