Weather Data Analysis – Hackathon

Input code:

import pandas as pd

import matplotlib.pyplot as plt

import mplcursors as mpc

place=input("Enter place in this list (Heathrow,Leuchars) :")

year=int(input("Enter year in this list (1980 - 2000):"))

print(place,year)

excel=pd.read\_excel('Dataset for weather analysis.xlsx',skiprows=1)

column1=[]

location1=[]

year1=[]

Month1=[]

tmax1=[]

tmin1=[]

rain1=[]

sun1=[]

af1=[]

for col in excel.columns:

column1.append((col))

print('\n')

result=0

for index in excel.index:

if(excel.at[index,'Location']==place and excel.at[index,'Year']==year ):

location1.append((excel.at[index,'Location']))

year1.append((excel.at[index,'Year']))

Month1.append((excel.at[index,'Month']))

tmax1.append((excel.at[index,'tmax']))

tmin1.append((excel.at[index,'tmin']))

af1.append((excel.at[index,'af']))

rain1.append((excel.at[index,'rain']))

sun1.append((excel.at[index,'sun']))

result=result+1

def addlabelbar(Month1,tmin1):

for i in range(1,result+1):

plt.text(i,tmin1[i-1]/2,tmin1[i-1], ha='center')

def addlabelline(x=[],y=[]):

for x1,y1 in zip(x,y):

label = "{:.2f}".format(y1)

plt.annotate(label, # this is the text

(x1,y1), # these are the coordinates to position the label

textcoords="offset points", # how to position the text

xytext=(0,10), # distance from text to points (x,y)

ha='center') # horizontal alignment can be left, right or center

def chart():

#chart1

plt.subplots(1,1)

plt.bar(Month1,tmin1)

plt.plot(Month1,tmax1,color = 'green',linestyle = 'solid', marker = 'o',markerfacecolor = 'red', markersize = 12)

plt.xlabel('Months')

plt.ylabel('tmin & tmax')

plt.title('Temperature Chart for: ' +str(year))

plt.legend(['MaxTemp','MinTemp'])

plt.grid()

addlabelbar(Month1,tmin1)

addlabelline(Month1,tmax1)

#Chart2

plt.subplots(1,1)

plt.scatter(Month1,rain1)

plt.plot(Month1,rain1)

plt.fill\_between(Month1,rain1,color="lightblue")

plt.xlabel('Months')

plt.ylabel('rainfall')

plt.title('Rainfall chart for:' +str(year))

plt.legend(['Precipitation'])

plt.grid()

addlabelline(Month1,rain1)

#Chart3

plt.subplots(1,1)

plt.plot(Month1,sun1,color="orange")

plt.scatter(Month1,sun1,marker ='\*',color="orange")

plt.fill\_between(Month1,sun1,color="yellow")

plt.xlabel('Months')

plt.ylabel('Sunnytime')

plt.title('Sunlight chart for:' +str(year))

plt.legend(['Sunlight'])

plt.grid()

mpc.cursor(hover=True)

addlabelline(Month1,sun1)

plt.show()

if(result):

print("Results are here...")

chart()

else:

print("Please check the parameter given!!!")

Output

Enter place in this list (Heathrow,Leuchars) :Leuchars

Enter year in this list (1980 - 2000):1996

Leuchars 1996

Results are here...





