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Course: **ECE3502: IoT Domain Analyst** Date: March 6, 2022

Reg No: 19BEE0167

1 Problem 1

Create the interactive dashboard using python. Use CSV file Vgsales to interactively display various charts like bar, pie etc to illustrate the interactive display. Implement this for covid-19 cases using your own CSV file.

2 Python Code

```
# Importing all the necessary libraries
import dash
import pandas as pd
import plotly.express as px

from dash import html
from dash import dcc
from dash.dependencies import Input, Output

df=pd.read_csv("C:/Users/iwill/Desktop/VIT/Semester 6/IoT Lab/Lab 5/vgsales.csv")
print(df[:5])  # to display first 5 data
```

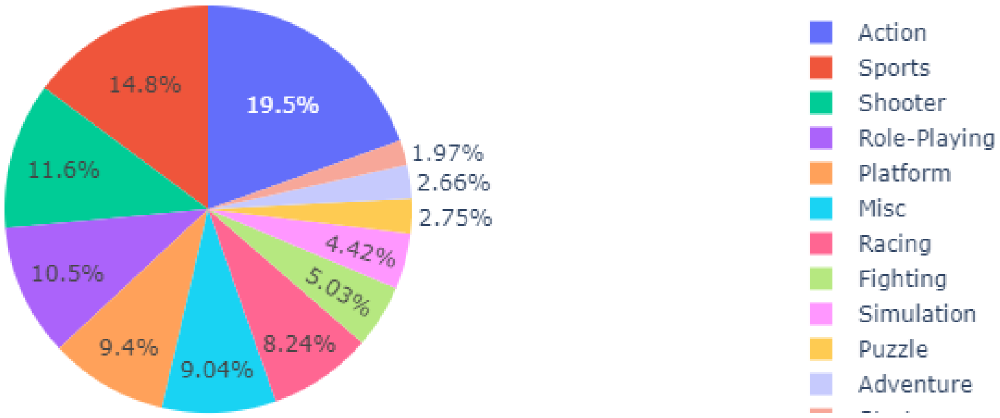
2.1 Code output

```
    Rank              Name Platform  Year     Genre   Publisher  NA_Sales  \
0    259         Asteroids     2600  1980   Shooter       Atari      4.00
1    545  Missile Command     2600  1980   Shooter       Atari      2.56
2   1768           Kaboom!     2600  1980      Misc  Activision      1.07
3   1971          Defender     2600  1980      Misc       Atari      0.99
4   2671            Boxing     2600  1980  Fighting  Activision      0.72

   EU_Sales  JP_Sales  Other_Sales  Global_Sales
0      0.26       0.0         0.05          4.31
1      0.17       0.0         0.03          2.76
2      0.07       0.0         0.01          1.15
3      0.05       0.0         0.01          1.05
4      0.04       0.0         0.01          0.77
```

3 Python Code

```
fig_pie=px.pie(data_frame=df, names="Genre", values="Global_Sales")
fig_pie.show()
```

3.1 Code output



4 Python Code

```
print(sorted(df.Year.unique()))
print(df.Genre.nunique())
print(df.Genre.unique())
print(len(df.Genre.unique()))
```

4.1 Code output

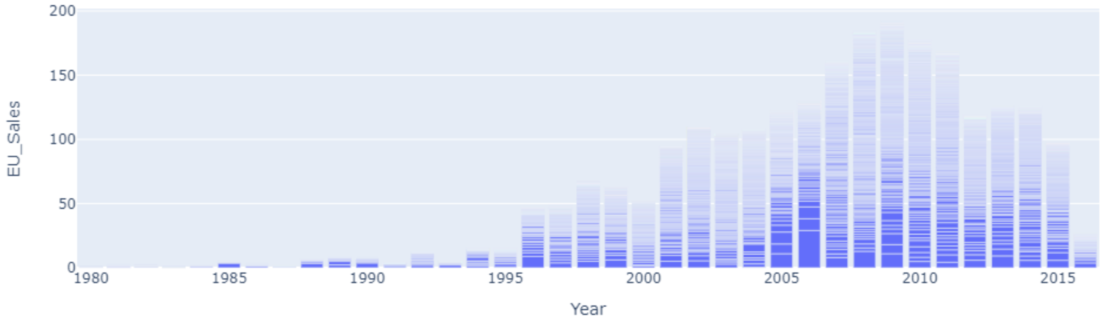
```
[1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994,
1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009,
2010, 2011, 2012, 2013, 2014, 2015, 2016]
12
['Shooter' 'Misc' 'Fighting' 'Sports' 'Action' 'Platform' 'Puzzle'
 'Racing' 'Simulation' 'Adventure' 'Role-Playing' 'Strategy']
12
```

5 Python Code

```
print(df.columns)   #To check the column headings

fig_bar = px.bar(data_frame=df,x="Year", y="EU_Sales")
fig_bar.show()
```

5.1 Code output

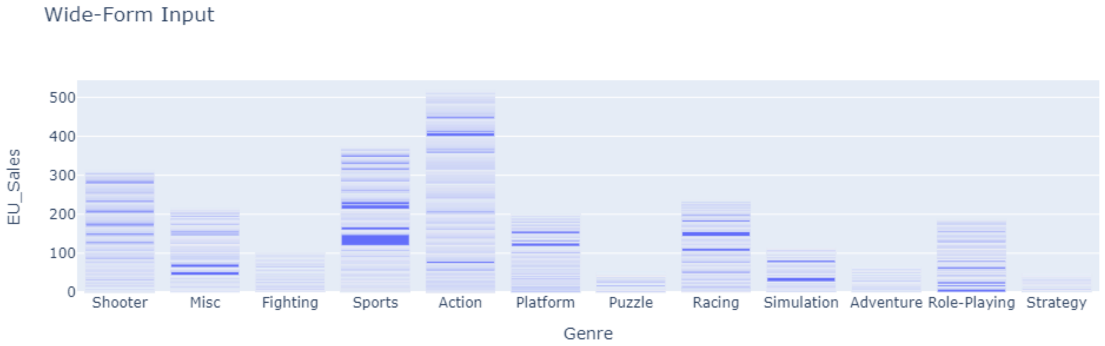
```
Index(['Rank', 'Name', 'Platform', 'Year', 'Genre', 'Publisher', 'NA_Sales',
       'EU_Sales', 'JP_Sales', 'Other_Sales', 'Global_Sales'],
      dtype='object')
```



6 Python Code

```
fig_bar = px.bar(data_frame=df,x="Genre", y="EU_Sales",title="Wide-Form Input")
fig_bar.show()
```

6.1 Code output



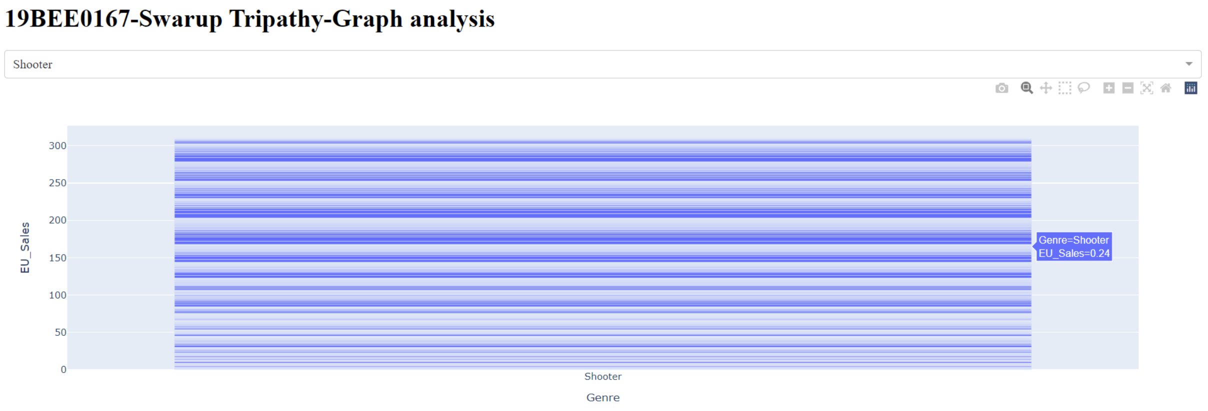
7 Final Python Code on DASH application

```
################################################################################
################ GRAPHS BEING DISPLAYED FOR EVERY GENRE ########################
################################################################################

import dash
import plotly.express as px
import pandas as pd
from dash import html
from dash import dcc
from dash.dependencies import Input, Output

# import dash_core_components as dcc
# import dash_html_components as html

df = pd.read_csv("C:/Users/iwill/Desktop/VIT/Semester 6/IoT Lab/Lab 5/vgsales.csv")
```

```
# print(df[:5])
# print(df.loc[:5,["Global_Sales"]])

gen = df.Genre.unique()

app = dash.Dash(__name__)
app.layout=html.Div([
    html.H1("19BEE0167-Swarup Tripathy-Graph analysis"),
    dcc.Dropdown(
        id='Genre-choice',
        options =[{'label':x,'value':x} for x in gen],
        value=gen[0],
        clearable=False),
    dcc.Graph(id="bar-chart")
])

@app.callback(
    Output(component_id="bar-chart", component_property='figure'),
    Input(component_id='Genre-choice', component_property='value')
)

def interactive_graphing(Genre):
    mask = df["Genre"] == Genre
    fig = px.bar(df[mask],x="Genre", y="EU_Sales")
    # print(value_Genre)
    return fig

if __name__=='__main__':
    app.run_server()
```

