IBM- Naan Mudhalvan Data Analytics with Cognos

Phase 4

Development Part 2

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Topic   : DATA ANALYTICS WITH COGNOS

Title   : COVID-19 USING COGNOS

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Introduction :

In the face of the ongoing global pandemic, understanding the intricate patterns and trends of COVID-19 is crucial for making informed decisions. Cognos Analysis empowers us to delve deep into the data, unraveling essential insights that aid in comprehending the virus's spread and its impact on communities worldwide
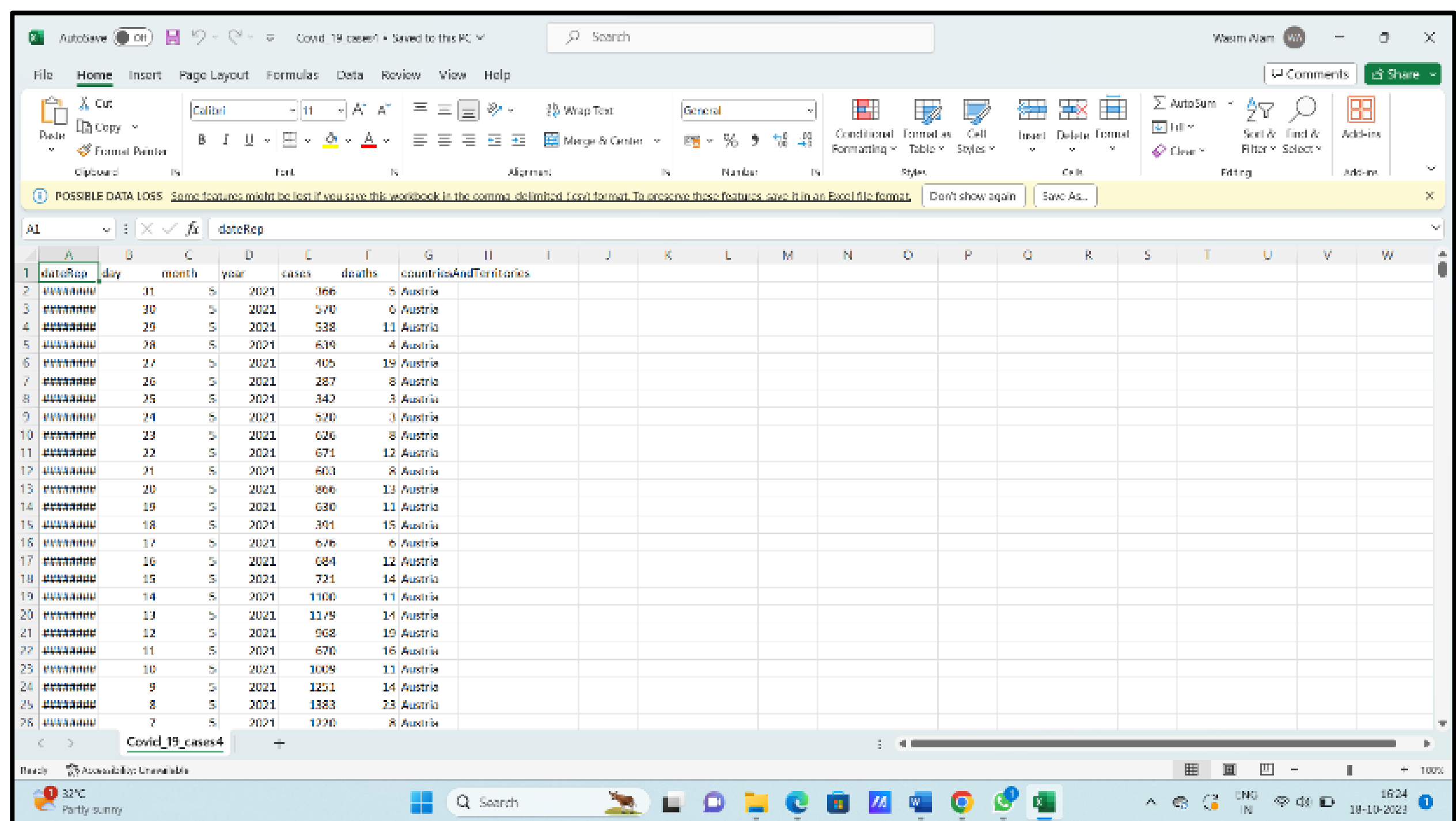
Objectives :

Start building the product sales analysis using IBM Cognos for visualization. Define the analysis objectives and collect sales data from source shared. Process and clean the collected data to ensure its accuracy and reliability..

