'''-how hot my city compares to the nearst cities ?

- what is max average tempretuer in the world ? -what is minimum average tempretuer in the world ? what is the patterns of globlal tempretures along with years?

'''

In [124]:

```
'''Here I going to import liberaries that may use it later on'''
'''I will use pandas liberaries to import data from csv files as data frame '''
'''I will use numby in case of find needs to use it '''
'''I going to use matplotlib to visulize the data '''
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
```

In [125]:

```
'''I have used sql to extract data from udacity page, then downloaded as csv files u
____ select * from city_list;
____ select * from city_data;
____ select * from global_AVG_tm;


'''
'''I have imported data from csv files '''
city_list=pd.read_csv('city_list.csv')
city_data=pd.read_csv('city_data.csv')
global_AVG_tm=pd.read_csv('global_data.csv')
```

'''I will check on first five rows for each dataset ''' city_list.head(5)

city_data.head()

In [126]:

```
global_AVG_tm.head()
```

Out[126]:

	year	avg_temp
0	1750	8.72
1	1751	7.98
2	1752	5.78
3	1753	8.39
4	1754	8.47

In [127]:

```
'''check for null values (global_AVG_tm) '''
global_AVG_tm.isnull().sum()
```

Out[127]:

```
year        0
avg_temp    0
dtype: int64
```

In [128]:

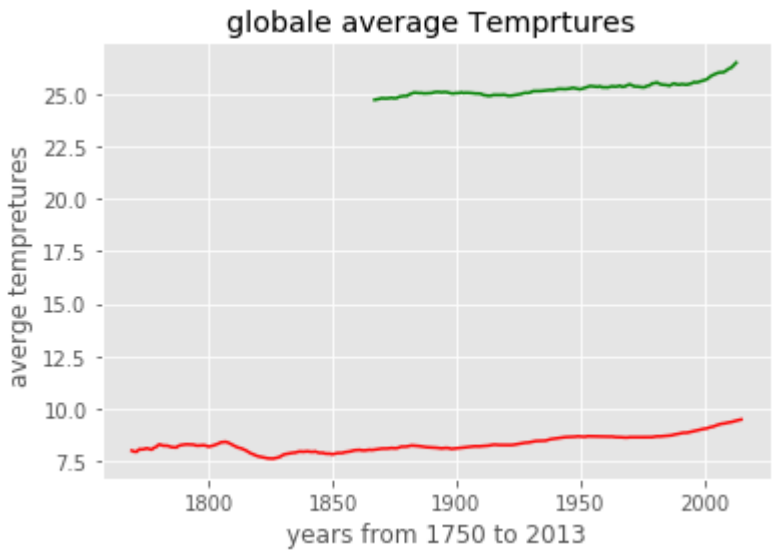
```
riyad=city_data.query('city=="Riyadh"')
riyad.avg_temp.isnull().sum()
```

Out[128]:

```
2
```

In [162]:

```
plt.plot(global_AVG_tm.year,global_AVG_tm.avg_temp.rolling(20).mean(),'r',label="Glo
plt.plot(riyad.year,riyad.avg_temp.rolling(20).mean(),'g',label="Riyadh")
plt.xlabel('years from 1750 to 2013')
plt.ylabel('averge tempretures ')
plt.title('globale average Temprtures ')
plt.show()
```



'''The above chart is indicted that Riyadh is more higher in the world '''

In [163]:

```
('Max=',global_AVG_tm['avg_temp'].max(),'min=',global_AVG_tm['avg_temp'].min(),'mea
```

```
Max= 9.83 min= 5.78 mean= 8.36947368421053
```

In [164]:

```
global_AVG_tm.query('year==1750'),global_AVG_tm.query('year==2010')
```

Out[164]:

```
(   year  avg_temp
 0  1750      8.72,
      year  avg_temp
 260  2010       9.7)
```