7.1 Code output

```
Dash is running on http://127.0.0.1:8050/

Dash is running on http://127.0.0.1:8050/

 * Serving Flask app '__main__' (lazy loading)
 * Environment: production
   WARNING: This is a development server. Do not use it in a production deployment.
   Use a production WSGI server instead.
 * Debug mode: off
```



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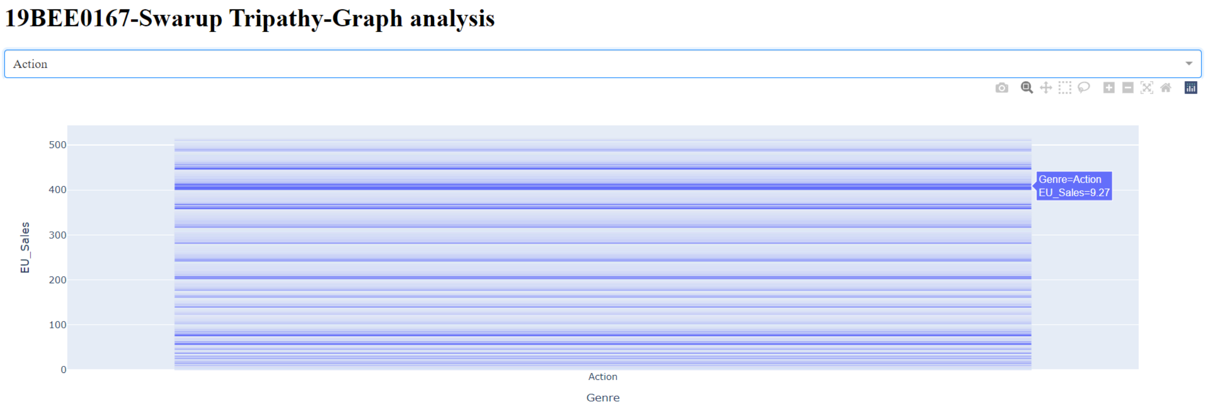
Shooter