Data source

Dataset is collected from the kaggle.com named " daily-website-visitors.csv" which has a data about the Days, Day of week, Date, page Loads, Unique visits, First-time visits, Returning Visits.
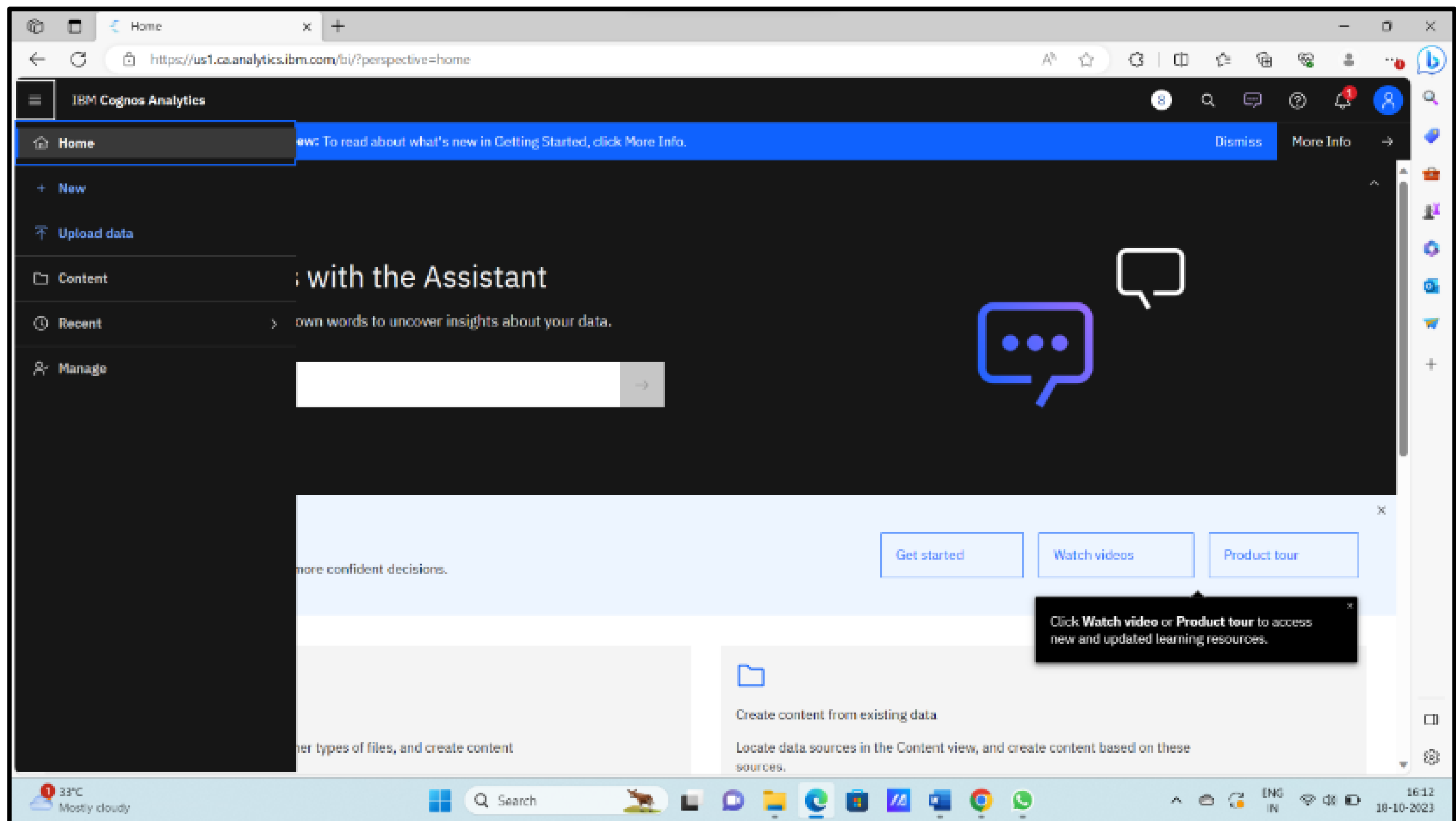
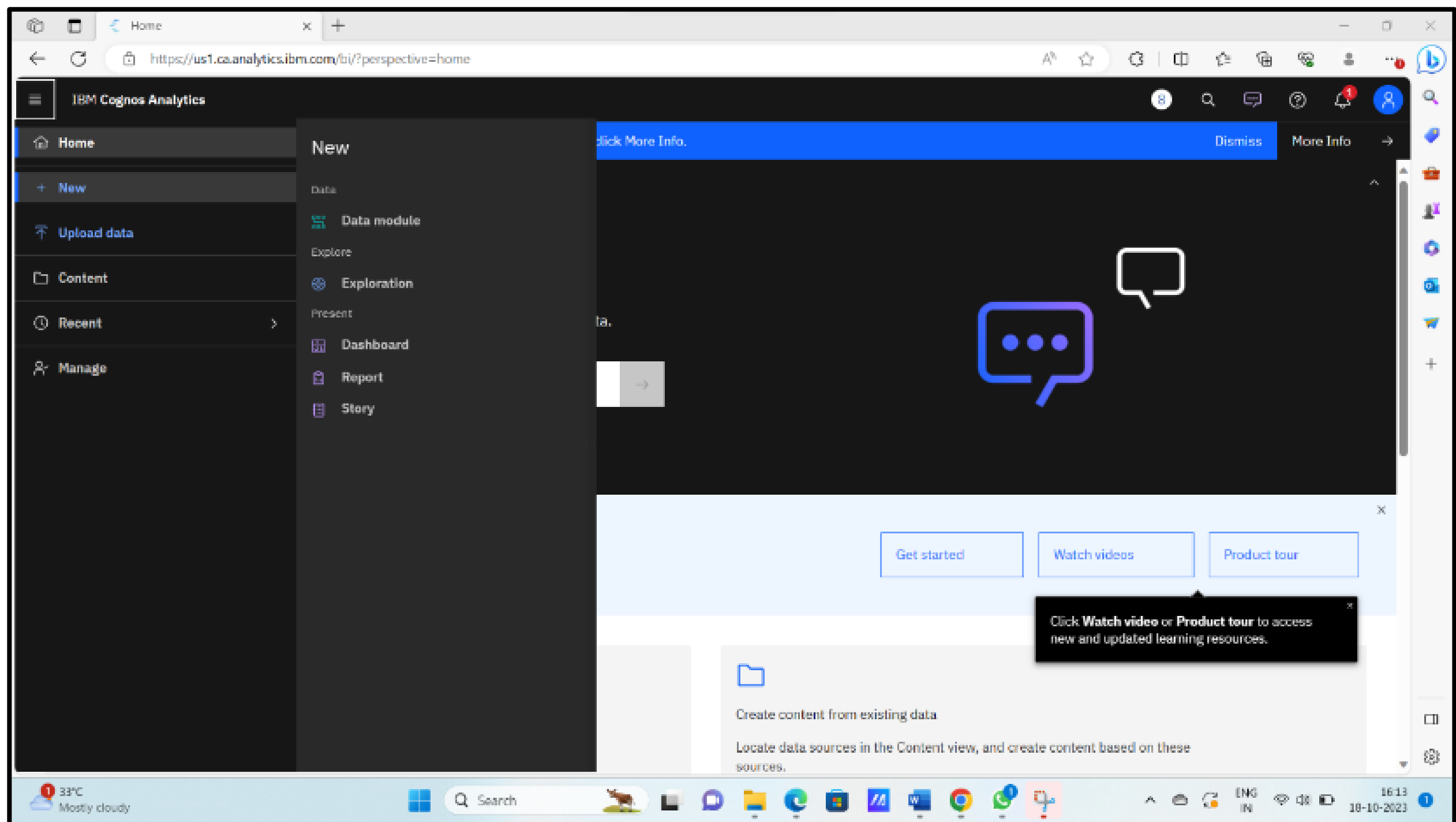Dataset link https://www.kaggle.com/datasets/chakradharmattapalli/covid-19-cases

