

DATA SCIENCE

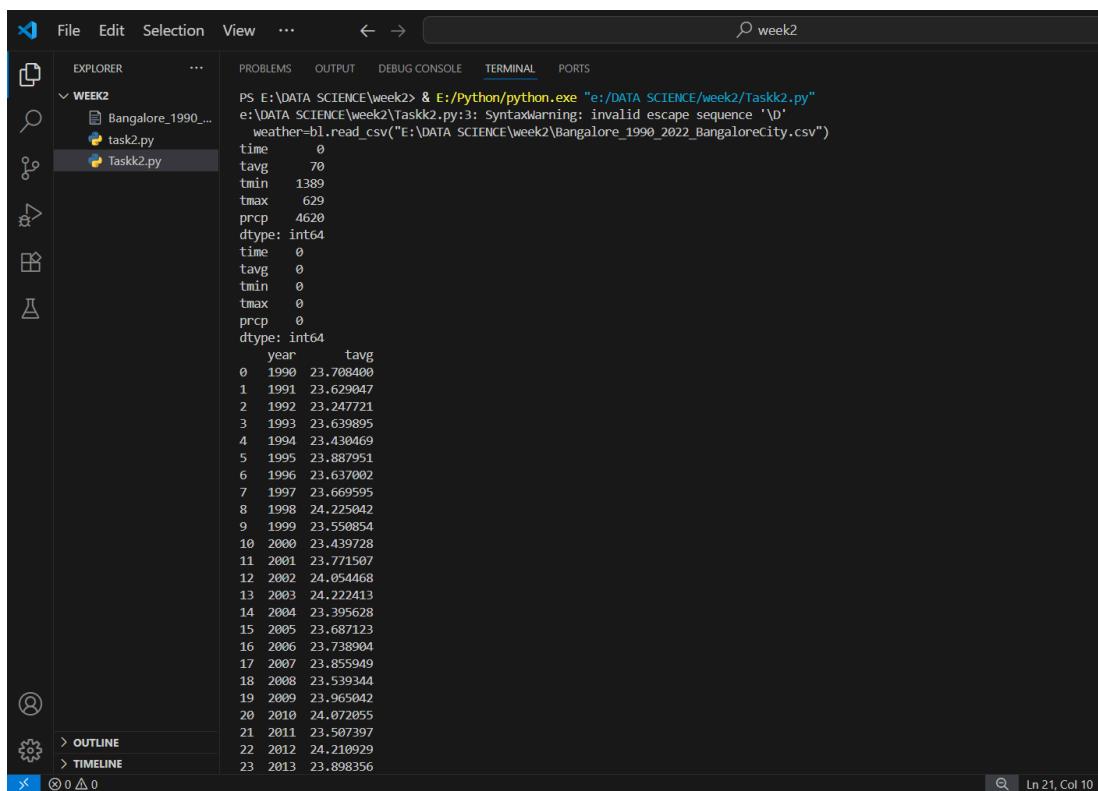
WEEK 2 PROJECT

TITLE: WEATHER & TEMPERATURE ANALYSIS MODULE

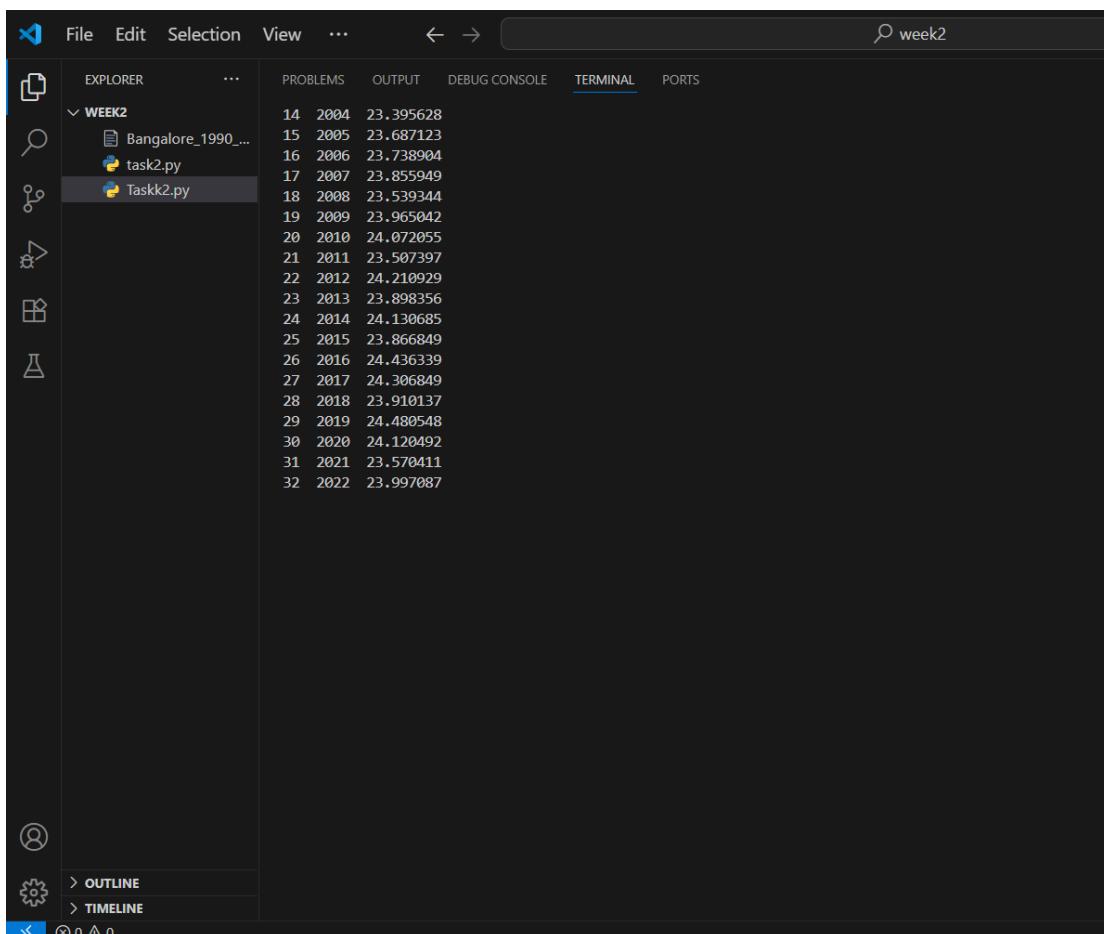
CODE:

```
import pandas as bl  
  
import matplotlib.pyplot as ds  
  
weather=bl.read_csv("E:\DATA  
SCIENCE\week2\Bangalore_1990_2022_BangaloreCity.csv")  
  
print(weather.isnull().sum())  
  
weather['tavg'] = weather['tavg'].fillna(weather['tavg'].mean())  
  
weather['tmax'] = weather['tmax'].fillna(weather['tmax'].mean())  
  
weather['tmin'] = weather['tmin'].fillna(weather['tmin'].mean())  
  
weather['prcp'] = weather['prcp'].fillna(weather['prcp'].mean())  
  
print(weather.isnull().sum())  
  
weather['time'] = bl.to_datetime(weather['time'], format="%d-%m-%Y")  
  
weather['year'] = weather['time'].dt.year  
  
weather['month'] = weather['time'].dt.month  
  
weather['day'] = weather['time'].dt.day  
  
yearly = weather.groupby('year')['tavg'].mean().reset_index()  
  