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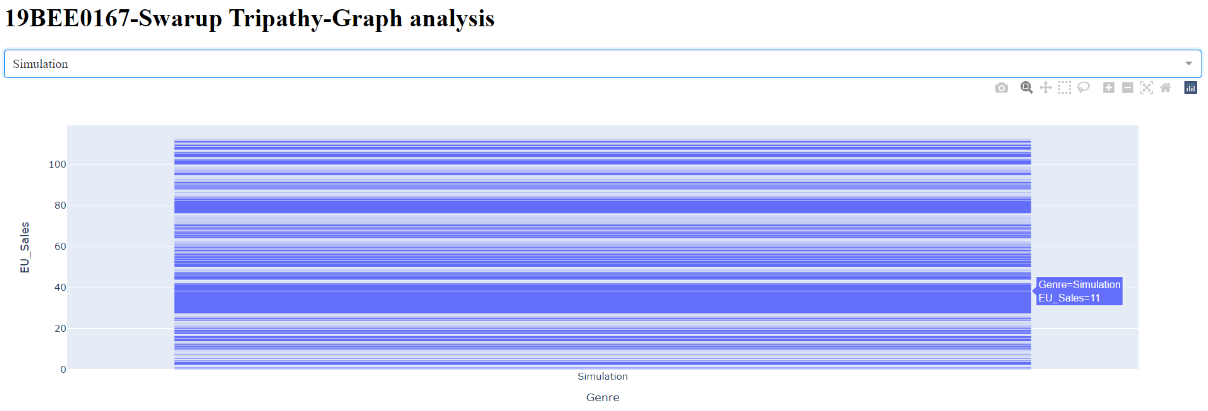
Action



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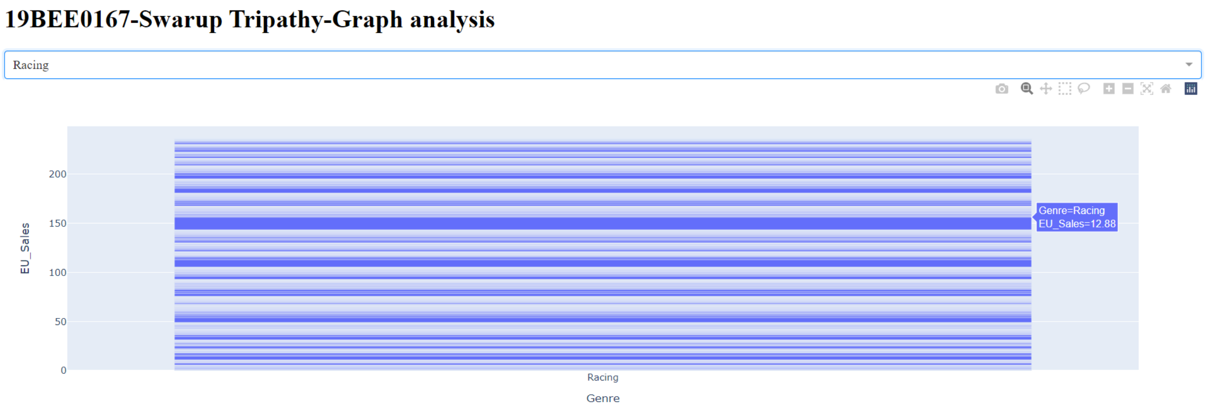
Simulation



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Racing

Similarly, we get the plots for other genres as well being updated when we select our specific genre from the dropdown.

For Covid 19 data taken from Kaggle Dataset csv

8 Python Code

```
import dash
import pandas as pd
import plotly.express as px

from dash import html
from dash import dcc
from dash.dependencies import Input, Output

df=pd.read_csv("C:/Users/iwill/Desktop/VIT/Semester 6/IoT Lab/Lab 5/covid_19_india.csv")
print(df)
print("#################################################################################")
print(df[:5])  # to display first 5 data
```

8.1 Code output

```
         Sno        Date     Time          State ConfirmedIndianNational  \
0          1  30-01-2020  6:00 PM         Kerala                       1
1          2  31-01-2020  6:00 PM         Kerala                       1
2          3  01-02-2020  6:00 PM         Kerala                       2
3          4  02-02-2020  6:00 PM         Kerala                       3
4          5  03-02-2020  6:00 PM         Kerala                       3
...      ...         ...      ...            ...                     ...
18105  18106  11-08-2021  8:00 AM      Telangana                       -
18106  18107  11-08-2021  8:00 AM        Tripura                       -
18107  18108  11-08-2021  8:00 AM    Uttarakhand                       -
18108  18109  11-08-2021  8:00 AM  Uttar Pradesh                       -
18109  18110  11-08-2021  8:00 AM    West Bengal                       -

      ConfirmedForeignNational    Cured Deaths  Confirmed
0                            0        0      0          1
1                            0        0      0          1
2                            0        0      0          2
3                            0        0      0          3
4                            0        0      0          3
...                        ...      ...    ...        ...
18105                        -   638410   3831     650353
18106                        -    77811    773      80660
18107                        -   334650   7368     342462
18108                        -  1685492  22775    1708812
18109                        -  1506532  18252    1534999

[18110 rows x 9 columns]
#################################################################################
   Sno        Date     Time  State ConfirmedIndianNational  \
0    1  30-01-2020  6:00 PM  Kerala                       1
1    2  31-01-2020  6:00 PM  Kerala                       1
2    3  01-02-2020  6:00 PM  Kerala                       2
```

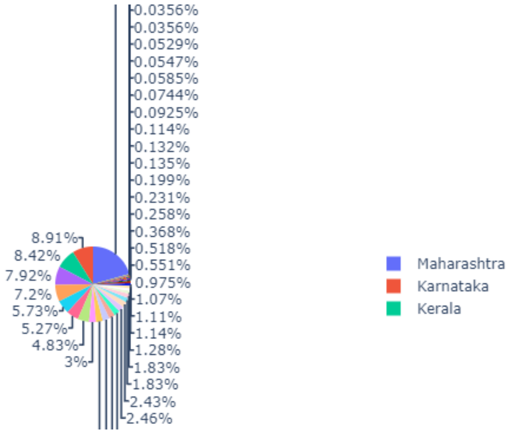
```
3    4  02-02-2020  6:00 PM  Kerala                      3
4    5  03-02-2020  6:00 PM  Kerala                      3

  ConfirmedForeignNational  Cured  Deaths  Confirmed
0                        0      0       0          1
1                        0      0       0          1
2                        0      0       0          2
3                        0      0       0          3
4                        0      0       0          3
```

9 Python Code

```
fig_pie=px.pie(data_frame=df, names="State", values="Confirmed")
fig_pie.show()
```

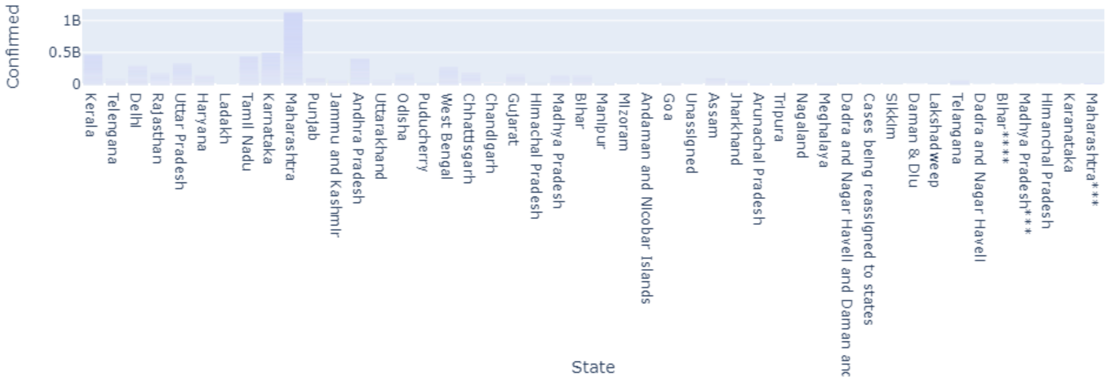
9.1 Code output



10 Python Code

```
fig_bar = px.bar(data_frame=df,x="State", y="Confirmed")
fig_bar.update_traces(textfont_size=12, textangle=0, textposition="outside", cliponaxis=False)
fig_bar.show()
```

10.1 Code output



11 Final Python Code on DASH application

```
import dash
import plotly.express as px
import pandas as pd
from dash import html
from dash import dcc
from dash.dependencies import Input, Output

# import dash_core_components as dcc
# import dash_html_components as html

df = pd.read_csv("C:/Users/iwill/Desktop/VIT/Semester 6/IoT Lab/Lab 5/covid_19_india.csv")


gen = df.State.unique()

app = dash.Dash(__name__)
app.layout=html.Div([
    html.H1("19BEE0167-Swarup Tripathy-Graph analysis for COVID-19"),
    dcc.Dropdown(
        id=’State-choice’,
        options =[{’label’:x,’value’:x} for x in gen],
        value=gen[0],
        clearable=False),
    dcc.Graph(id="bar-chart")
])

@app.callback(
    Output(component_id="bar-chart", component_property=’figure’),
    Input(component_id=’State-choice’, component_property=’value’)
)

def interactive_graphing(State):
    mask = df["State"] == State
    fig = px.histogram(df[mask],x="Date", y="Confirmed")
    # print(value_Genre)
    return fig

if __name__==’__main__’:
    app.run_server()
```

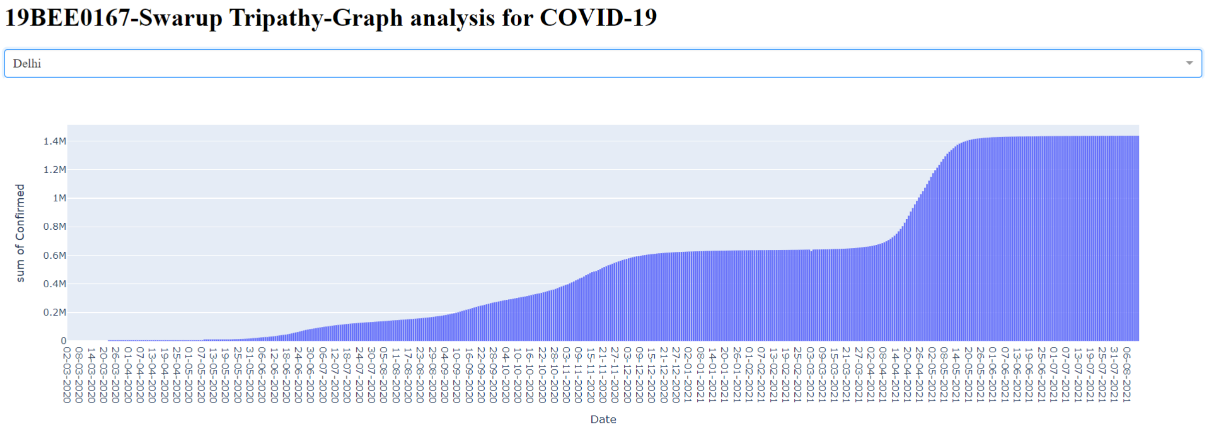
11.1 Code output

```
Dash is running on http://127.0.0.1:8050/

Dash is running on http://127.0.0.1:8050/

 * Serving Flask app ’__main__’ (lazy loading)
 * Environment: production
   WARNING: This is a development server. Do not use it in a production deployment.
```

```
  Use a production WSGI server instead.
* Debug mode: off
```



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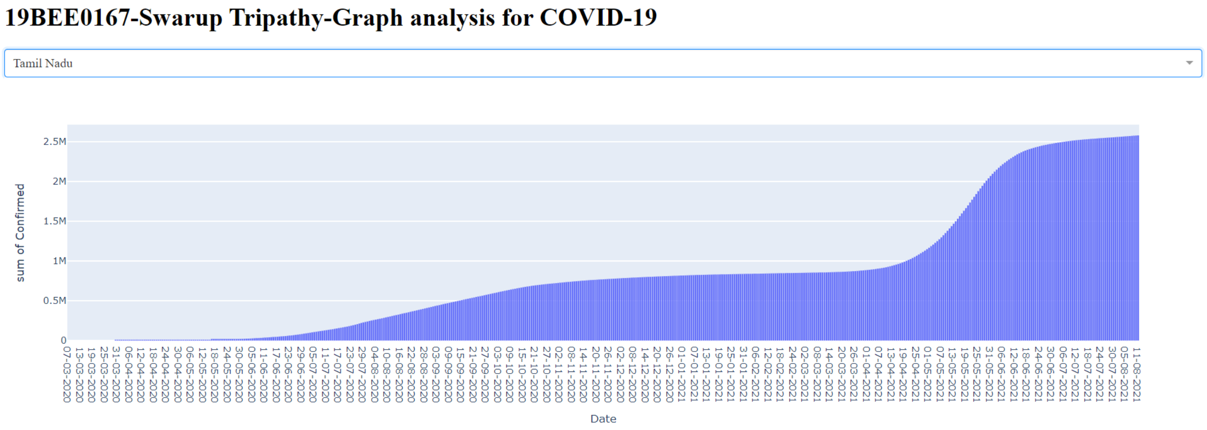
Delhi



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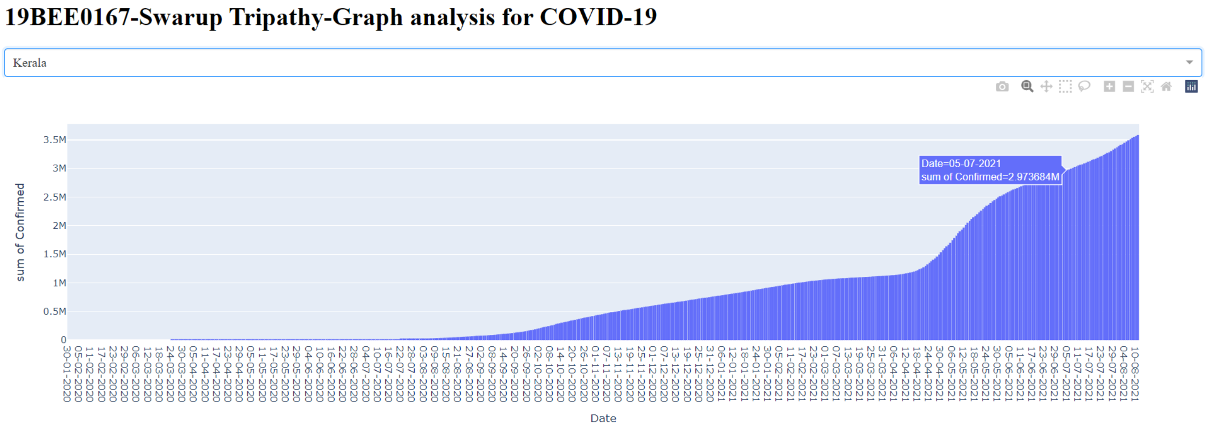
Tamil Nadu



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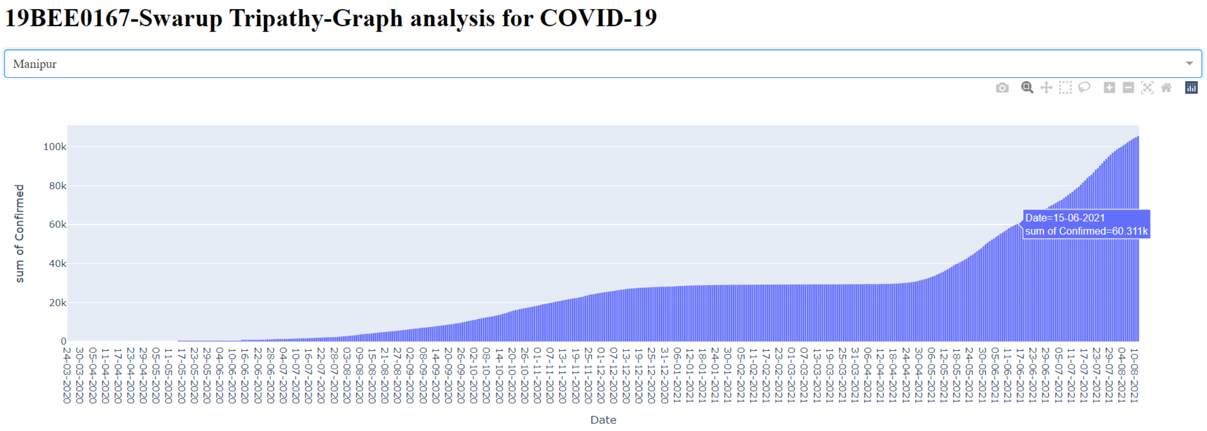
Kerala



19BEE0167-Swarup Tripathy-Graph analysis for COVID-19

Manipur

Similarly, we get the plots for other genres as well being updated when we select our specific genre from the dropdown.