'''my conclusion about the global temprtures is increasing along to years since the avreage temprture was 8.72 in year 1750 and turn into 9.7 in year 2010'''

In [165]:

```
''' now I will move to city data '''
```

Out[165]:

```
' now I will move to city data '
```

In [166]:

```
city_data.isnull().sum()
```

Out[166]:

```
year        0
city        0
country     0
avg_temp    0
dtype: int64
```

In [167]:

```
'''since therer are many missing values in avg_temp fields , I will imputed with mea
mean=city_data['avg_temp'].mean()
```

In [168]:

```
city_data.fillna(mean, inplace=True)
```

In [169]:

```
city_data.isnull().sum()
```

Out[169]:

```
year        0
city        0
country     0
avg_temp    0
dtype: int64
```

In [170]:

```
city_data.axes
```

Out[170]:

```
[RangeIndex(start=0, stop=70792, step=1),
 Index(['year', 'city', 'country', 'avg_temp'], dtype='object')]
```

In [171]:

```
city_data.duplicated().value_counts()
```

Out[171]:

```
False    70792
dtype: int64
```

In [178]:

```
city_data2 = city_data.query('year=="2010"')
city_data2.avg_temp.rolling(20).mean()
```

Out[178]:

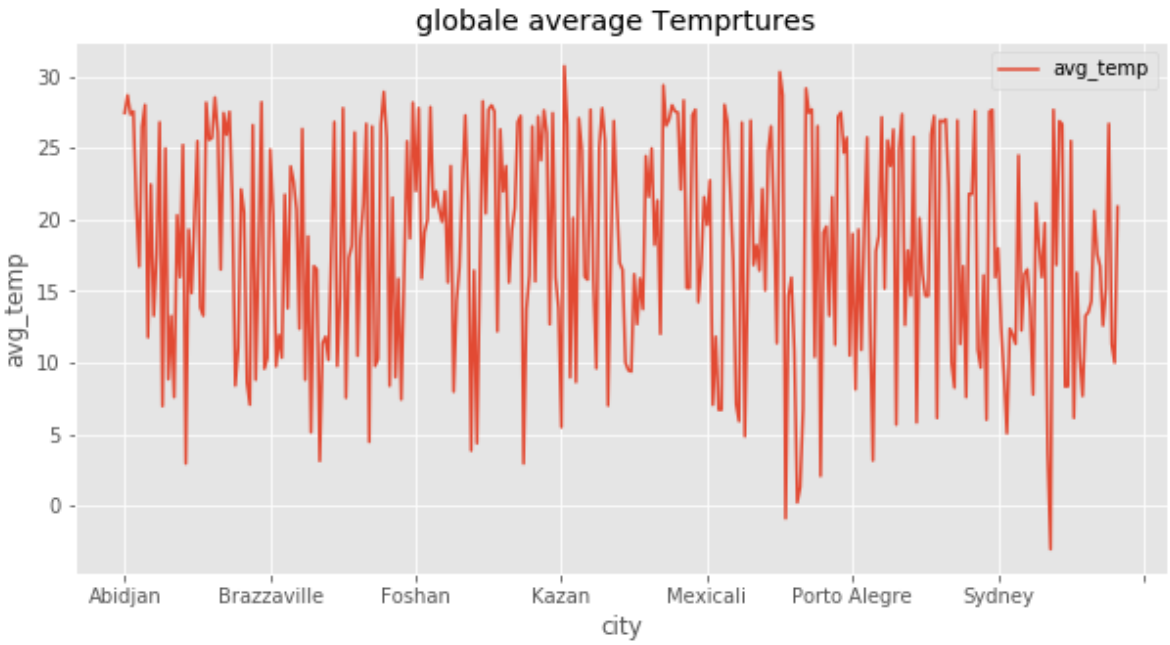
```
161          NaN
332          NaN
490          NaN
655          NaN
878          NaN
          ...
69942    15.0765
70107    16.5635
70341    15.7450
70612    15.4035
70788    15.1045
Name: avg_temp, Length: 342, dtype: float64
```