print(yearly)  
  
ds.figure(figsize=(10, 5))  
  
ds.plot(yearly['year'], yearly['tavg'], marker='o', color='purple')  
  
ds.title('Average Annual Temperature (1990–2022)')  
  
ds.xlabel('Year')  
  
ds.ylabel('Average Temperature (°C)')  
  
ds.show()
```

OUTPUT:

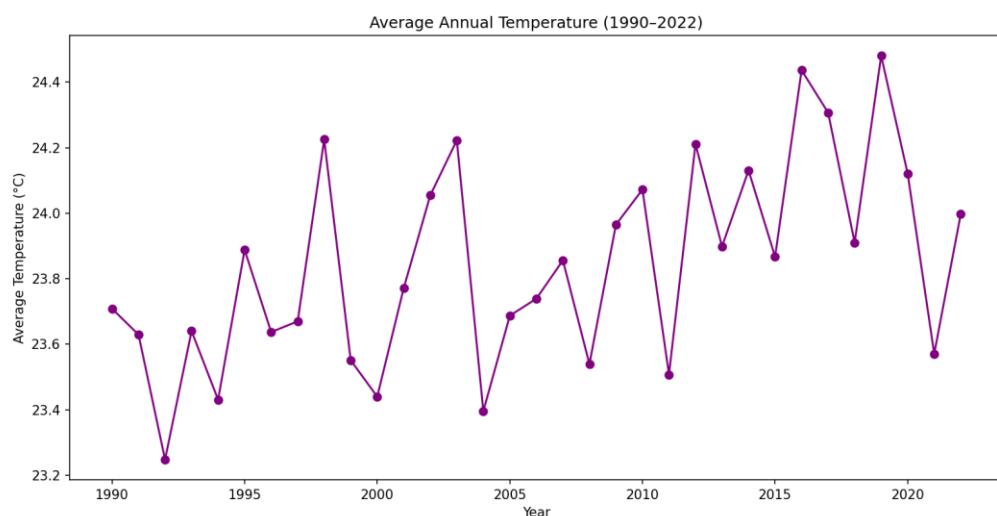


```
PS E:\DATA SCIENCE\week2> & E:/Python/python.exe "e:/DATA SCIENCE/week2/Taskk2.py"
e:\DATA SCIENCE\week2\Taskk2.py:3: SyntaxWarning: invalid escape sequence '\'
  weather_b1.read_csv("E:\DATA SCIENCE\week2\Bangalore_1990_2022_BangaloreCity.csv")
time      0
tavg     70
tmin   1389
tmax    629
prcp   4620
dtype: int64
time      0
tavg     0
tmin     0
tmax     0
prcp     0
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
```



```
PS E:\DATA SCIENCE\week2> & E:/Python/python.exe "e:/DATA SCIENCE/week2/Task2.py"
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
```

Figure 1



(x, y) = (2008.01, 23.986)