Data Loading

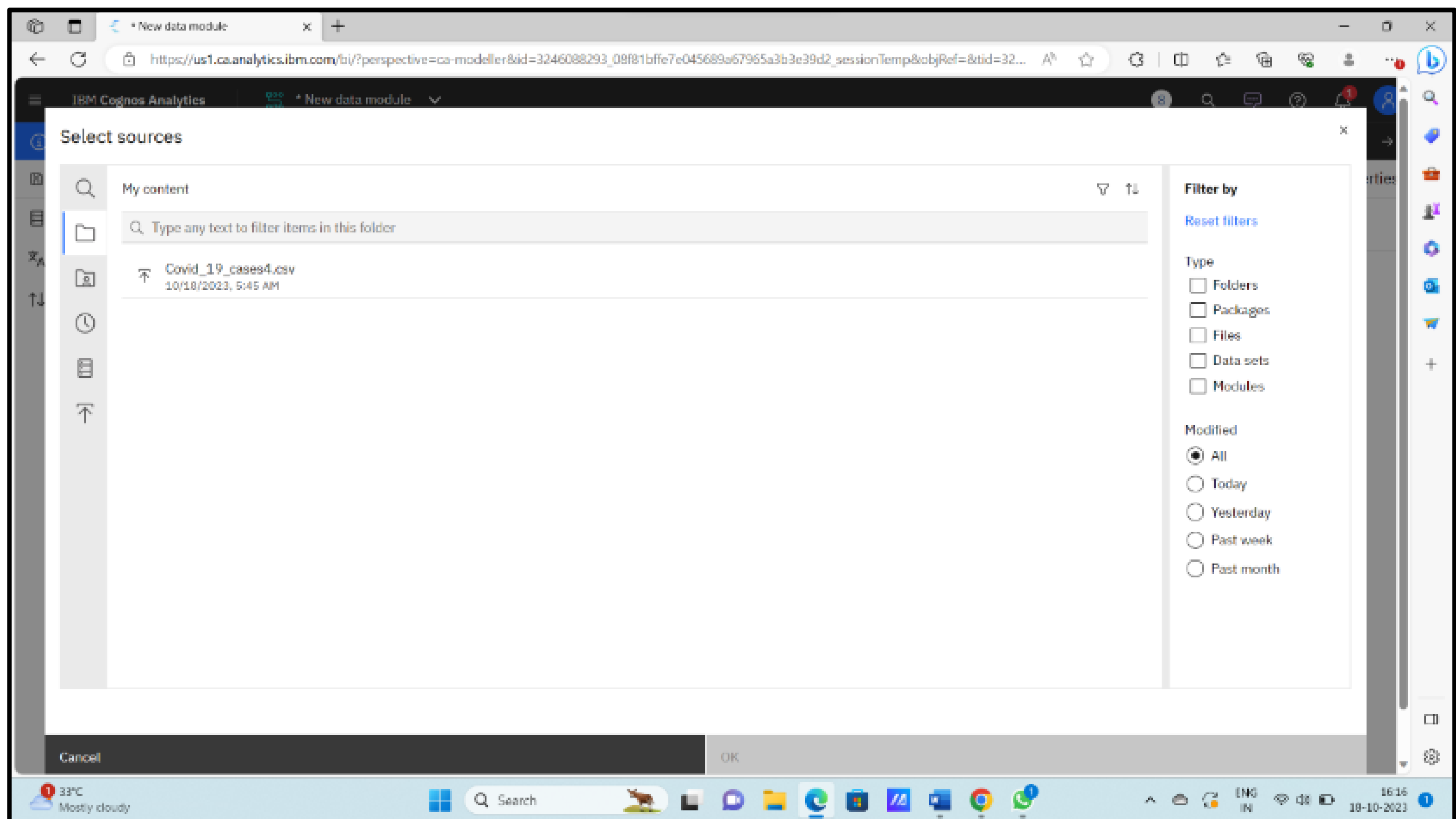Steps Involved in data loading on IBM cognos.

1. Login to your IBM cognos
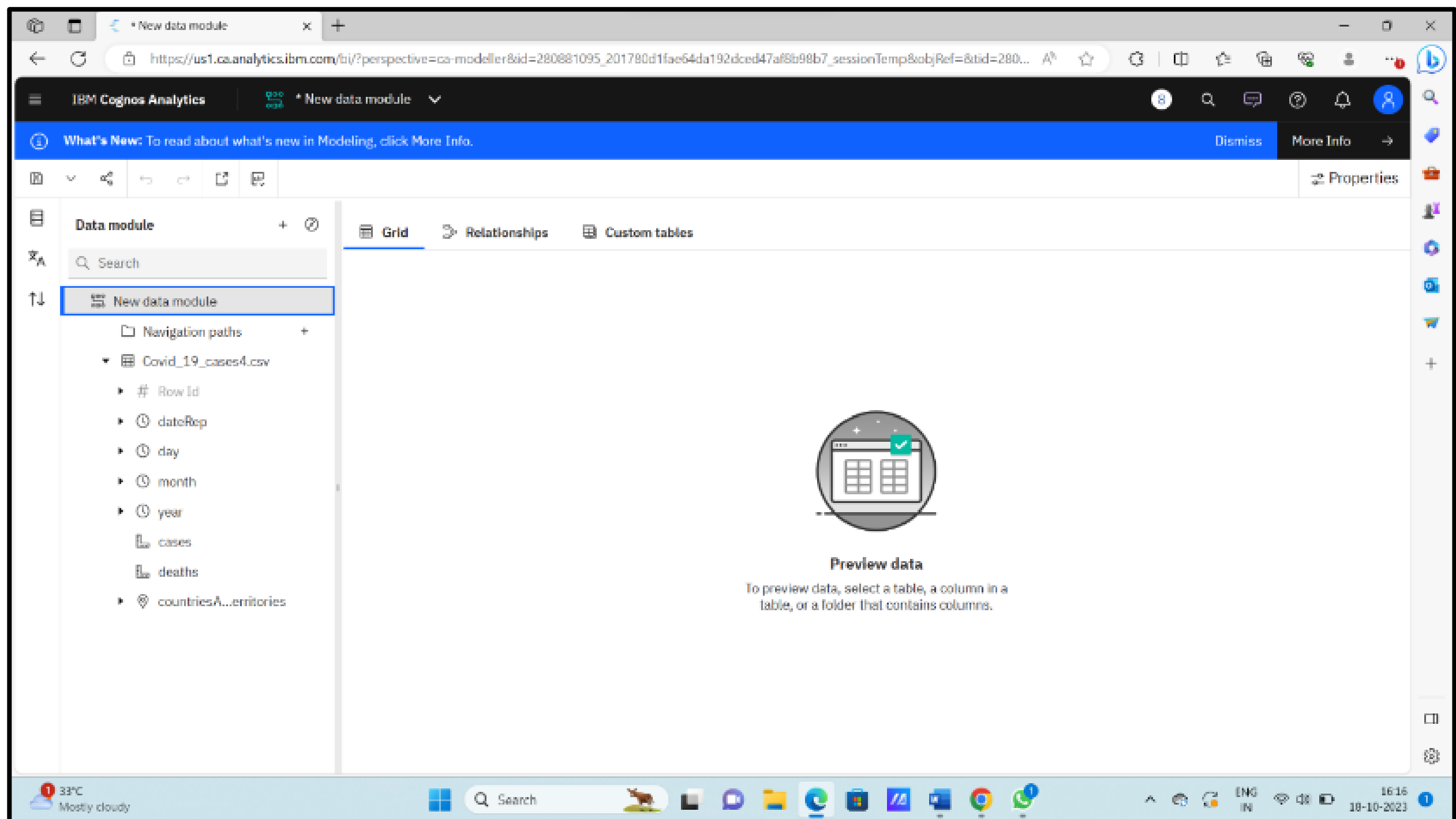
2. Click more menu from the left side

3. Select new tab

4. Click Data module tab

5. Upload the dataset for your project and select the Corresponding file

6. preview the data

7. Explore the data

8. save the data module

Data Preprocessing and Cleaning

In this phase the following steps will taken

- Handling missing data
- Data Transformation
- Data Type Conversion
- Removing Duplicates
- Dealing Outliers

