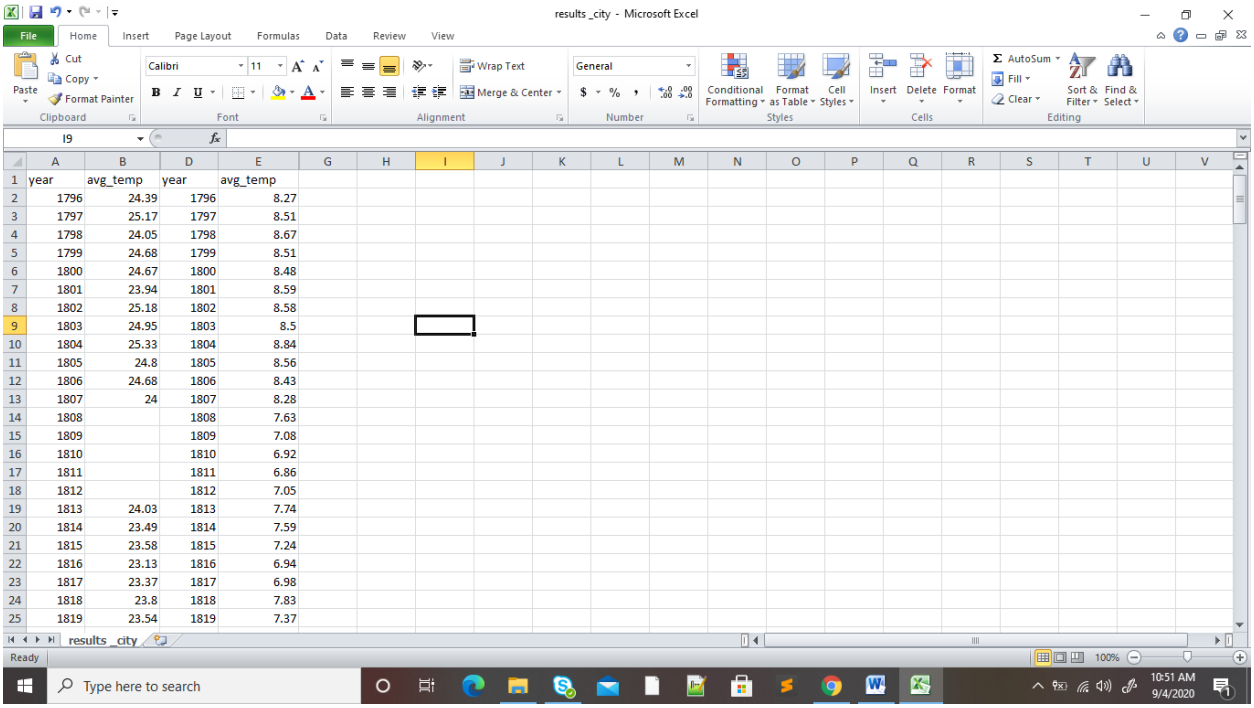
Project 1: Exploring Weather Trends

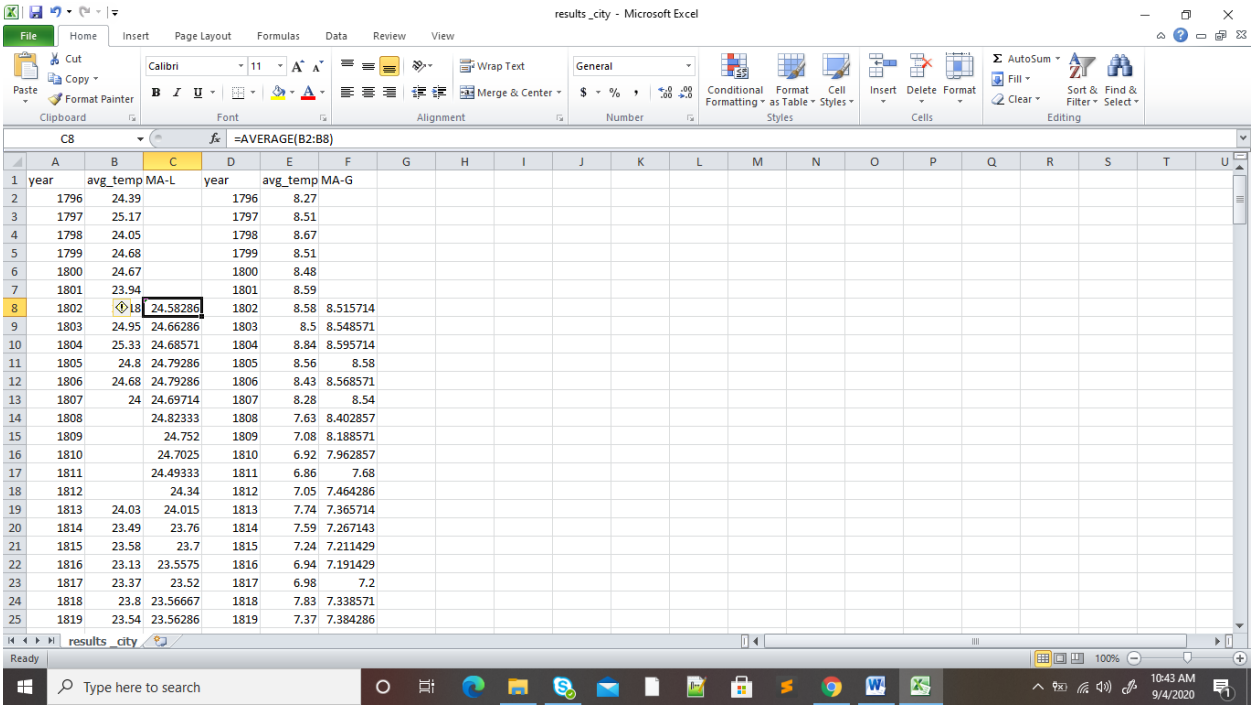
- **SQL query to extract data**:
  Local average temperature –
  select year, avg_temp from city_data where country='India' and city='Pune';
  Global average temperature –
  select * from global_data where year >= 1796 and year <=2013

  After downloading csv copy paste the global average temperature data in local average temperature excel as per the year.



- **Calculating moving average**:

  Using the average function calculated the 7 days MA for each year starting from 7th year.



year	avg_temp	MA-L	year	avg_temp	MA-G
1796	24.39		1796	8.27	
1797	25.17		1797	8.51	
1798	24.05		1798	8.67	
1799	24.68		1799	8.51	
1800	24.67		1800	8.48	
1801	23.94		1801	8.59	
1802	L8	24.58286	1802	8.58	8.515714
1803	24.95	24.66286	1803	8.5	8.548571
1804	25.33	24.68571	1804	8.84	8.595714
1805	24.8	24.79286	1805	8.56	8.58
1806	24.68	24.79286	1806	8.43	8.568571
1807	24	24.69714	1807	8.28	8.54
1808		24.82333	1808	7.63	8.402857
1809		24.752	1809	7.08	8.188571
1810		24.7025	1810	6.92	7.962857
1811		24.49333	1811	6.86	7.68
1812		24.34	1812	7.05	7.464286
1813	24.03	24.015	1813	7.74	7.365714
1814	23.49	23.76	1814	7.59	7.267143
1815	23.58	23.7	1815	7.24	7.211429
1816	23.13	23.5575	1816	6.94	7.191429
1817	23.37	23.52	1817	6.98	7.2
1818	23.8	23.56667	1818	7.83	7.338571
1819	23.54	23.56286	1819	7.37	7.384286

Formula used – AVERAGE(B2;B8) i.e. past 7 years.

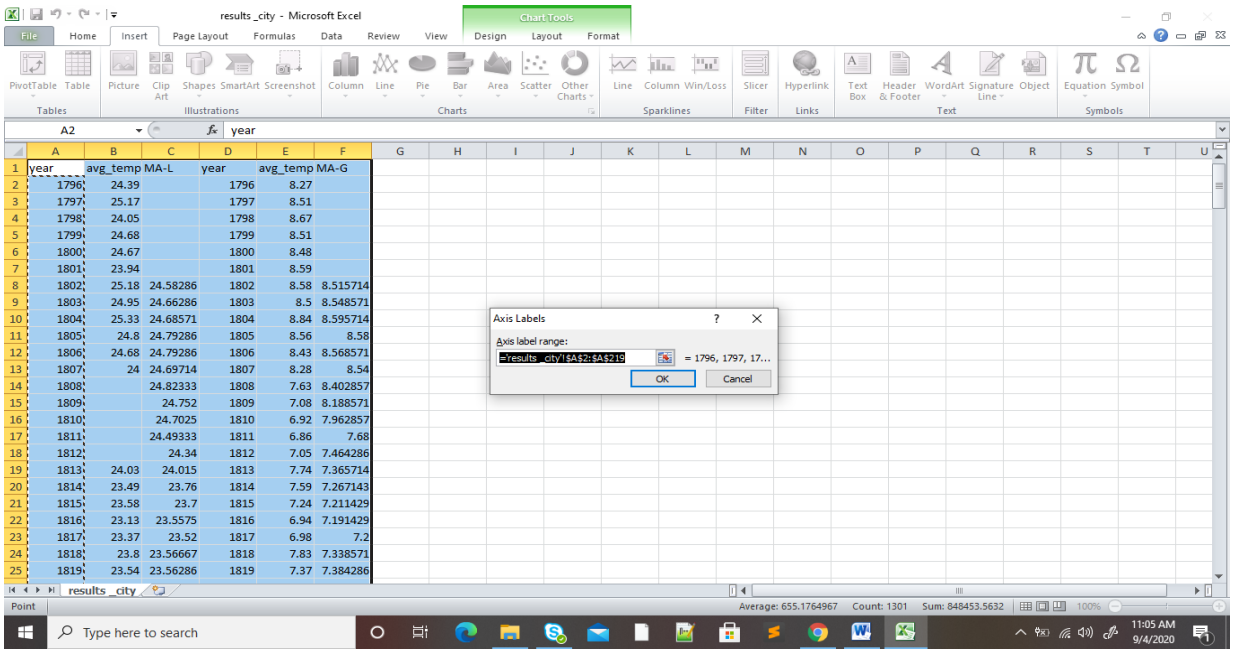
Dragged the corner(+) of the cell to calculate the MA for rest of the year for both global and local average temperature.

- **Line chart :**

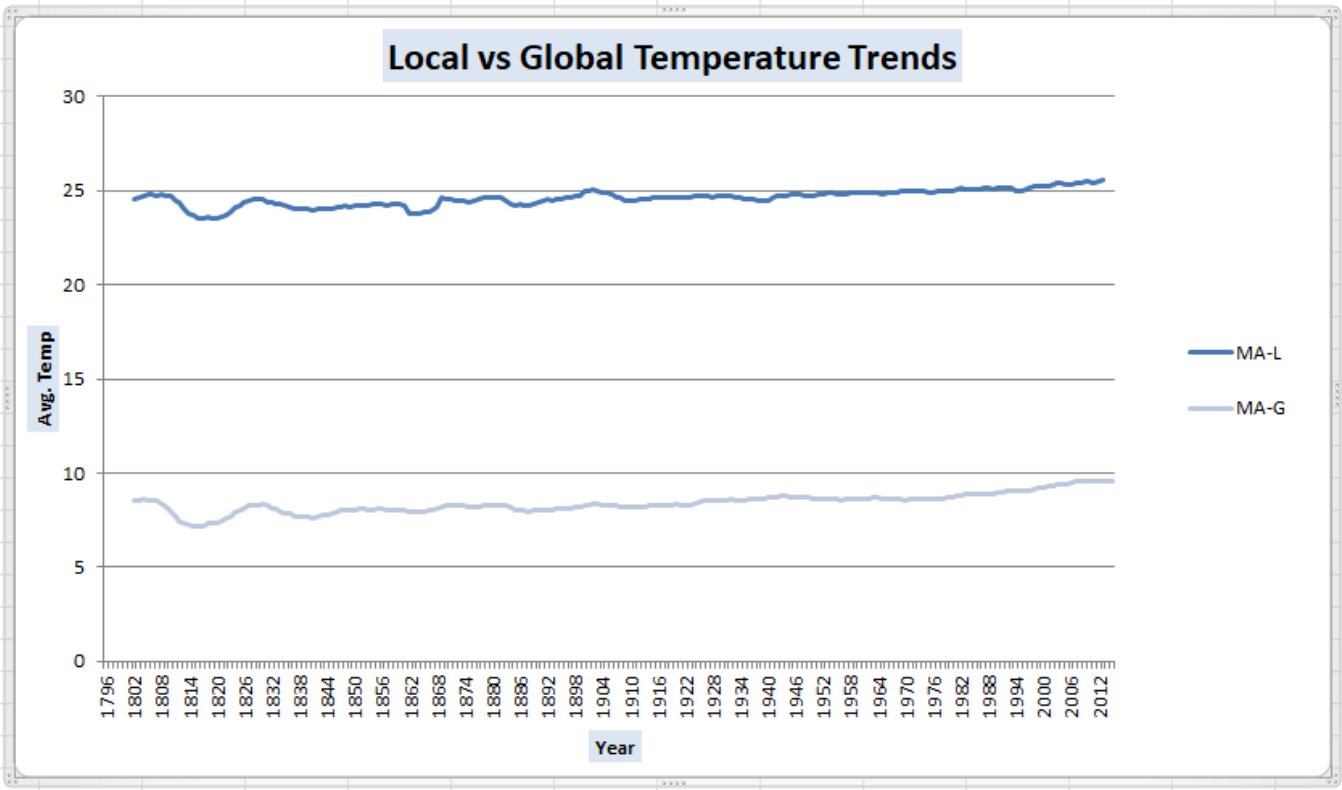
  Steps :

  1. Select all data then go to insert tab ->Line -> 2D line first chart. This gives you a line chart for all data.
  2. Right click on chart ->click on select data.
  3. In Legend entries series remove all the entries except MA – Local and MA-Global.

4. In horizontal axis labels, click on edit & select all the years from excel data.



5. Click ok and add titles to chart and axis.



- **Observations** :
  1. On average Local (Pune) is hotter as compared to global temperature.
  2. On average Local (Pune) temperature is more fluctuating then average global temperature.
  3. There is a gentle fall in both local and global avg. temperature from year 1808.
  4. There is a gentle rise in both local and global avg. temperature from year 1814.
  5. On average Global temperature has increased to 9.5 in 217 years (1796-2013) starting from 8.5.
  6. On average Local (Pune) temperature has increased to 25.5 in 217 years (1796-2013) starting from 24.5.