Report:

1.An outline of steps taken to prepare the data to be visualized What tools did you use for each step?

- SQL : **Extract the data**
- Python : **Open up the CSV ,Create a line chart,Make observations**

2.How did you calculate the moving average?

- 20 year moving average

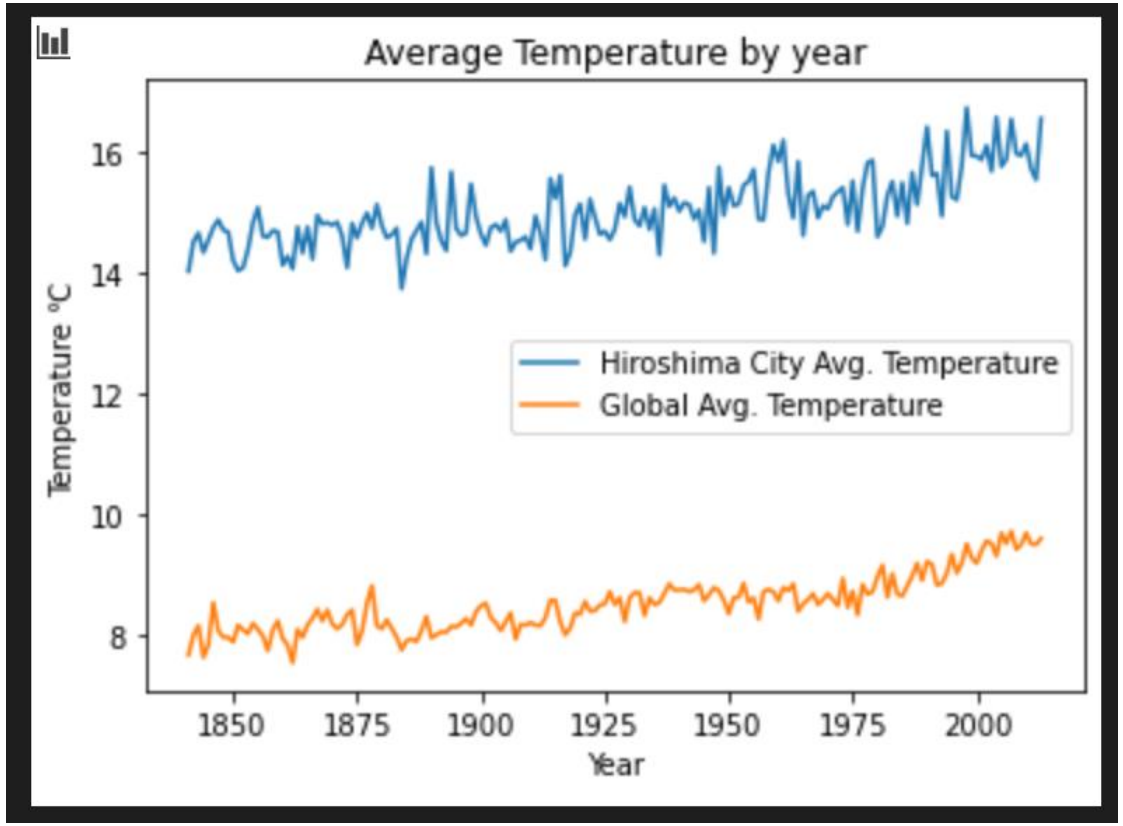
3.What were your key considerations when deciding how to visualize the trends?

- Year after year, average temperatures were assumed to be rising, both globally and in cities.(Correlation)