Once you saved the data module. Click the corresponding dataset on IBM cognos and Preview the mosule

Right Click the row where you want to clean the data

It provides the UI to Clean the data and makes the task easy one, Now Updating and Replacing the Null values are simple

data module will be updated by doing the above process

after the completion of process start creating the dashboard for Visualization

Dashboard Creation

Dashboard creation are helpful to visualizing the data

1. Goto Home menu
2. Select the new tab
3. Click dashboard
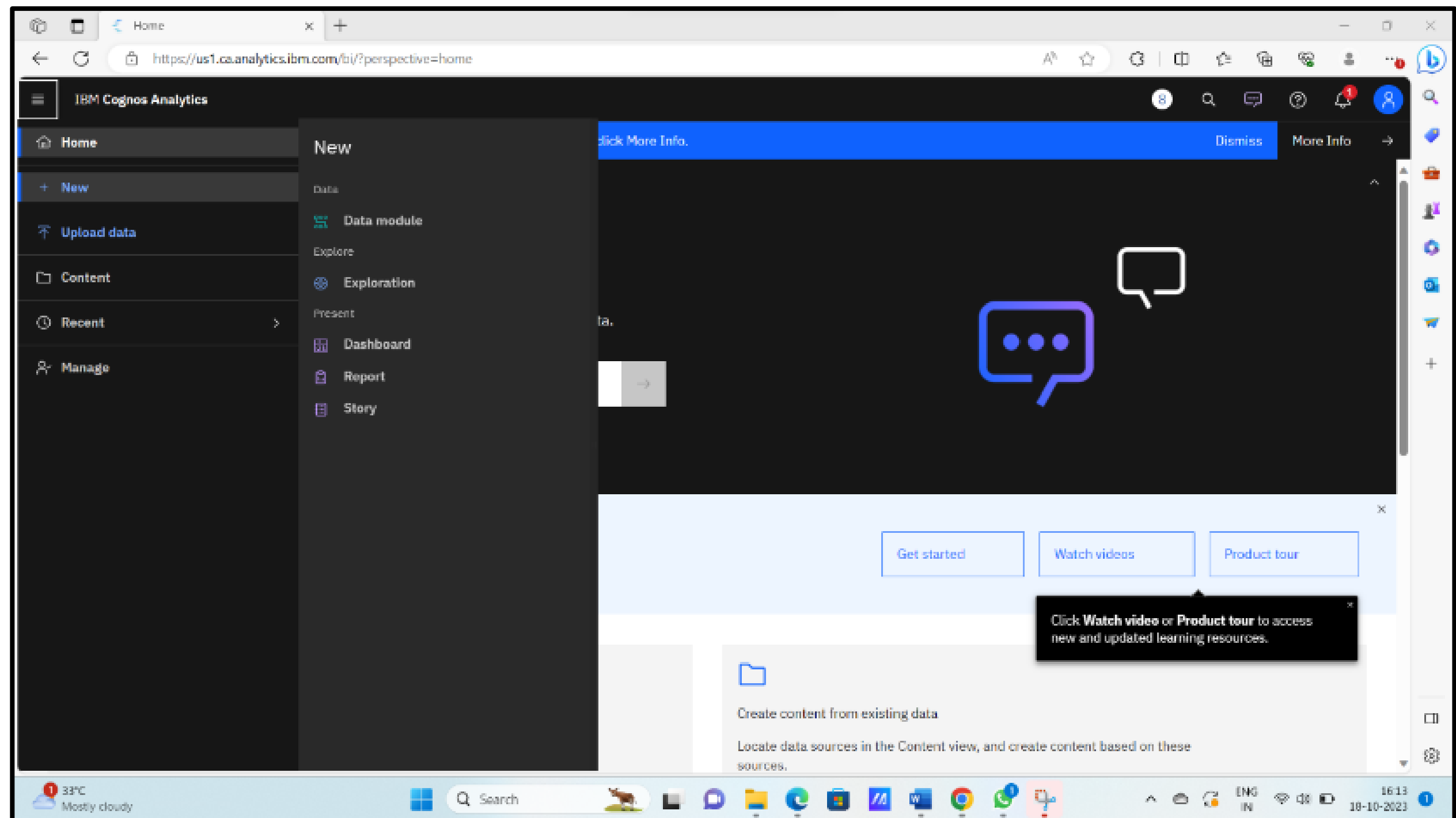
4. Choose the template for your project and click
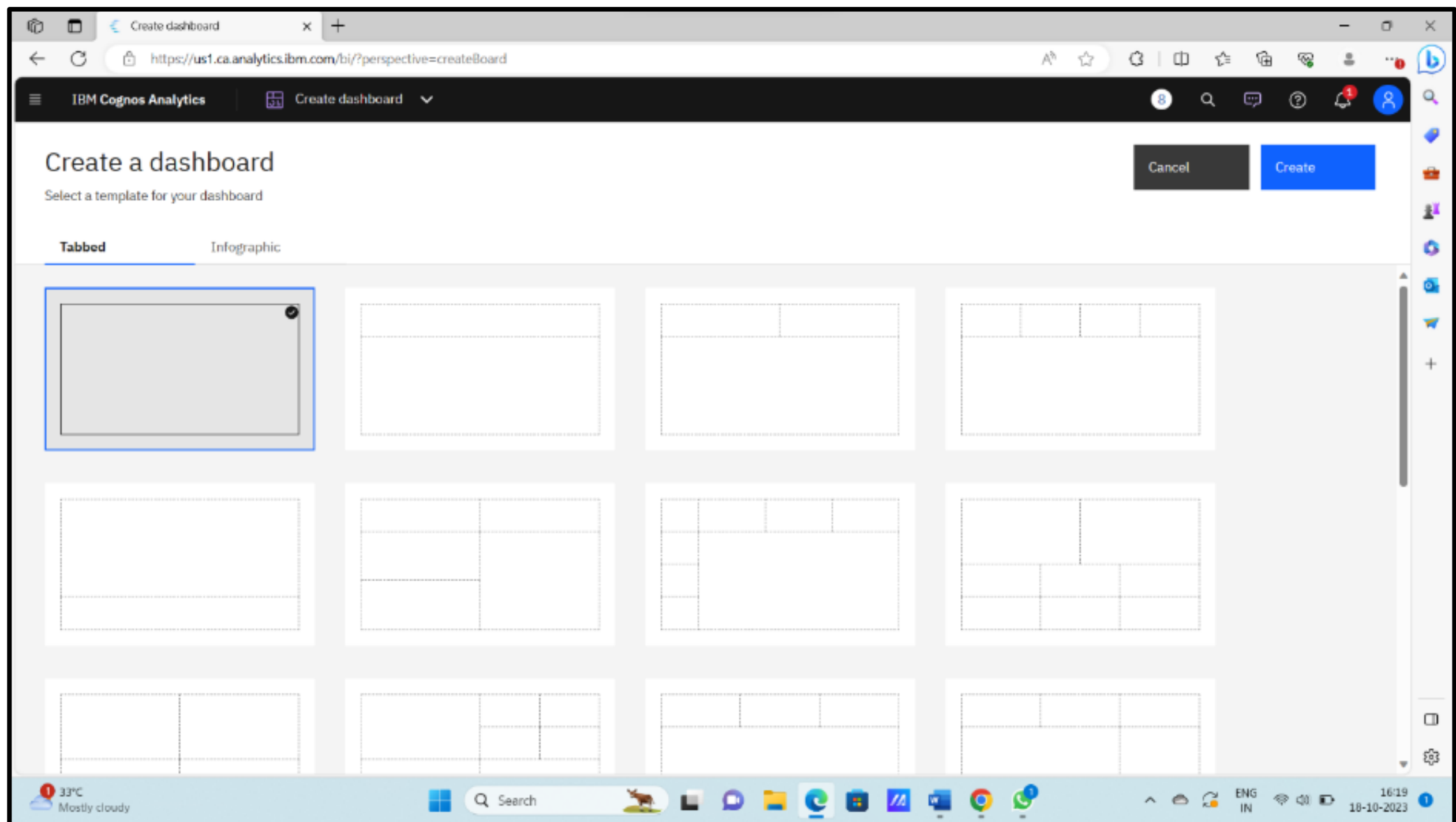
5.Now Dashboard is created
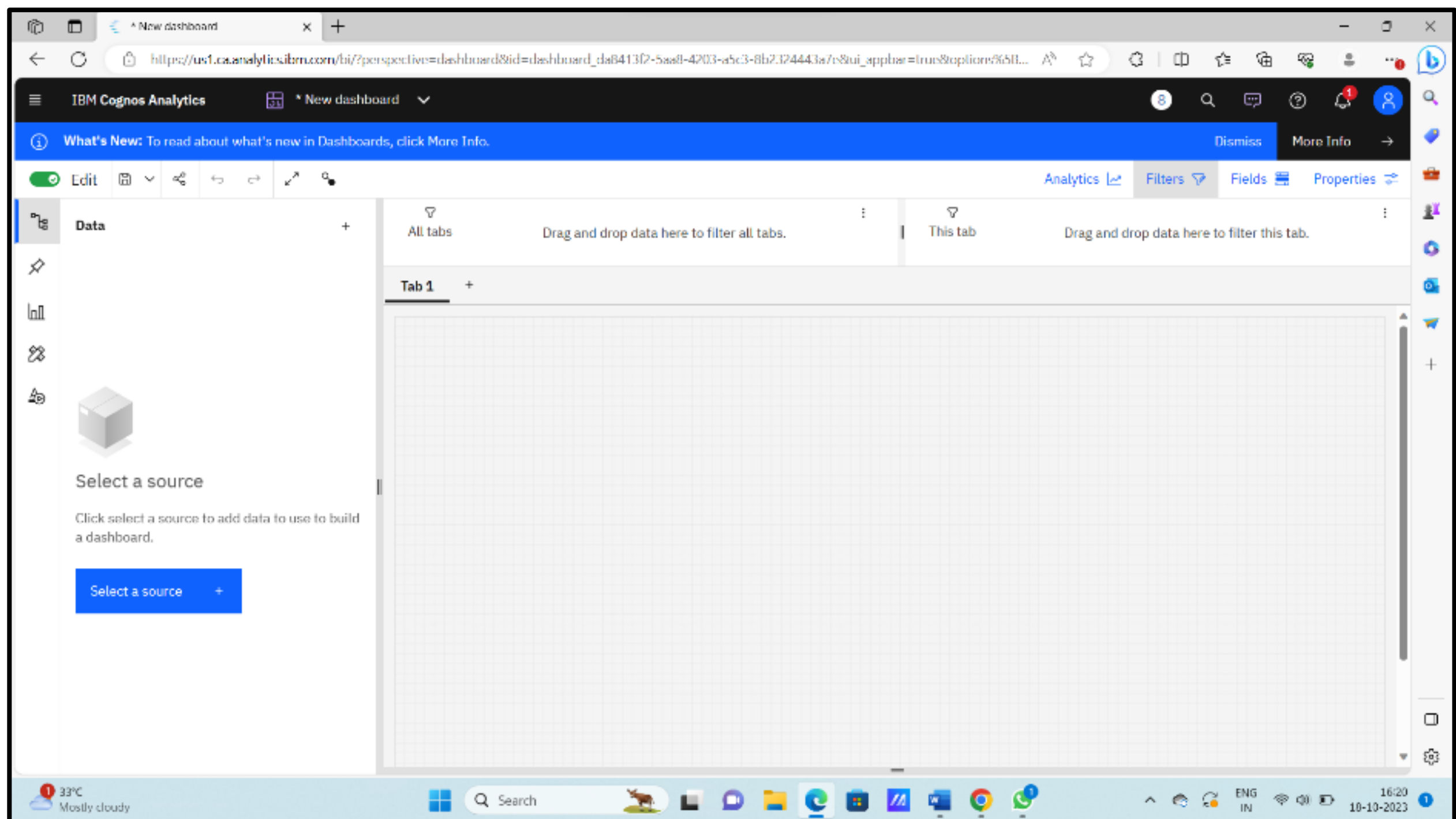
6. Select the data source
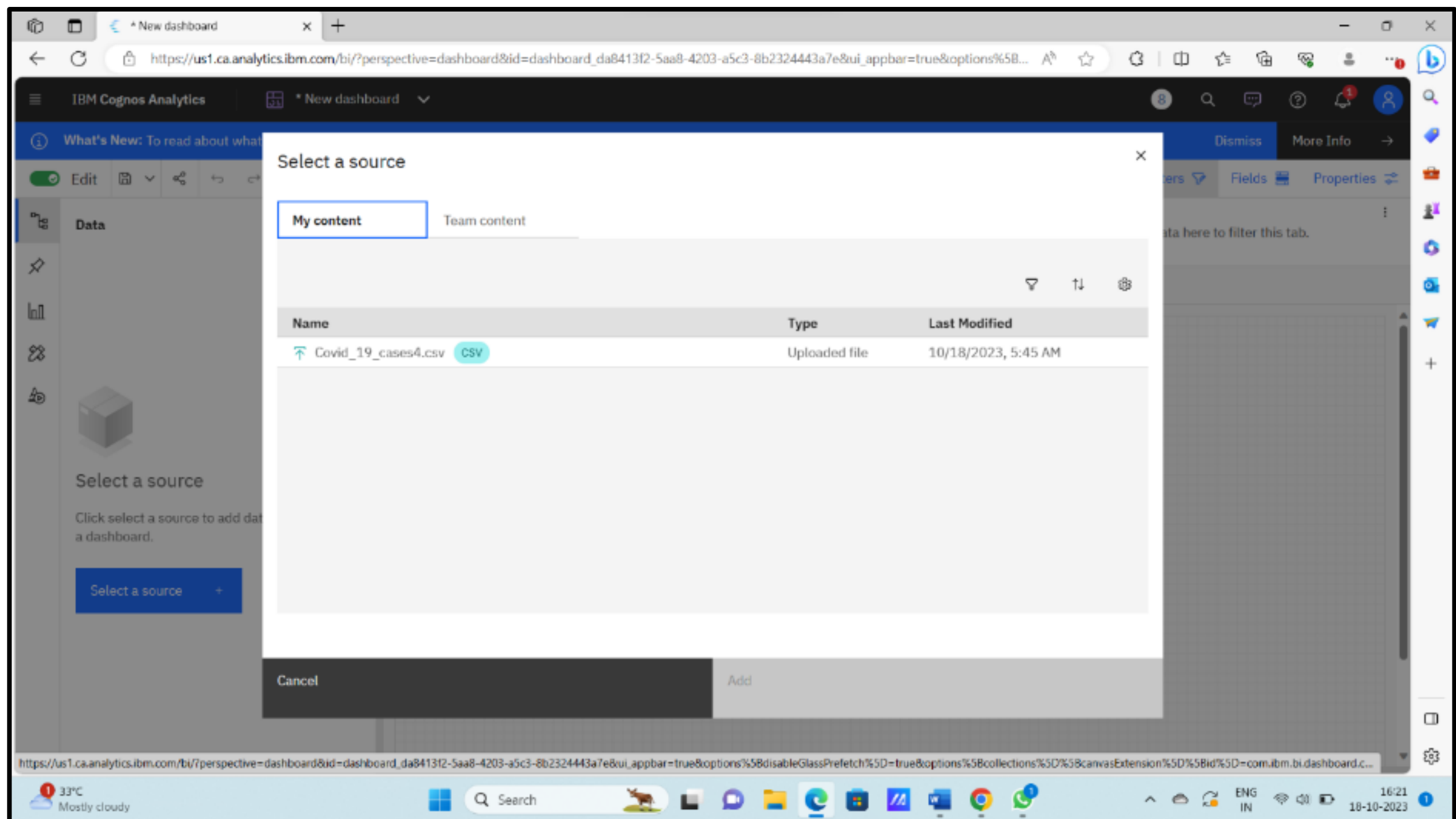
Visualization : After creating the dashboard, the next step is to visualize the data

