Exploring Weather Trends

Extraction Of Data

I used the following SQL queries on each database to get my 2 temperature datasets(Global and Local)

```
select * from global_data
select * from city_list where country='India' AND city='Bangalore'
select * from city_data where city='Bangalore'
```

Open up csv

I am using Python to do the opening and matplotlib.pyplot for visualization

In [1]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
```

In [2]:

```
df_global=pd.read_csv("global_data.csv")
df_city=pd.read_csv("city_data.csv")
```

In [3]:

```
df_global.head()
```

Out[3]:

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

In [4]:

```
df_city.head()
```

Out[4]:

	year	city	country	avg_temp
0	1796	Bangalore	India	24.49
1	1797	Bangalore	India	25.18
2	1798	Bangalore	India	24.65
3	1799	Bangalore	India	24.81
4	1800	Bangalore	India	24.85

In [5]:

```
df_global.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 266 entries, 0 to 265
Data columns (total 2 columns):
year        266 non-null int64
avg_temp    266 non-null float64
dtypes: float64(1), int64(1)
memory usage: 4.3 KB
```

In [6]:

```
df_city.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 218 entries, 0 to 217
Data columns (total 4 columns):
year        218 non-null int64
city        218 non-null object
country     218 non-null object
avg_temp    211 non-null float64
dtypes: float64(1), int64(1), object(2)
memory usage: 6.9+ KB
```

In [7]:

```
df_city.fillna(0,inplace=True)
```

In [8]:

```
df_city.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 218 entries, 0 to 217
Data columns (total 4 columns):
year        218 non-null int64
city        218 non-null object
country     218 non-null object
avg_temp    218 non-null float64
dtypes: float64(1), int64(1), object(2)
memory usage: 6.9+ KB
```

In [9]:

```
df_global=df_global[46:]
```

In [10]:

```
df_global.head()
```

Out[10]:

	year	avg_temp
46	1796	8.27
47	1797	8.51
48	1798	8.67
49	1799	8.51
50	1800	8.48

In [11]:

```
df_global.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 220 entries, 46 to 265
Data columns (total 2 columns):
year        220 non-null int64
avg_temp    220 non-null float64
dtypes: float64(1), int64(1)
memory usage: 3.6 KB
```

In [12]:

```
mov_avg_global=[sum(df_global.avg_temp[i:i+7])/7 for i in range(len(df_global)-7)]
```

In [13]:

```
mov_avg_global=np.array(mov_avg_global)
```

In [14]:

```
mov_avg_global.mean()
```

Out[14]:

```
8.391596244131454
```

In [15]:

```
mov_avg_city=[sum(df_city.avg_temp[i:i+7])/7 for i in range(len(df_city)-7)]
```

In [16]:

```
mov_avg_city=np.array(mov_avg_city)
```

In [17]:

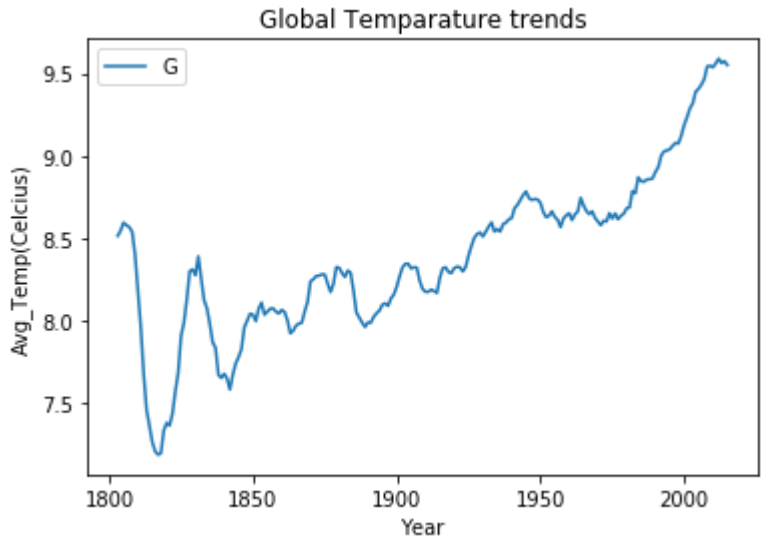
```
mov_avg_city.mean()
```

Out[17]:

```
24.00977657413676
```

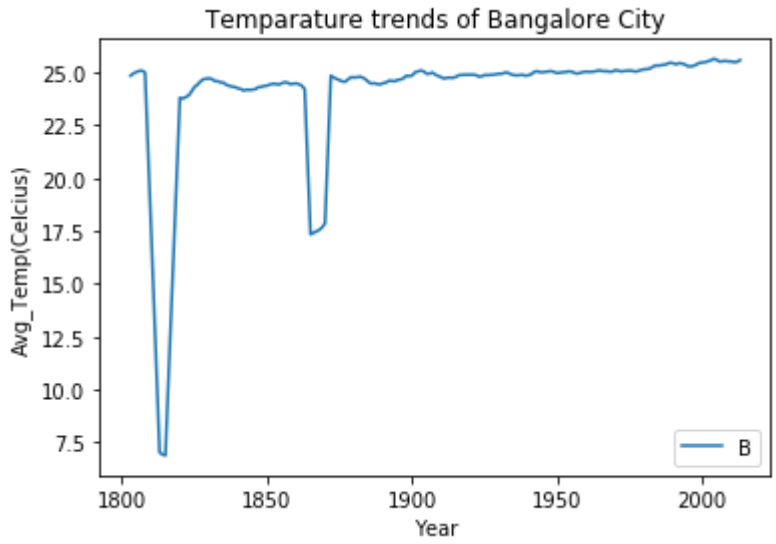
In [19]:

```
plt.plot(df_global.year[7:],mov_avg_global);
plt.xlabel("Year")
plt.ylabel("Avg_Temp(Celcius)")
plt.title("Global Temparature trends")
plt.legend("Global");
```



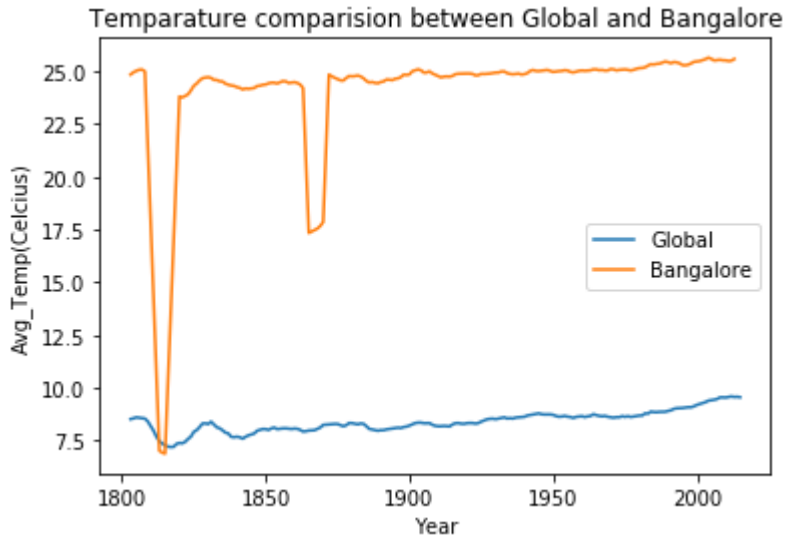
In [20]:

```
plt.plot(df_city.year[7:],mov_avg_city)
plt.xlabel("Year")
plt.ylabel("Avg_Temp(Celcius)")
plt.title("Temparature trends of Bangalore City")
plt.legend("Bangalore");
```



In [21]:

```
plt.plot(df_global.year[7:],mov_avg_global)
plt.plot(df_city.year[7:],mov_avg_city)
plt.xlabel("Year")
plt.ylabel("Avg_Temp(Celcius)")
plt.title("Temparature comparision between Global and Bangalore")
plt.legend(["Global","Bangalore"]);
```



Making Observations

Is your city hotter or cooler on average compared to the global average? Has the difference been consistent over time?

My city is much more hotter in average when compared to global apart from at one point between 1800 and 1850 where once my city was cooler when compared globally.

“How do the changes in your city’s temperatures over time compare to the changes in the global average?

Changes in temparature of global is quite consistant when compared to my city which has more drastic changes than global temperature and my city's temperature is at a very higher scale when compared to global.

What does the overall trend look like? Is the world getting hotter or cooler? Has the trend been consistent over the last few hundred years?

The overall trend for global scale looks like it is rising consistantly and which is making the world hotter every year and for the last few 100 years this speed of change in temperature is increasing.

What is th average temperature of global and your city?

Global = 8.4 City = 24

What can you expect will the temperature increase or decrease if the same trend follows?

It may increase.

In [ ]: