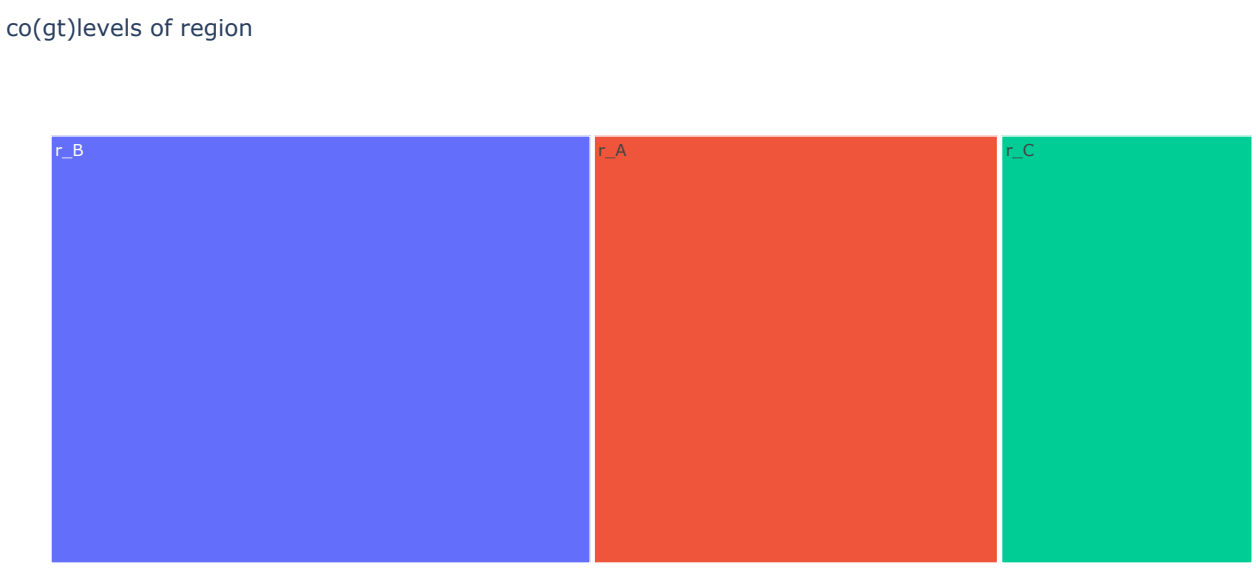
```
#filter
import pandas as pd
data={
"date":["14/03/2004","15/03/2004","16/03/2004","17/03/2004","18/03/2004"],
"time":["01.00.00","02.00.00","03.00.00","04.00.00","05.00.00"],
"co(gt)":[2.8,2.5,3.0,2.2,2.7]
}
df=pd.DataFrame(data)
start_date="14/03/2004"
end_date="16/03/2004"
min_co_level=2.5
df["date"]=pd.to_datetime(df["date"],format="%d/%m/%Y")
filtered_df=df[(df["date"]>=start_date)&(df["date"]<=end_date)&(df["co(gt)"]>=min_co_level)]
print(filtered_df)
```

```
        date      time  co(gt)
0 2004-03-14  01.00.00     2.8
1 2004-03-15  02.00.00     2.5
2 2004-03-16  03.00.00     3.0
<ipython-input-8-a83cf152d7b6>:12: UserWarning:

Parsing dates in DD/MM/YYYY format when dayfirst=False (the default) was specified. This may lead to inconsistently parsed dates!
```

```
#treeemap
import pandas as pd
import plotly.express as px
data={"region":["r_A","r_B","r_C"],
      "co(gt)":[2.4,3.2,1.5],
      "no2(gt)":[25,30,22],
      "pto8.s5(o3)":[300,350,180]
      }
df=pd.DataFrame(data)
fig=px.treemap(df,path=["region"],values="co(gt)",title="co(gt)levels of region")
fig.show()
```



```
#trend line
import pandas as  pd
import  seaborn as sns
import matplotlib.pyplot as plt
data={"date":["2023-01-01","2023-01-02","2023-01-03","2023-01-04","2023-01-05"],
      "co(gt)":[2.8,3.2,2.5,2.7,3.0]
      }
df=pd.DataFrame(data)
df["date"]=pd.to_datetime(df["date"])
plt.figure(figsize=(10,6))
sns.set_theme(style="darkgrid")
sns.lineplot(x="date",y="co(gt)",data=df,marker="o")
plt.title("co(gt)trend over time")
plt.xlabel("date")
plt.ylabel("co(gt)level")
plt.xticks(rotation=45)
plt.tight_layout()
plt.show()
```


```
#Drawing Quick Report
import pandas as pd
data={"Date":["2023-01-01","2023-01-02","2023-01-03","2023-01-04","2023-01-05"],"CO(GT)":[2.8,3.2,2.5,2.7,3.0],"NO2(GT)":[25,30,22,28
df=pd.DataFrame(data)
co_mean=df["CO(GT)"].mean()
no2_mean=df["NO2(GT)"].mean()
o3_mean=df["PTO8.S5(O3)"].mean()
report="Air Quality Report \n"
report+="----------\n"
report+=f"Average CO(GT) level :{co_mean:2f}\n"
report+=f"Average NO2(GT) level :{no2_mean:2f}\n"
report+=f"Average o3 level :{o3_mean:2f}\n"
print(report)
```

```
Air Quality Report
----------
Average CO(GT) level :2.840000
Average NO2(GT) level :27.400000
Average o3 level :322.000000
```