

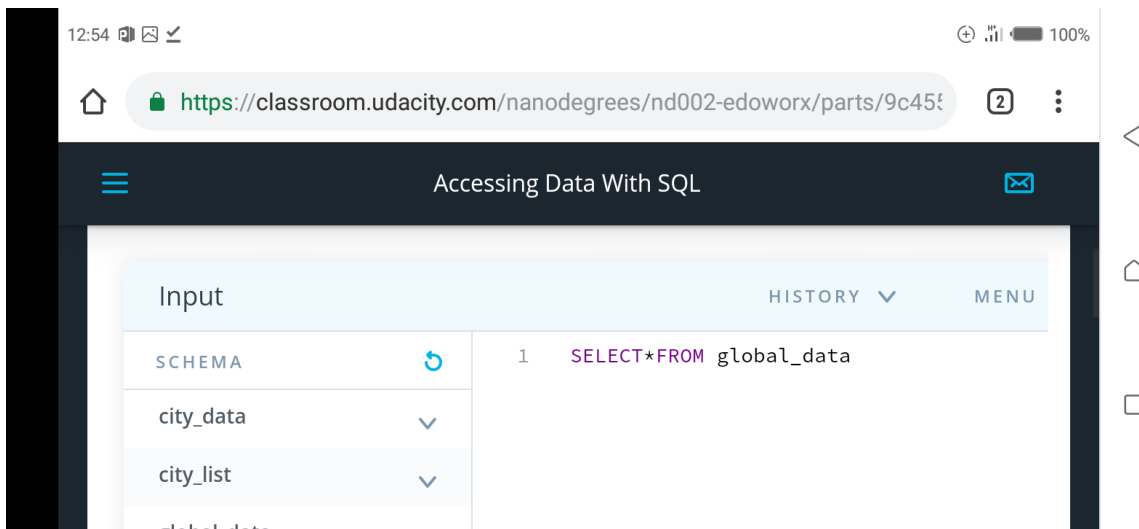
PROJECT REPORT: EXPLORING WEATHER TRENDS

A: INTRODUCTION

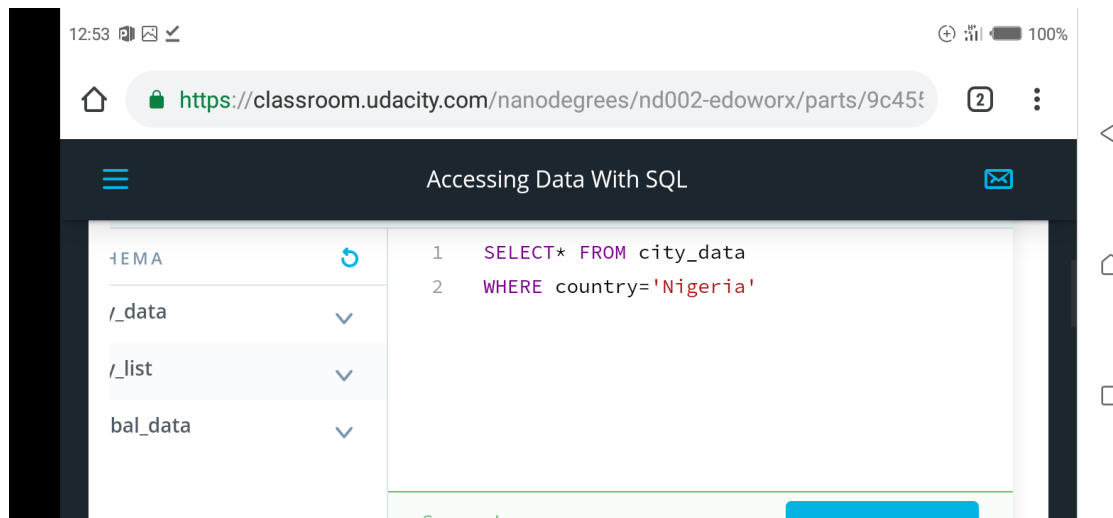
In this project, I was given a task to analyze local and global temperature data, from the provided database in the Udacity classroom, and compare the temperature trends where I live to the overall global temperature trend.

