

Project 1: Exploring Weather Trends

year	global_avg_temp	Global_temp_moving_5_years_average	nashville_avg_temp	Nashville_Temp_Moving_5_years_average
1750	8.72		14.92	
1751	7.98		15.72	
1752	5.78		8.54	
1753	8.39		14.27	
1754	8.47	7.868	14.32	13.554
1755	8.36	7.796	11.9	12.95
1756	8.85	7.97	14.44	12.694
1757	9.02	8.618	13.92	13.77
1758	6.74	8.288	12.81	13.478
1759	7.99	8.192	13.83	13.38
1760	7.19	7.958	12.28	13.456
1761	8.77	7.942	14.77	13.522
1762	8.61	7.86	14.27	13.592
1763	7.5	8.012	12.2	13.47
1764	8.4	8.094	14.18	13.54
1765	8.25	8.306	13.86	13.856
1766	8.41	8.234	14.7	13.842
1767	8.22	8.156	13.5	13.688
1768	6.78	8.012	13.09	13.866
1769	7.69	7.87	14.02	13.834
1770	7.69	7.758	13.88	13.838
1771	7.85	7.646	14.68	13.834
1772	8.19	7.64	14.52	14.038
1773	8.22	7.928	14.61	14.342
1774	8.77	8.144	14.17	14.372
1775	9.18	8.442	15.15	14.626
1776	8.3	8.532	13.89	14.468
1777	8.26	8.546	13.89	14.342
1778	8.54	8.61	11.23	13.666
1779	8.98	8.652	6.17	12.066
1780	9.43	8.702		11.295
1781	8.1	8.662	14.37	11.415
1782	7.9	8.59	13.92	11.4225
1783	7.68	8.418	13.69	12.0375
1784	7.86	8.194	13.71	13.9225
1785	7.36	7.78	13.46	13.83
1786	8.26	7.812	14.02	13.76
1787	8.03	7.838	14.06	13.788

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1788	8.45	7.992	14.5	13.95
1789	8.33	8.086	14.27	14.062
1790	7.98	8.21	14.16	14.202
1791	8.23	8.204	14.39	14.276
1792	8.09	8.216	13.91	14.246
1793	8.23	8.172	14.38	14.222
1794	8.53	8.212	14.5	14.268
1795	8.35	8.286	14.29	14.294
1796	8.27	8.294	14.12	14.24
1797	8.51	8.378	14.03	14.264
1798	8.67	8.466	14.73	14.334
1799	8.51	8.462	14.44	14.322
1800	8.48	8.488	14.3	14.324
1801	8.59	8.552	14.64	14.428
1802	8.58	8.566	14.84	14.59
1803	8.5	8.532	14.69	14.582
1804	8.84	8.598	14.69	14.632
1805	8.56	8.614	14.79	14.73
1806	8.43	8.582	14.37	14.676
1807	8.28	8.522	14.15	14.538
1808	7.63	8.348	14.03	14.406
1809	7.08	7.996	13.22	14.112
1810	6.92	7.668	13.33	13.82
1811	6.86	7.354	13.48	13.642
1812	7.05	7.108	12.74	13.36
1813	7.74	7.13	13.81	13.316
1814	7.59	7.232	13.61	13.394
1815	7.24	7.296	13.17	13.362
1816	6.94	7.312	12.69	13.204
1817	6.98	7.298	12.85	13.226
1818	7.83	7.316	13.58	13.18
1819	7.37	7.272	13.44	13.146
1820	7.62	7.348	13.39	13.19
1821	8.09	7.578	13.38	13.328
1822	8.19	7.82	14.36	13.63
1823	7.72	7.798	13.8	13.674
1824	8.55	8.034	14.23	13.832
1825	8.39	8.188	14.96	14.146
1826	8.36	8.242	14.48	14.366
1827	8.81	8.366	15.03	14.5
1828	8.17	8.456	15.61	14.862
1829	7.94	8.334	14.31	14.878

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1830	8.52	8.36	15.54	14.994
1831	7.64	8.216	13.44	14.786
1832	7.45	7.944	14.56	14.692
1833	8.01	7.912	14.79	14.528
1834	8.15	7.954	15.23	14.712
1835	7.39	7.728	13.81	14.366
1836	7.7	7.74	13.24	14.326
1837	7.38	7.726	14.08	14.23
1838	7.51	7.626	13.36	13.944
1839	7.63	7.522	14.36	13.77
1840	7.8	7.604	14.48	13.904
1841	7.69	7.602	14.24	14.104
1842	8.02	7.73	14.73	14.234
1843	8.17	7.862	13.58	14.278
1844	7.65	7.866	14.73	14.352
1845	7.85	7.876	14.5	14.356
1846	8.55	8.048	14.84	14.476
1847	8.09	8.062	13.65	14.26
1848	7.98	8.024	14.07	14.358
1849	7.98	8.09	14.01	14.214
1850	7.9	8.1	14.28	14.17
1851	8.18	8.026	14.24	14.05
1852	8.1	8.028	14.15	14.15
1853	8.04	8.04	14.18	14.172
1854	8.21	8.086	15.39	14.448
1855	8.11	8.128	14.32	14.456
1856	8	8.092	12.88	14.184
1857	7.76	8.024	12.9	13.934
1858	8.1	8.036	14.33	13.964
1859	8.25	8.044	14.04	13.694
1860	7.96	8.014	14.63	13.756
1861	7.85	7.984	14.4	14.06
1862	7.56	7.944	14.42	14.364
1863	8.11	7.946	13.59	14.216
1864	7.98	7.892	13.28	14.064
1865	8.18	7.936	14.38	14.014
1866	8.29	8.024	13.83	13.9
1867	8.44	8.2	14.05	13.826
1868	8.25	8.228	13.43	13.794
1869	8.43	8.318	13.31	13.8
1870	8.2	8.322	14.03	13.73
1871	8.12	8.288	14.69	13.902

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1872	8.19	8.238	13.19	13.73
1873	8.35	8.258	13.61	13.766
1874	8.43	8.258	14.88	14.08
1875	7.86	8.19	13.22	13.918
1876	8.08	8.182	13.75	13.73
1877	8.54	8.252	14.26	13.944
1878	8.83	8.348	14.68	14.158
1879	8.17	8.296	14.62	14.106
1880	8.12	8.348	14.45	14.352
1881	8.27	8.386	14.95	14.592
1882	8.13	8.304	14.84	14.708
1883	7.98	8.134	14.13	14.598
1884	7.77	8.054	14.05	14.484
1885	7.92	8.014	13.04	14.202
1886	7.95	7.95	13.09	13.83
1887	7.91	7.906	14.59	13.78
1888	8.09	7.928	13.73	13.7
1889	8.32	8.038	13.99	13.688
1890	7.97	8.048	14.83	14.046
1891	8.02	8.062	13.99	14.226
1892	8.07	8.094	13.37	13.982
1893	8.06	8.088	13.59	13.954
1894	8.16	8.056	14.2	13.996
1895	8.15	8.092	13.18	13.666
1896	8.21	8.13	14.57	13.782
1897	8.29	8.174	14.6	14.028
1898	8.18	8.198	14.45	14.2
1899	8.4	8.246	13.99	14.158
1900	8.5	8.316	14.58	14.438
1901	8.54	8.382	13.38	14.2
1902	8.3	8.384	14.18	14.116
1903	8.22	8.392	13.65	13.956
1904	8.09	8.33	13.69	13.896
1905	8.23	8.276	13.73	13.726
1906	8.38	8.244	14.21	13.892
1907	7.95	8.174	14.37	13.93
1908	8.19	8.168	14.83	14.166
1909	8.18	8.186	14.52	14.332
1910	8.22	8.184	13.67	14.32
1911	8.18	8.144	15.34	14.546
1912	8.17	8.188	13.38	14.348
1913	8.3	8.21	14.98	14.378

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1914	8.59	8.292	14.41	14.356
1915	8.59	8.366	14.27	14.476
1916	8.23	8.376	14.23	14.254
1917	8.02	8.346	12.87	14.152
1918	8.13	8.312	14.44	14.044
1919	8.38	8.27	14.82	14.126
1920	8.36	8.224	13.9	14.052
1921	8.57	8.292	16.05	14.416
1922	8.41	8.37	15.19	14.88
1923	8.42	8.428	14.41	14.874
1924	8.51	8.454	13.45	14.6
1925	8.53	8.488	15.16	14.852
1926	8.73	8.52	14.16	14.474
1927	8.52	8.542	15.23	14.482
1928	8.63	8.584	13.99	14.398
1929	8.24	8.53	14.16	14.54
1930	8.63	8.55	14.7	14.448
1931	8.72	8.548	15.34	14.684
1932	8.71	8.586	14.85	14.608
1933	8.34	8.528	15.42	14.894
1934	8.63	8.606	14.84	15.03
1935	8.52	8.584	14.53	14.996
1936	8.55	8.55	14.68	14.864
1937	8.7	8.548	14.26	14.746
1938	8.86	8.652	15.43	14.748
1939	8.76	8.678	15.06	14.792
1940	8.76	8.726	13.33	14.552
1941	8.77	8.77	15.08	14.632
1942	8.73	8.776	14.5	14.68
1943	8.76	8.756	14.54	14.502
1944	8.85	8.774	14.86	14.462
1945	8.58	8.738	14.44	14.684
1946	8.68	8.72	15.33	14.734
1947	8.8	8.734	14.05	14.644
1948	8.75	8.732	14.46	14.628
1949	8.59	8.68	15.09	14.674
1950	8.37	8.638	14.18	14.622
1951	8.63	8.628	14.54	14.464
1952	8.64	8.596	15.11	14.676
1953	8.87	8.62	15.44	14.872
1954	8.56	8.614	15.51	14.956
1955	8.63	8.666	14.88	15.096

