A) An outline of steps taken to prepare the data SQL is used to pull the data

select * from city_data where city in (select city from city_list where city in('Surat','Bangalore')) and country in (select country from city_list where country = 'India')

select * from global_data

Sample Initial Raw Data of Bangalore(with 12 year Moving Average Calculations)

year	city	countı	avg_temp	12yr_avg
1796	Banga	India	24.49	
1797	Banga	India	25.18	
1798	Banga	India	24.65	
1799	Banga	India	24.81	
1800	Banga	India	24.85	
1801	Banga	India	24.49	
1802	Banga	India	25.44	
1803	Banga	India	25.22	
1804	Banga	India	25.67	
1805	Banga	India	25.01	
1806	Banga	India	24.87	
1807	Banga	India	24.25	24.91083
1808	Banga	India		24.94909
1809	Banga	India		24.926
1810	Banga	India		24.95667
1811	Banga	India		24.975
1812	Banga	India		24.99286
1813	Banga	India	24.23	24.95571
1814	Banga	India	23.91	24.73714
1815	Banga	India	23.79	24.53286
1816	Banga	India	23.3	24.19429
1817	Banga	India	23.6	23.99286
1818	Banga	India	23.94	23.86
1819	Banga	India	23.86	23.80429
1820	Banga	India	23.91	23.8175

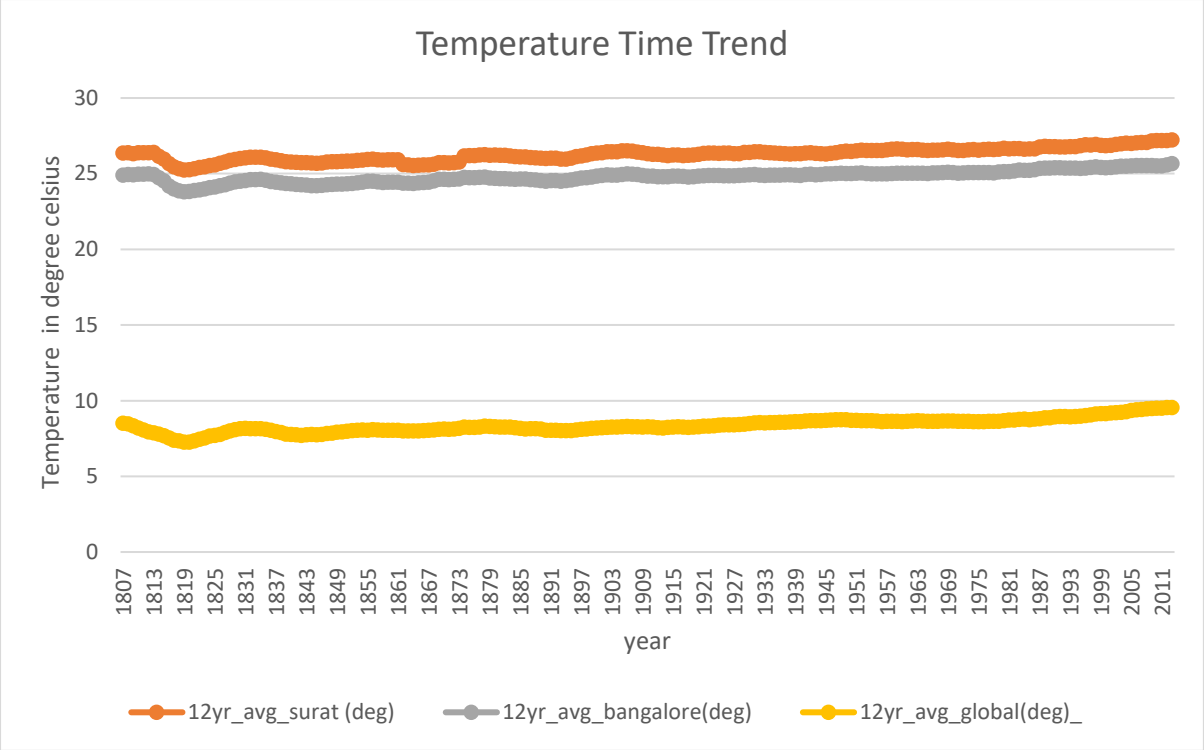
Sample Final Raw Data (with 12 year Moving Average Calculations separate for all the 3 categories) The data is preprocessed in excel to combine all the data for Surat, Bangalore and Global (Assuming the temperature given is in Degree Celsius)

A	B	C	D
year	12yr_avg_surat	12yr_avg_bangalore	12yr_avg_global
1807	26.365	24.91083333	8.518333333
1808	26.38636364	24.94909091	8.465
1809	26.312	24.926	8.345833333
1810	26.38111111	24.95666667	8.2
1811	26.3775	24.975	8.0625
1812	26.37857143	24.99285714	7.943333333
1813	26.39714286	24.95571429	7.8725
1814	26.15285714	24.73714286	7.79
1815	25.96142857	24.53285714	7.685
1816	25.65857143	24.19428571	7.526666667
1817	25.45428571	23.99285714	7.395
1818	25.33428571	23.86	7.345
1819	25.24714286	23.80428571	7.269166667
1820	25.25875	23.8175	7.268333333
1821	25.33555556	23.88222222	7.3525
1822	25.401	23.927	7.458333333
1823	25.44636364	23.99	7.53
1824	25.535	24.0825	7.655
1825	25.57833333	24.12083333	7.709166667
1826	25.6775	24.20166667	7.773333333
1827	25.77416667	24.275	7.904166667
1828	25.87833333	24.38416667	8.006666667
1829	25.94916667	24.45583333	8.086666667
1830	25.99833333	24.49333333	8.144166667
1831	26.04083333	24.54083333	8.166666667

B) **How did you calculate the moving average?**
Moving average is calculated for 12 years

C) **Key considerations when deciding how to visualize the trends**

Wanted to time align the data for all the 3 categories (Global , Surat, Bangalore) As 12 year moving average is taken for all the 3 categories, hence a line / trend chart is populated w.r.t Year and Avg temperature Line chart with local and global temperature trends



At least four observations about the similarities and/or differences in the trends

a) Global temperatures are very less compared to Surat and Bangalore

b) The temperatures for all the 3 categories have increased marginally in the last 200 years of data

c) The lowest temperatures found for Global 7.3 deg Celsius, whereas for Bangalore (23.8 deg C) a. and for surat (25.2 deg C).
d) Surat temperature increment is more at present compared to Global and Bangalore

f) The global temperature remained consistent until the year 1957, but after 1957 increased. there seems to be a lot of change in temperatures. Hence global temperatures are

g) The correlation coefficient for (Global vs Surat) is 0.93 and (Global vs Bangalore) is 0.95 So from above, the changes in Global temperature change will have nearly same impact on Surat and Bangalore.