

Weather & Temperature Analysis Module

```
import pandas as pd

import matplotlib.pyplot as md

weather=pd.read_csv("weather.csv")

print(weather)

print(weather.isnull().sum())

print(weather.notnull())

print(weather.dropna())

print(weather.dropna(axis=1))

print(weather.dropna(axis=0,how='all'))

print(weather.dropna(how='any'))

weather['tavg']=weather['tavg'].fillna(weather['tavg'].mean())

print(weather.isnull().sum())

weather['tmin']=weather['tmin'].fillna(weather['tmin'].mean())

print(weather.isnull().sum())

weather['tmax']=weather['tmax'].fillna(weather['tmax'].mean())

print(weather.isnull().sum())

weather['time']=pd.to_datetime(weather['time'],format="%d-%m-%Y")

weather['year']=weather['time'].dt.year

print(weather)

weather['time']=pd.to_datetime(weather['time'],format="%d-%m-%Y")

weather['month']=weather['time'].dt.month

print(weather)

yearly=weather.groupby("year")["tavg"].count()

print(yearly)

yearly=weather .groupby("year")["tavg"].mean().reset_index()

print(yearly)

md.figure(figsize=(10,5))
```

```
md.plot(yearly["year"],yearly["tavg"],marker='o',color='blue',linestyle='-')

md.show()
```

output

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS C:\Users\MISBA T\Desktop\python_datascience_projects\week2> & "C:/Users/MISBA T/AppData/Local/Programs/Python/Python313/python.exe" "c:/Users/MISBA T/Desktop/python_datascience_projects/week2/index.py"

   time  tavg  tmin  tmax  prcp
0  01-01-1990  22.9  19.1  28.4   NaN
1  02-01-1990  21.7   NaN  26.5     0
2  03-01-1990  21.0  16.4  26.5     0
3  04-01-1990  20.8   NaN  27.4    0y
4  05-01-1990  20.4  14.2  26.1     0
...      ...   ...   ...   ...
11889 21-07-2022  23.7  20.5  30.8  82.5
11890 22-07-2022  23.2  21.1  27.9     0
11891 23-07-2022  23.1  20.9  26.7     0
11892 24-07-2022  22.8  20.0  26.7   0.3
11893 25-07-2022  24.1  20.2  28.5   0.5

[11894 rows x 5 columns]
time      0
tavg      70
tmin     1389
tmax      629
prcp     4620
dtype: int64
   time  tavg  tmin  tmax  prcp
0  True  True  True  True  False
1  True  True  False  True  True
2  True  True  True  True  True
3  True  True  False  True  True
4  True  True  True  True  True
...   ...   ...   ...   ...
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Python + - [ ] [X] ... | X

dtype: int64
   time  tavg  tmin  tmax  prcp
0    True  True  True  True  False
1    True  True  False  True  True
2    True  True  True  True  True
3    True  True  False  True  True
4    True  True  True  True  True
...
11889  True  True  True  True  True
11890  True  True  True  True  True
11891  True  True  True  True  True
11892  True  True  True  True  True
11893  True  True  True  True  True

[11894 rows x 5 columns]
   time  tavg  tmin  tmax  prcp
2    03-01-1990  21.0  16.4  26.5    0
4    05-01-1990  20.4  14.2  26.1    0
7    08-01-1990  20.0  16.6  25.1    0
9    10-01-1990  21.2  15.0  27.7    0
10   11-01-1990  21.8  16.0  28.5    0
...
11889 21-07-2022  23.7  20.5  30.8  82.5
11890 22-07-2022  23.2  21.1  27.9    0
11891 23-07-2022  23.1  20.9  26.7    0
11892 24-07-2022  22.8  20.0  26.7  0.3
11893 25-07-2022  24.1  20.2  28.5  0.5

[6083 rows x 5 columns]
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Python + - [ ] [X] ... | X

[6083 rows x 5 columns]
   time
0    01-01-1990
1    02-01-1990
2    03-01-1990
3    04-01-1990
4    05-01-1990
...
11889 21-07-2022
11890 22-07-2022
11891 23-07-2022
11892 24-07-2022
11893 25-07-2022

[11894 rows x 1 columns]
   time  tavg  tmin  tmax  prcp
0    01-01-1990  22.9  19.1  28.4  NaN
1    02-01-1990  21.7  NaN  26.5    0
2    03-01-1990  21.0  16.4  26.5    0
3    04-01-1990  20.8  NaN  27.4  0y
4    05-01-1990  20.4  14.2  26.1    0
...
11889 21-07-2022  23.7  20.5  30.8  82.5
11890 22-07-2022  23.2  21.1  27.9    0
11891 23-07-2022  23.1  20.9  26.7    0
11892 24-07-2022  22.8  20.0  26.7  0.3
11893 25-07-2022  24.1  20.2  28.5  0.5

[11894 rows x 5 columns]
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Python + - [ ] [ ] ... X

[11894 rows x 5 columns]
      time  tavg  tmin  tmax  prcp
2   03-01-1990  21.0  16.4  26.5    0
4   05-01-1990  20.4  14.2  26.1    0
7   08-01-1990  20.0  16.6  25.1    0
9   10-01-1990  21.2  15.0  27.7    0
10  11-01-1990  21.8  16.0  28.5    0
...
11889 21-07-2022  23.7  20.5  30.8  82.5
11890 22-07-2022  23.2  21.1  27.9    0
11891 23-07-2022  23.1  20.9  26.7    0
11892 24-07-2022  22.8  20.0  26.7  0.3
11893 25-07-2022  24.1  20.2  28.5  0.5

[6083 rows x 5 columns]
time      0
tavg      0
tmin    1389
tmax     629
prcp    4620
dtype: int64
time      0
tavg      0
tmin      0
tmax     629
prcp    4620
dtype: int64
time      0
tavg      0
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Python + - [ ] [ ] ... X

[6083 rows x 5 columns]
time      0
tavg      0
tmin    1389
tmax     629
prcp    4620
dtype: int64
time      0
tavg      0
tmin      0
tmax     629
prcp    4620
dtype: int64
time      0
tavg      0
tmin      0
tmax      0
prcp    4620
dtype: int64
      time  tavg  tmin  tmax  prcp  year
0   1990-01-01  22.9  19.100000  28.4   NaN  1990
1   1990-01-02  21.7  19.385131  26.5    0  1990
2   1990-01-03  21.0  16.400000  26.5    0  1990
3   1990-01-04  20.8  19.385131  27.4   0y  1990
4   1990-01-05  20.4  14.200000  26.1    0  1990
...
11889 2022-07-21  23.7  20.500000  30.8  82.5  2022
11890 2022-07-22  23.2  21.100000  27.9    0  2022
11891 2022-07-23  23.1  20.900000  26.7    0  2022
```



```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Python + - [ ] [ ] ... [X]

Name: tavg, dtype: int64
  year    tavg
0  1990  23.708400
1  1991  23.629047
2  1992  23.247721
3  1993  23.639895
4  1994  23.430469
5  1995  23.887951
6  1996  23.637002
7  1997  23.669595
8  1998  24.225042
9  1999  23.550854
10 2000  23.439728
11 2001  23.771507
12 2002  24.054468
13 2003  24.222413
14 2004  23.395628
15 2005  23.687123
16 2006  23.738904
17 2007  23.855949
18 2008  23.539344
19 2009  23.965042
20 2010  24.072055
21 2011  23.507397
22 2012  24.210929
23 2013  23.898356
24 2014  24.130685
25 2015  23.866849
26 2016  24.436339
```

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS Python + - [ ] [ ] ... [X]

5  1995  23.887951
6  1996  23.637002
7  1997  23.669595
8  1998  24.225042
9  1999  23.550854
10 2000  23.439728
11 2001  23.771507
12 2002  24.054468
13 2003  24.222413
14 2004  23.395628
15 2005  23.687123
16 2006  23.738904
17 2007  23.855949
18 2008  23.539344
19 2009  23.965042
20 2010  24.072055
21 2011  23.507397
22 2012  24.210929
23 2013  23.898356
24 2014  24.130685
25 2015  23.866849
26 2016  24.436339
27 2017  24.306849
28 2018  23.910137
29 2019  24.480548
30 2020  24.120492
31 2021  23.570411
32 2022  23.997087
```