4.Chart and Observation 1,2

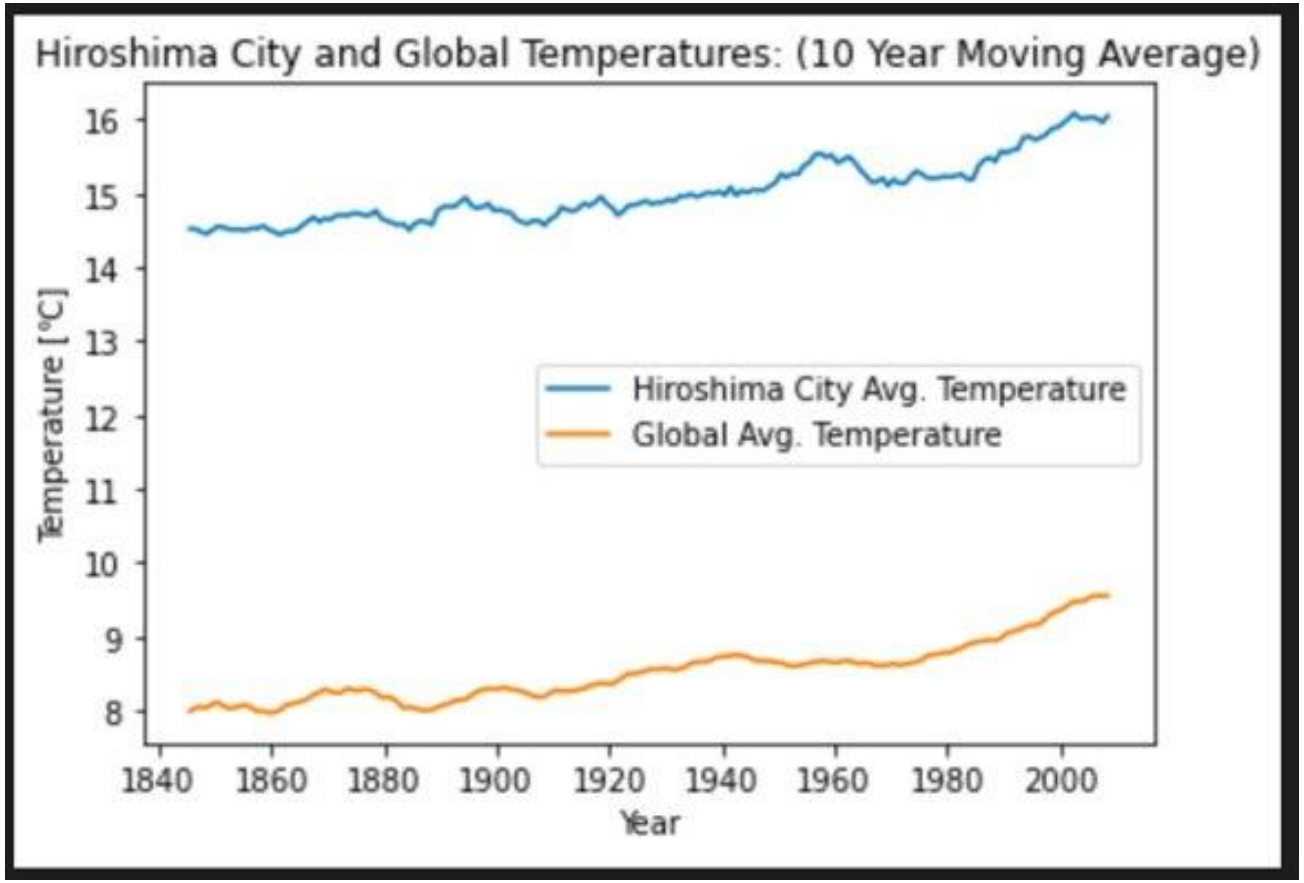
1.The global average temperature is increasing year and year.

2.The average temperature in cities is increasing year and year.



4.Chart and Observation 3,4

3. The increase in average temperature has accelerated in recent years compared to 50 years ago.
4. The average temperature in Hiroshima City is always higher than the average temperature in the world.



Appendix 1:SQL query

```
SELECT T1.year,T1.city,T1.country,T1.avg_temp AS city_avg_temp
,T3.avg_temp AS global_avg_temp
FROM city_data as T1
RIGHT OUTER JOIN city_list AS T2
ON T1.country = T2.country
AND T1.city = T2.city
LEFT OUTER JOIN global_data AS T3
ON T1.year = T3.year
WHERE T1.country = 'Japan'
AND T1.city ='Hiroshima'
ORDER BY T1.year,T1.city,T1.country,T1.avg_temp,T3.avg_temp
```

Appendix2:

- From correlation
  - The average temperature of cities is positively correlated with the average temperature of the world.

	year	ity_avg_temp	global_avg_temp
year	1	0.718694	0.863443
ity_avg_temp	0.718694	1	0.741685
global_avg_temp	0.863443	0.741685	1

Appendix3:

- From describe
  - The difference between the average global temperature as a whole and the average temperature in the town where I live is 6.496 degrees.

	year	city_avg_temp	global_avg_temp
count	173.000000	173.000000	173.000000
mean	1927.000000	15.024624	8.528902
std	50.084928	0.585444	0.467894
min	1841.000000	13.730000	7.560000
25%	1884.000000	14.630000	8.180000
50%	1927.000000	14.900000	8.520000
75%	1970.000000	15.410000	8.760000
max	2013.000000	16.720000	9.730000