In IBM Cognos

1. Goes to the Corresponding Dashboard

2. select the visualizations tab in the left side of title bar
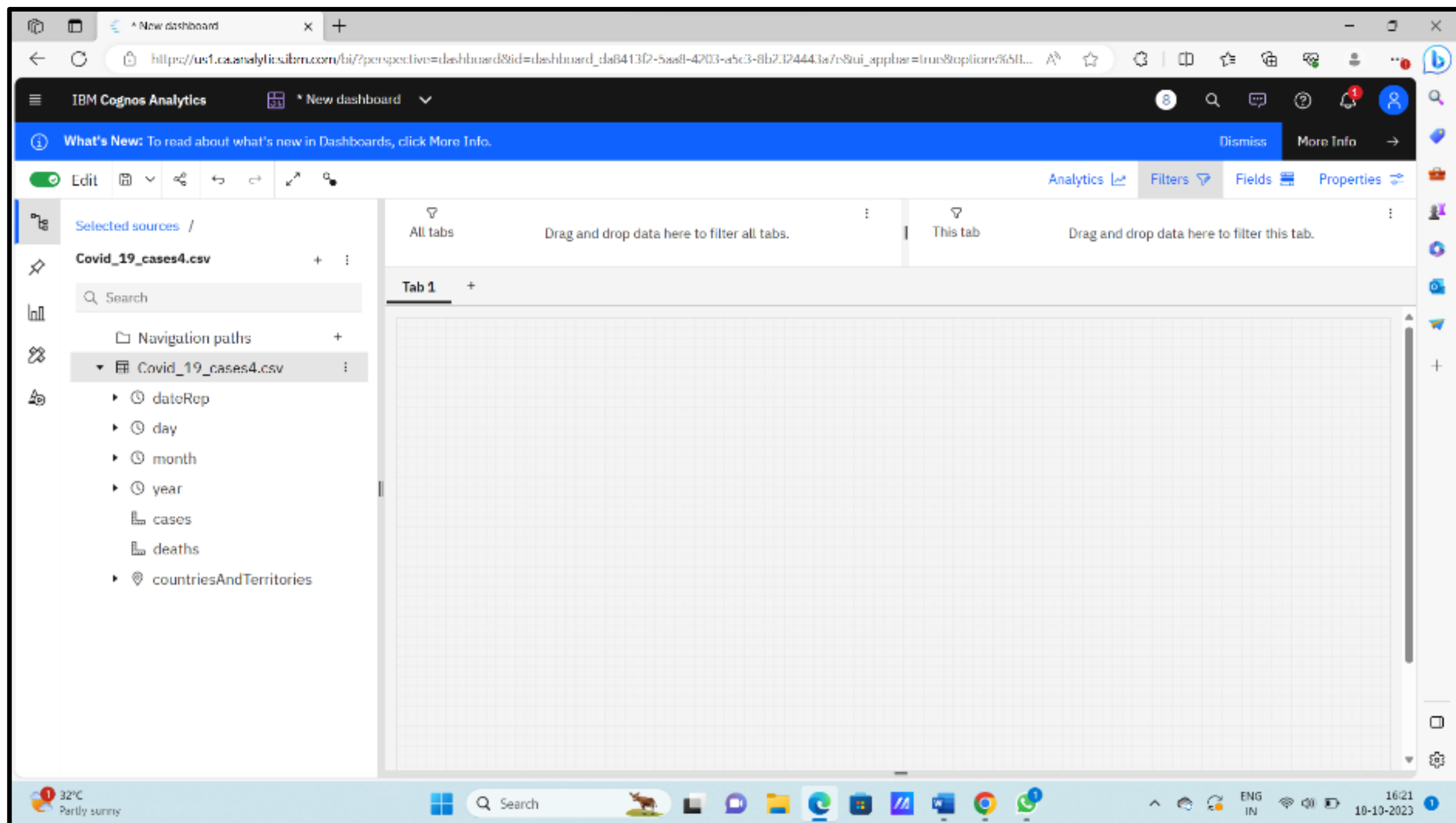
3.Choose the system as you want and put the data source for the required columns
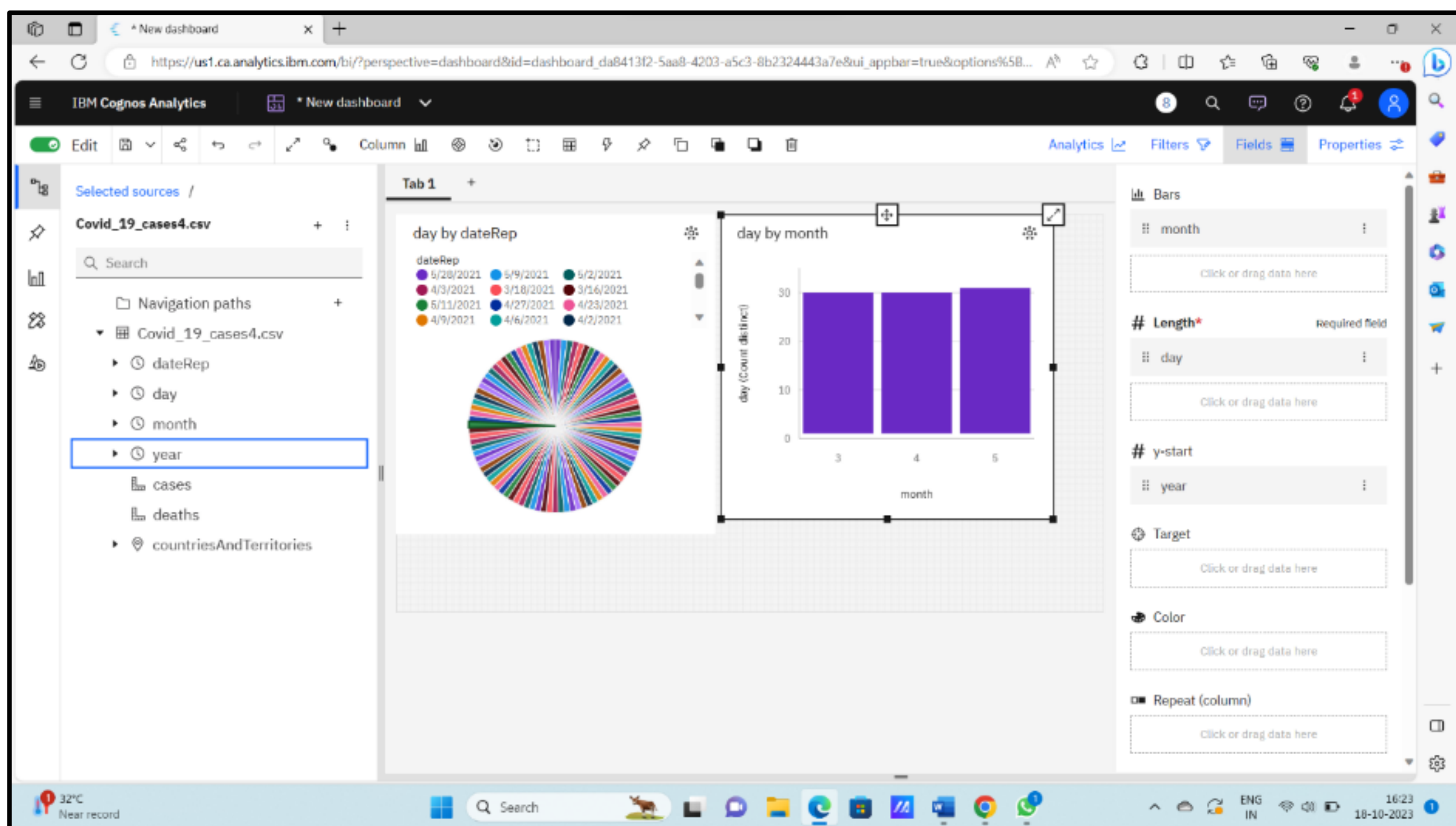
In the above screen shot displays the Pie chart and model compares the "day" and "month".

X-axis =day

Y-axis = month

After performing these activities a comprehensive document will be created to demonstrate the ability to Communicate and share finding.

7.Code:

```
mean                    20.522263              1257.040137
std                     28.378252              3534.312443
min                      0.000000                 0.000033
25%                      7.020000               630.000033
50%                     31.750000              2050.000033
75%                     62.080000              4882.000033
max                    122.270000            117497.000033
```

```
[7]: pd.to_datetime(data.date)
     data.country.value_counts()
```

```
[7]: country
     Norway                                          682
     Latvia                                          680
     Denmark                                         676
     United States                                   671
     Russia                                          670
                                                     ...
     Bonaire Sint Eustatius and Saba                 166
     Tokelau                                         114
     Saint Helena                                     93
     Pitcairn                                         85
     Falkland Islands                                 67
     Name: count, Length: 223, dtype: int64
```

```
[8]: data.vaccines.value_counts()
```

```
[8]: vaccines
     Johnson&Johnson, Moderna, Oxford/AstraZeneca, Pfizer/BioNTech
     7608
     Moderna, Oxford/AstraZeneca, Pfizer/BioNTech
     6363
     Oxford/AstraZeneca
     6022
     Oxford/AstraZeneca, Pfizer/BioNTech
     4636
     Johnson&Johnson, Moderna, Novavax, Oxford/AstraZeneca, Pfizer/BioNTech
     3964
                                                     ...
     Johnson&Johnson, Oxford/AstraZeneca, Sinovac
     312
     Moderna, Oxford/AstraZeneca, Pfizer/BioNTech, Sinovac, Sputnik V
     311
     Johnson&Johnson, Moderna
     291
     Johnson&Johnson, Pfizer/BioNTech, Sinopharm/Beijing
     228
```

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```
     SpcVacCorona, Oxford/AstraZeneca, QazVac, Sinopharm/Beijing, Sputnik V, ZF2001
     100
     Name: count, Length: 84, dtype: int64
```

```
[9]: df = data[['vaccines', 'country']]
     df.head()
```

```
[9]:                                           vaccines        country
     0  Johnson&Johnson, Oxford/AstraZeneca, Pfizer/Bi...  Afghanistan
     1  Johnson&Johnson, Oxford/AstraZeneca, Pfizer/Bi...  Afghanistan
     2  Johnson&Johnson, Oxford/AstraZeneca, Pfizer/Bi...  Afghanistan
     3  Johnson&Johnson, Oxford/AstraZeneca, Pfizer/Bi...  Afghanistan
     4  Johnson&Johnson, Oxford/AstraZeneca, Pfizer/Bi...  Afghanistan
```

```
[11]: dict_ = {}
      for i in df.vaccines.unique():
          dict_[i] = [df['country'][j] for j in df[df['vaccines']==i].index]

      vaccines = {}
      for key, value in dict_.items():
          vaccines[key] = set(value)
      for i, j in vaccines.items():
          print(f"{i} >>{j}")
```

```
Johnson&Johnson, Oxford/AstraZeneca, Pfizer/BioNTech,
Sinopharm/Beijing >>{'Cameroon', 'Afghanistan', 'Zambia', 'Trinidad and
Tobago', 'Belize'}
Oxford/AstraZeneca, Pfizer/BioNTech, Sinovac, Sputnik V >>{'Oman', 'Albania',
'Bosnia and Herzegovina', 'Azerbaijan'}
Oxford/AstraZeneca, Sinopharm/Beijing, Sinovac, Sputnik V>>{'Algeria',
'Zimbabwe'}
Moderna, Oxford/AstraZeneca, Pfizer/BioNTech>>{'Japan', 'Scotland', 'England',
'Sweden', 'Andorra', 'Fiji', 'Australia', 'Finland', 'Jersey', 'Isle of Man',
'Sint Maarten (Dutch part)', 'United Kingdom', 'Northern Ireland', 'Wales',
'Guernsey'}
Oxford/AstraZeneca >>{'Mali', 'Benin', 'Democratic Republic of Congo',
'Vanuatu', 'Pitcairn', 'Papua New Guinea', 'Montserrat', 'Falkland Islands',
'Angola', 'Kiribati', 'Sao Tome and Principe', 'Tuvalu', 'Togo', 'Nigeria',
'Tonga', 'Liberia', 'Nauru', 'Saint Vincent and the Grenadines', 'Solomon
Islands', 'Saint Helena'}
Oxford/AstraZeneca, Pfizer/BioNTech>>{'Anguilla', 'Cayman Islands', 'Costa
Rica', 'New Zealand', 'Kosovo', 'Bermuda', 'Saudi Arabia', 'Gibraltar', 'Saint
Kitts and Nevis', 'Panama', 'Saint Lucia'}
Oxford/AstraZeneca, Pfizer/BioNTech, Sputnik V >>{'Antigua and Barbuda'}
CanSino, Moderna, Oxford/AstraZeneca, Pfizer/BioNTech, Sinopharm/Beijing,
Sputnik V>>{'Argentina'}
Moderna, Oxford/AstraZeneca, Sinopharm/Beijing, Sinovac, Sputnik V>>{'Armenia'}
```

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```
Pfizer/BioNTech>>{'Monaco', 'Tokelau', 'Turks and Caicos Islands', 'Aruba',
'Niue', 'New Caledonia', 'Cook Islands'}
Johnson&Johnson, Moderna, Novavax, Oxford/AstraZeneca,
Pfizer/BioNTech>>{'Italy', 'Slovenia', 'Lithuania', 'South Korea', 'Czechia',
'Austria', 'Germany', 'Switzerland'}
Johnson&Johnson, Oxford/AstraZeneca, Pfizer/BioNTech>>{'Eswatini', 'Bahamas',
'Grenada'}
Johnson&Johnson, Moderna, Oxford/AstraZeneca, Pfizer/BioNTech,
Sinopharm/Beijing, Sputnik Light, Sputnik V>>{'Bahrain'}
Johnson&Johnson, Moderna, Oxford/AstraZeneca, Pfizer/BioNTech,
Sinopharm/Beijing, Sinovac>>{'Bangladesh'}
Oxford/AstraZeneca, Pfizer/BioNTech, Sinopharm/Beijing>>{'Dominica', 'Peru',
'Suriname', 'Barbados', 'Maldives'}
Sinopharm/Beijing, Sputnik V>>{'Belarus', 'Kyrgyzstan'}
Johnson&Johnson, Moderna, Oxford/AstraZeneca, Pfizer/BioNTech>>{'Estonia',
'Greece', 'Iceland', 'Poland', 'Romania', 'Bulgaria', 'Spain', 'Cyprus',
'Jamaica', 'Luxembourg', 'Croatia', 'Canada', 'France', 'Belgium', 'Portugal',
'Ireland', 'Malta'}
Johnson&Johnson, Oxford/AstraZeneca, Pfizer/BioNTech, Sinovac>>{'Benin',
'Brazil'}
Moderna, Oxford/AstraZeneca, Pfizer/BioNTech, Sinopharm/Beijing>>{'Cape Verde',
'Bhutan'}
Johnson&Johnson, Oxford/AstraZeneca, Pfizer/BioNTech, Sinopharm/Beijing, Sputnik
V>>{'Morocco', 'Cote d'Ivoire', 'Moldova', 'Bolivia'}
Moderna, Pfizer/BioNTech>>{'Qatar', 'Israel', 'Bonaire Sint Eustatius and
Saba', 'Faeroe Islands', 'Norway', 'Curacao'}
Novavax, Johnson&Johnson, Moderna, Oxford/AstraZeneca, Pfizer/BioNTech,
Sinovac>>{'Botswana'}
Johnson&Johnson, Oxford/AstraZeneca>>{'Malawi', 'British Virgin Islands',
'South Sudan'}
Johnson&Johnson, Oxford/AstraZeneca, Pfizer/BioNTech,
Sinopharm/Beijing>>{'Nepal', 'Brunei', 'Kuwait', 'Kenya'}
Johnson&Johnson, Oxford/AstraZeneca, Sinopharm/Beijing>>{'Mozambique',
'Zambia', 'Senegal', 'Lesotho', 'Burkina Faso', 'Madagascar', 'Gambia'}
Sinopharm/Beijing>>{'Burundi', 'Equatorial Guinea', 'Chad'}
Johnson&Johnson, Oxford/AstraZeneca, Sinopharm/Beijing, Sinovac>>{'Somalia',
'Cambodia'}
Novavax, Oxford/AstraZeneca>>{'Central African Republic'}
CanSino, Oxford/AstraZeneca, Pfizer/BioNTech, Sinovac>>{'Chile', 'Ecuador'}
CanSino, Sinopharm/Beijing, Sinopharm/Wuhan, Sinovac, ZF2001>>{'China'}
Johnson&Johnson, Moderna, Oxford/AstraZeneca, Pfizer/BioNTech,
Sinovac>>{'Ukraine', 'Uganda', 'Colombia'}
Novavax, Oxford/AstraZeneca, Sinopharm/Beijing, Sinopharm/Beijing, Sputnik V>>{'Congo'}
Moderna, Oxford/AstraZeneca, Sinopharm/Beijing, Sputnik V>>{'Congo'}
Abdala, Soberana Plus, Soberana02>>{'Cuba'}
Johnson&Johnson, Moderna, Pfizer/BioNTech>>{'Liechtenstein', 'Switzerland',
'United States', 'Denmark'}
Johnson&Johnson, Oxford/AstraZeneca, Pfizer/BioNTech, Sinopharm/Beijing,
```

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```
import plotly.express as px
import plotly.offline as py

vaccine_map = px.choropleth(data, locations = 'iso_code', color = 'vaccines')
vaccine_map.update_layout(height=500, margin={"r":0,"t":0,"l":0,"b":0})
vaccine_map.show()
```

Conclusion :

In conclusion, Cognos Analysis has proven to be an invaluable asset in our ongoing fight against COVID-19. This powerful tool has enabled us to dissect complex data, revealing critical insights into the virus's spread, its impact on diverse demographics, and the effectiveness of containment measures and vaccination efforts. By harnessing the capabilities of Cognos Analysis, we are better equipped to make data-driven decisions, allocate resources efficiently, and navigate the challenges posed by the pandemic with greater precision. As we continue to leverage this technology, we move closer to a world where the impact of COVID-19 is minimized, and our communities are better protected.