B: PROCEDURES TAKEN TO PREPARE THE DATA

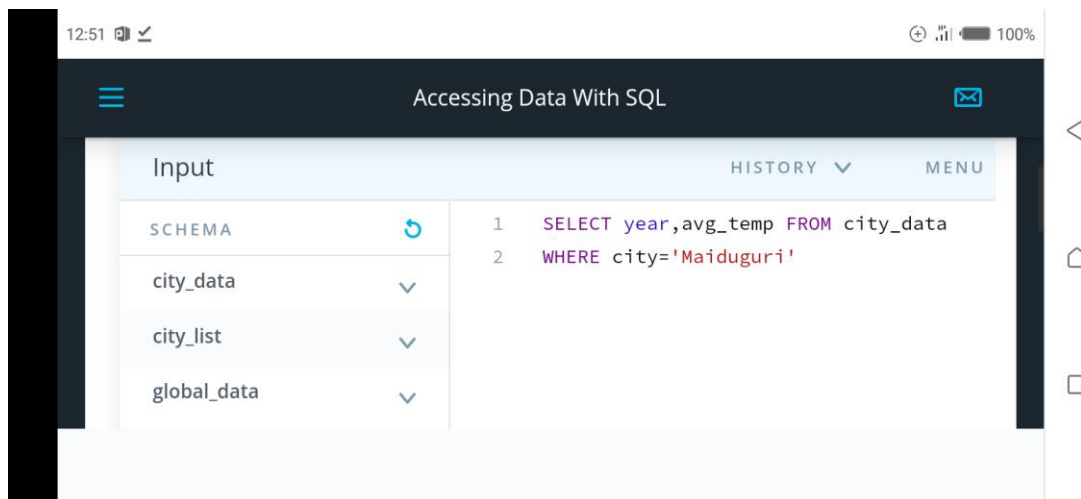
1. I accessed the global temperature data in the SQL workspace provided in the Udacity classroom. The screenshot below shows the SQL query that was used to extract the data. The CSV files were then downloaded.



2. I accessed the city level data in the SQL workspace provided in the Udacity classroom to choose the city closest to me in my country, Nigeria. The city I chose was Maiduguri for my city level data. The screenshot below shows the SQL query that was used to extract the data. The CSV files were then downloaded.



3. I accessed and extracted the city data table for the average temperatures of Maiduguri with their corresponding years. The screenshot below shows the SQL query that was used to extract the data. The CSV files were then downloaded.



4. The extracted CSV files were opened with excel and merged into one dataset. The global and local temperature data had no missing values. I calculated the 7 year moving averages for the global average temperature and the local average temperature, in the period of 1963-2013, using the formula “=AVERAGE()” and this resulted in two additional columns in the data sheet. The moving average was calculated down the column for both the global and local data.

year	Local mov	Local 7 da avg	temp	Global 7 day MA
1963	28.33			8.86
1964	27.81			8.41
1965	27.77			8.53
1966	27.91			8.6
1967	27.83			8.7
1968	27.93			8.52
1969	28.79			
1970	28.15			
1971	27.98			8.6
1972	28.24			8.5
1973	28.97			8.95
1974	27.87			8.47
1975	27.86			8.74
1976	28.36			8.35
1977	27.77			8.85
1978	27.98			8.69
1979	28.42			8.73
1980	28.33			8.98
1981	28.09			9.17
1982	28.14			8.64
1983	28.14			9.03
1984	28.5			8.69
1985	28.33			8.66
1986	28.73			8.83

year	Local mov	Local 7 da avg	temp	Global 7 day MA
1963	28.33			8.86
1964	27.81			8.41
1965	27.77			8.53
1966	27.91			8.6
1967	27.83			8.7
1968	27.93			8.52
1969	28.79	28.05286	8.6	8.602857
1970	28.15	28.02714	8.7	8.58
1971	27.98	28.05143	8.6	8.607143
1972	28.24	28.11857	8.5	8.602857
1973	28.97	28.27	8.95	8.652857
1974	27.87	28.27571	8.47	8.62
1975	27.86	28.26571	8.74	8.651429
1976	28.36	28.20429	8.35	8.615714
1977	27.77	28.15	8.85	8.637143
1978	27.98	28.15	8.69	8.65
1979	28.42	28.17571	8.73	8.692857
1980	28.33	28.08429	8.98	8.687143
1981	28.09	28.11571	9.17	8.787143
1982	28.14	28.15571	8.64	8.772857
1983	28.14	28.12429	9.03	8.87
1984	28.5	28.22857	8.69	8.847143
1985	28.33	28.27857	8.66	8.842857
1986	28.73	28.32286	8.83	8.857143

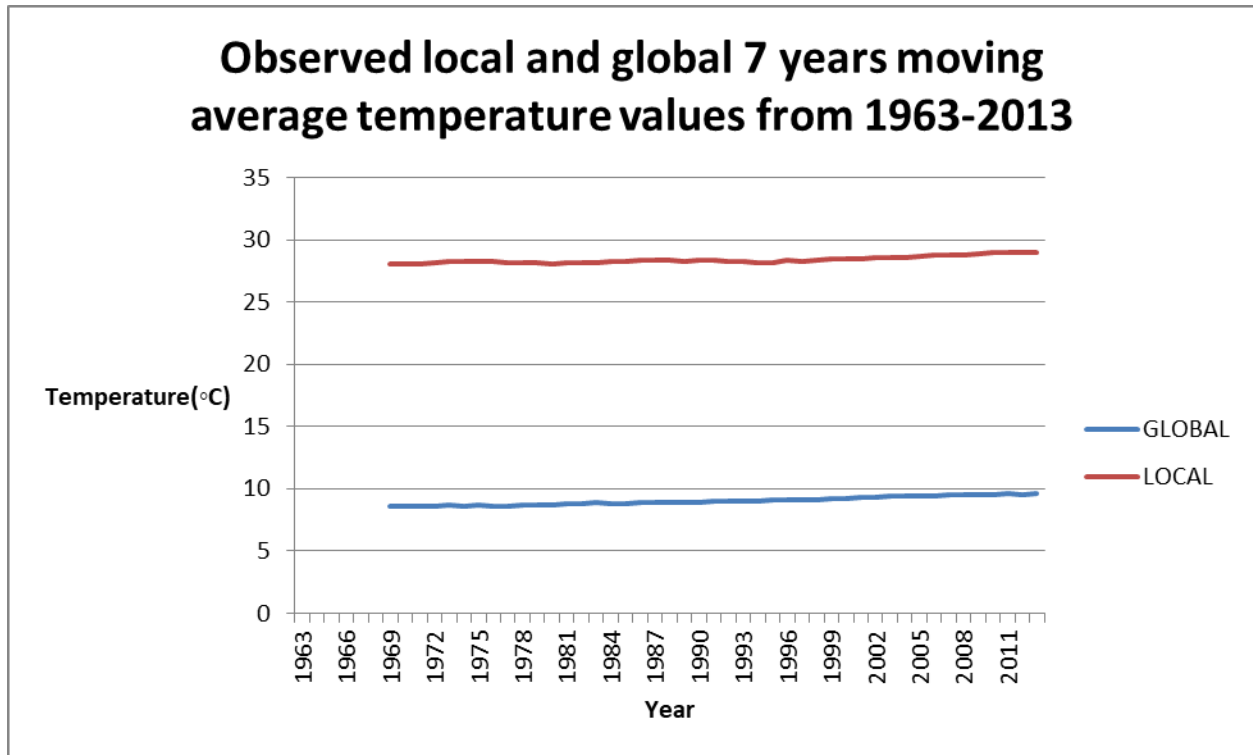
- I plotted a line graph of global moving average temperature and local moving average temperature against the years.

C: KEY CONSIDERATIONS TAKEN WHEN DECIDING HOW TO VISUALIZE THE DATA

At the beginning of any project, visualizing the data helps to understand it better and find patterns and trends. I chose a line chart to evaluate my data because:

1. A line chart shows data variables and trends very clearly.
2. It is useful when the data to be analyzed is very large.
3. Line graphs have space saving characteristics over a comparable grouped bar graph because the data values are marked by small marks.
4. The lines are can easily be color coded.
5. Line graphs can be used to compare changes over the same period of time for more than one group of data.

D: LINE GRAPH SHOWING THE LOCAL AND GLOBAL TEMPERATURE TRENDS AGAINST YEARS



E: OBSERVATIONS GOTTEN FROM THE CHART

1. From the chart, it can be seen that Maiduguri's average city temperature is hotter on the average when compared to the global average temperature overtime.
2. The chart shows that the world is getting hotter as both temperature averages showed gradual increase overtime.
3. The data showed that average temperatures trends over the past 50 years (1963-2013) have been upward due to the increasing greenhouse effect and global warming.
4. The data provides a consistent, reliable method for monitoring changes in the Earth's temperature overtime.