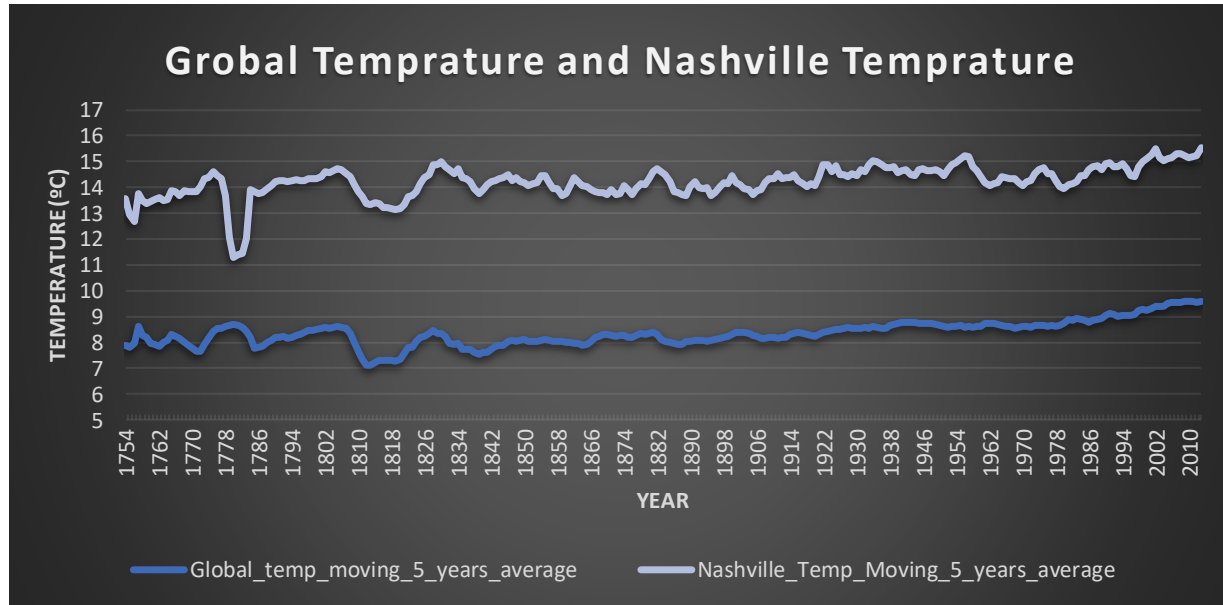
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1956	8.28	8.596	15.19	15.226
1957	8.73	8.614	14.99	15.202
1958	8.77	8.594	13.47	14.808
1959	8.73	8.628	14.69	14.644
1960	8.58	8.618	13.64	14.396
1961	8.8	8.722	14.16	14.19
1962	8.75	8.726	14.46	14.084
1963	8.86	8.744	13.86	14.162
1964	8.41	8.68	14.71	14.166
1965	8.53	8.67	14.88	14.414
1966	8.6	8.63	13.99	14.38
1967	8.7	8.62	14.24	14.336
1968	8.52	8.552	13.81	14.326
1969	8.6	8.59	13.98	14.18
1970	8.7	8.624	14.32	14.068
1971	8.6	8.624	14.68	14.206
1972	8.5	8.584	14.49	14.256
1973	8.95	8.67	15.12	14.518
1974	8.47	8.644	14.73	14.668
1975	8.74	8.652	14.73	14.75
1976	8.35	8.602	13.55	14.524
1977	8.85	8.672	14.5	14.526
1978	8.69	8.62	13.72	14.246
1979	8.73	8.672	13.58	14.016
1980	8.98	8.72	14.48	13.966
1981	9.17	8.884	14.27	14.11
1982	8.64	8.842	14.61	14.132
1983	9.03	8.91	14.24	14.236
1984	8.69	8.902	14.68	14.456
1985	8.66	8.838	14.48	14.456
1986	8.83	8.77	15.43	14.688
1987	8.99	8.84	15.25	14.816
1988	9.2	8.874	14.32	14.832
1989	8.92	8.92	14.03	14.702
1990	9.23	9.034	15.63	14.932
1991	9.18	9.104	15.53	14.952
1992	8.84	9.074	14.44	14.79
1993	8.87	9.008	14.36	14.798
1994	9.04	9.032	14.69	14.93
1995	9.35	9.056	14.61	14.726
1996	9.04	9.028	14.22	14.464
1997	9.2	9.1	14.27	14.43

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1998	9.52	9.23	16.2	14.798
1999	9.29	9.28	15.76	15.012
2000	9.2	9.25	15.01	15.092
2001	9.41	9.324	15.14	15.276
2002	9.57	9.398	15.34	15.49
2003	9.53	9.4	14.56	15.162
2004	9.32	9.406	15.1	15.03
2005	9.7	9.506	15.33	15.094
2006	9.53	9.53	15.38	15.142
2007	9.73	9.562	16.13	15.3
2008	9.43	9.542	14.65	15.318
2009	9.51	9.58	14.62	15.222
2010	9.7	9.58	15.05	15.166
2011	9.52	9.578	15.46	15.182
2012	9.51	9.534	16.35	15.226
2013	9.61	9.57	16.17	15.53

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Conclusion :

- From 1750 to 2013, the Global average temperature is 8.36 °C and Nashville is 14.25 °C. On average, Nashville average temperature is higher than global average temperature by 5.89 °C.
- Nashville temperature is more volatility while global temperature is more stable.
- Over the years, both Nashville and global temperature is getting higher.
- Although weather trends of Nashville and Global is similar as they are both going up, there was an abnormal visualization in 1775-1810 where Nashville temperature dropped significantly while global temperature went up.

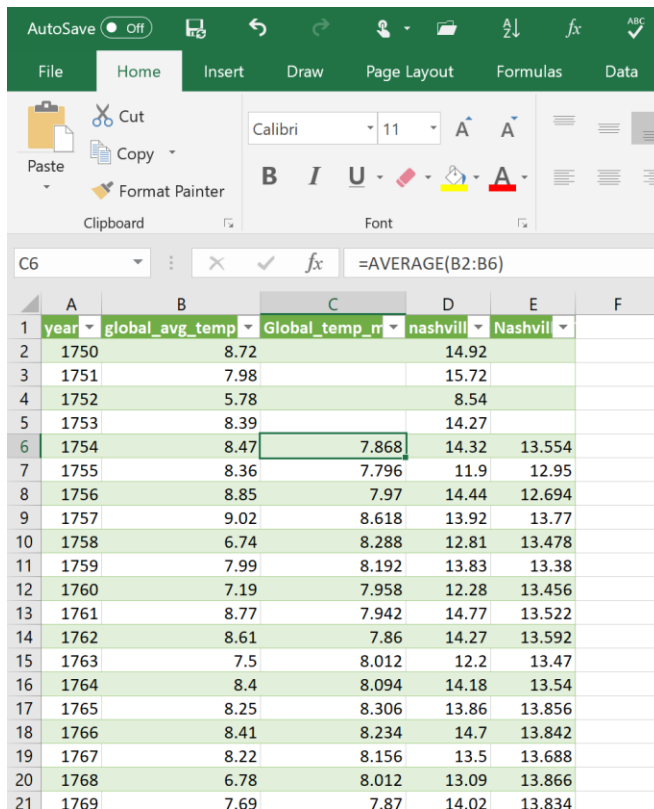
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Outline:

Step 1: Write SQL query to extract Nashville average temperature and Global average temperature from city_data and global_data.

```
SELECT g. year, c.year, g.avg_temp Global_avg_temp, c. avg_temp Nashville_avg_temp
FROM global_data g
LEFT JOIN city_data c
ON g.year = c.year
WHERE c.city LIKE 'Nashville'
LIMIT 300;
```

Step 2: Save results to a CSV and open it with Excel. Calculate moving average by using formula =AVERAGE ()



	A	B	C	D	E	F
1	year	global_avg_temp	Global_temp_n	nashvill	Nashvil	
2	1750	8.72		14.92		
3	1751	7.98		15.72		
4	1752	5.78		8.54		
5	1753	8.39		14.27		
6	1754	8.47	7.868	14.32	13.554	
7	1755	8.36	7.796	11.9	12.95	
8	1756	8.85	7.97	14.44	12.694	
9	1757	9.02	8.618	13.92	13.77	
10	1758	6.74	8.288	12.81	13.478	
11	1759	7.99	8.192	13.83	13.38	
12	1760	7.19	7.958	12.28	13.456	
13	1761	8.77	7.942	14.77	13.522	
14	1762	8.61	7.86	14.27	13.592	
15	1763	7.5	8.012	12.2	13.47	
16	1764	8.4	8.094	14.18	13.54	
17	1765	8.25	8.306	13.86	13.856	
18	1766	8.41	8.234	14.7	13.842	
19	1767	8.22	8.156	13.5	13.688	
20	1768	6.78	8.012	13.09	13.866	
21	1769	7.69	7.87	14.02	13.834	

Project 1: Exploring Weather Trends

Step 3: Create a line chart table by excel

Step 4: Import table and chart from Excel to Word and analyze conclusions

- Key considerations: visualize of chart, temperature average