In [181]:

```
city_data2.plot(x='city',y='avg_temp',figsize=(10,5))

plt.xlabel('city')
plt.ylabel('avg_temp')
plt.title('globale average Temprtures ')

plt.show()
```



In [174]:

```
Riyadh= city_data.query('city=="Riyadh"')
```

In [175]:

```
Riyadh['avg_temp'].max(),Riyadh['avg_temp'].min(),Riyadh['avg_temp'].mean()
```

Out[175]:

```
(27.78, 15.45, 25.107998192785775)
```

In [176]:

```
Doha= city_data.query('city=="Doha"')
```

In [177]:

```
Doha['avg_temp'].max(),Doha['avg_temp'].min(),Doha['avg_temp'].mean()
```

Out[177]:

```
(29.7, 16.13884548318533, 26.518101648729473)
```

In [149]:

```
abudhabi=city_data.query('city=="Abu Dhabi"')
```

In [150]:

```
abudhabi['avg_temp'].max(),abudhabi['avg_temp'].min(),abudhabi['avg_temp'].mean()
```

Out[150]:

```
(28.69, 16.13884548318533, 25.837521320457423)
```

''' My concultion that global temprture till increasing along the years , and my city is less than Abudhabi and Doha since both 28.69 and 29.7 respectivlly.

'''

In [151]:

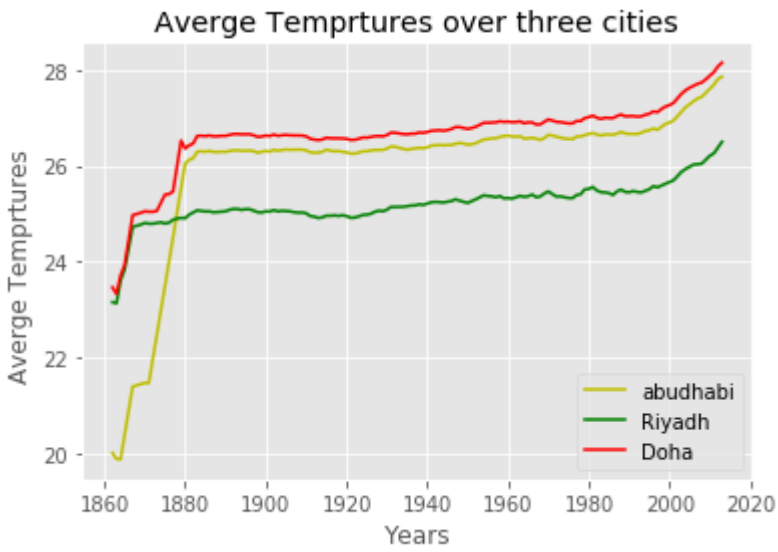
```
from matplotlib import style
style.use('ggplot')
```

In [160]:

```
x1=abudhabi['year']
y1=abudhabi['avg_temp'].rolling(20).mean()
x2=Riyadh['year']
y2=Riyadh['avg_temp'].rolling(20).mean()
x3=Doha['year']
y3=Doha['avg_temp'].rolling(20).mean()
```

In [161]:

```
plt.plot(x1,y1,'y',label="abudhabi")
plt.plot(x2,y2,'g',label="Riyadh")
plt.plot(x3,y3,"R",label="Doha")
plt.ylabel("Averge Temprtures ")
plt.xlabel("Years")
plt.legend()
plt.title('Averge Temprtures over three cities')
plt.show()
```



'''In this section I will give the insights that I have got it from above graph -Doha city is look the most hot city in thoes three of citie -Riyadh city look has least hot , since the green line is near to 24 degree celcius -Abudhabi is in the middle.

'''

'''Best Wishes '''

In [ ]:

In [ ]:

In [ ]: