Earth Quake Case Study Analysis

In Earthquake case study, we have data on multiple earthquakes, from1965 to 2016, which occurred at different locations. We have data on the Magnitude, Depth, Location's Latitude and Longitude, Date, Time etc.

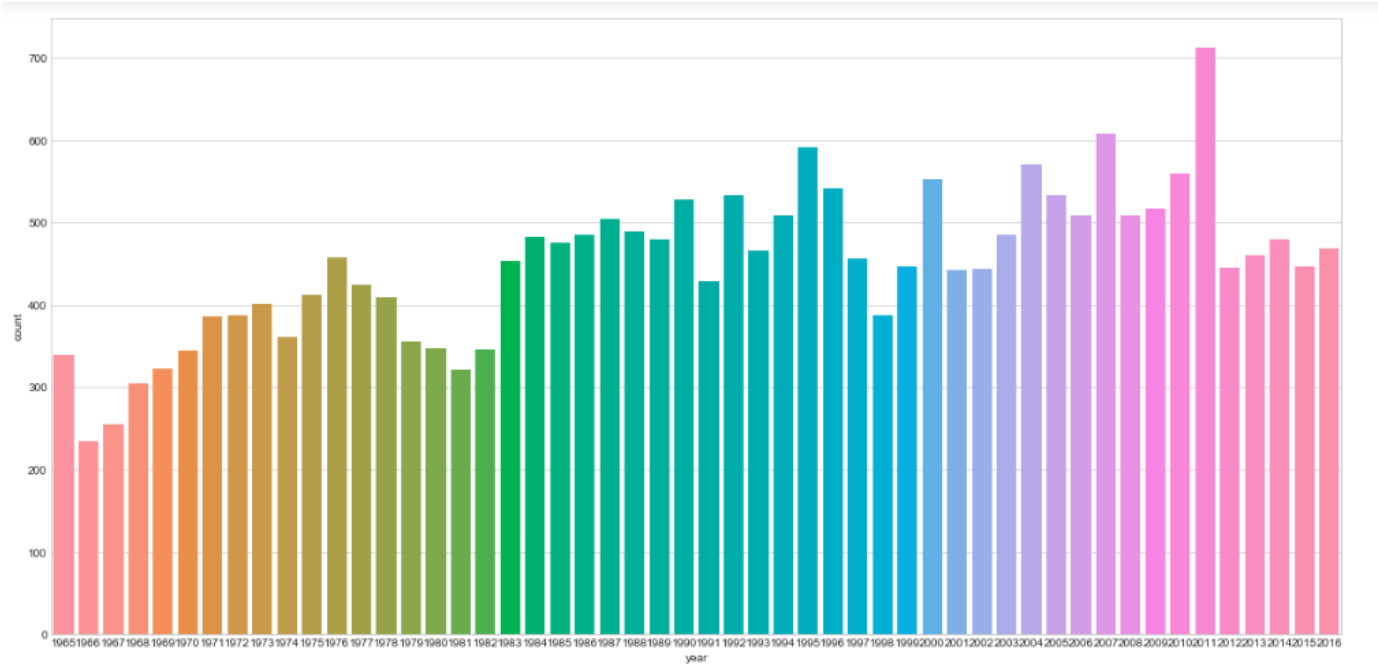
I have analyzed the pattern based on the Date, Time, Magnitude and Longitude & Latitude.

Observations:

1. After going through the summary, I can see that mostly the magnitude of earthquake is between 5.5 and 6. The minimum being at 5.5 and highest at 9.0. The pattern for Magnitude is almost touching normal distribution.
2. From the Date, I can extract Year, month and dates, to plot the frequency of earthquake against them. It will give us a picture on which year majority of earthquake occurred. I can also see through months, if any month has particularly high pattern for occurrence of earthquakes.
3. I have also extracted each unit of time, to make a plot against frequency of the earthquake. It will help in analyzing if time plays any major role or not in the occurrence of earthquake.

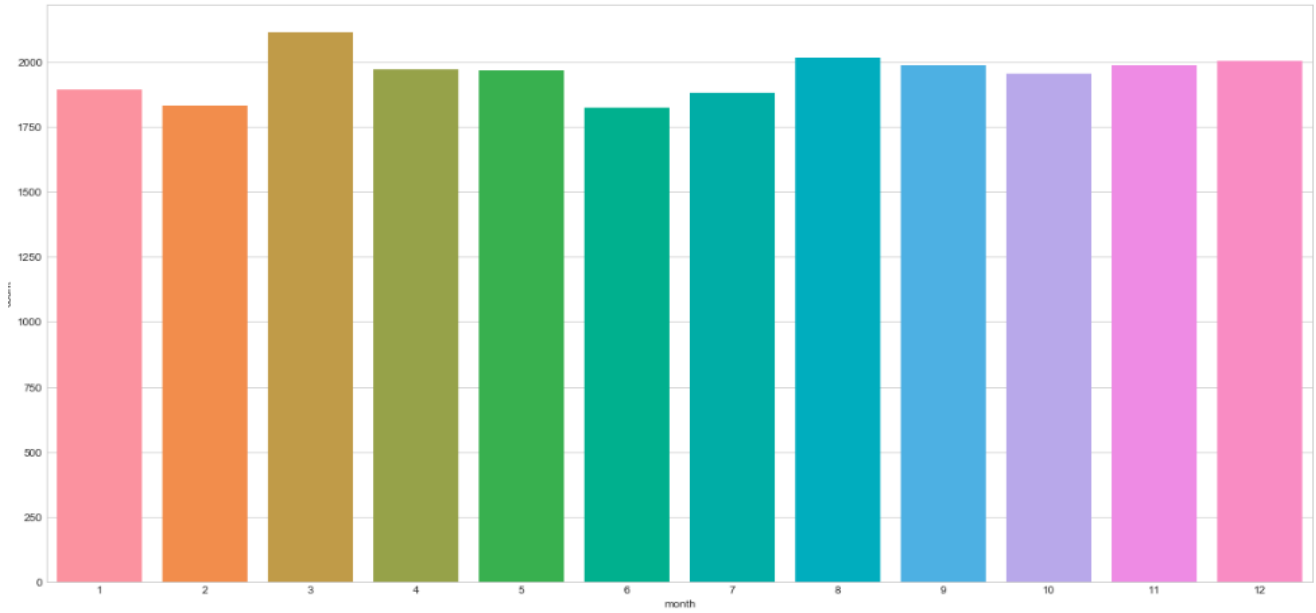
Conclusions based on plots

1. Year Vs frequency of earthquakes



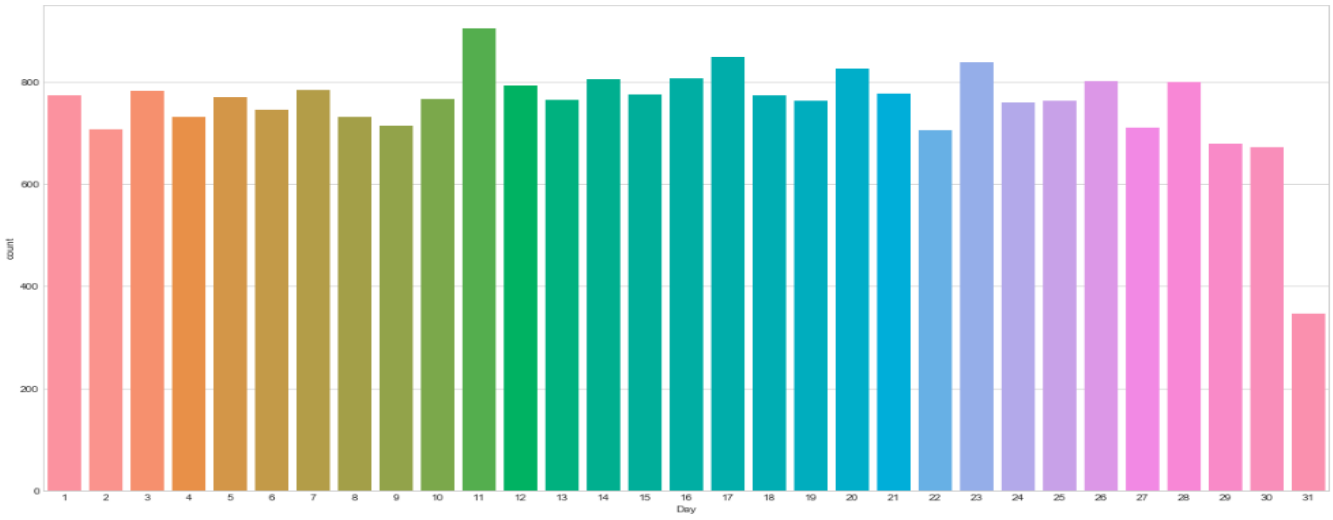
From the plot, we can see that, maximum number of Earthquake occurred in 2011. We cannot draw any further inference. As the graph is going up and down throughout 1965 to 2016. We cannot say that more earthquake started happening after 1965 because of deforestation, global warming etc. After 2011, the graph shows almost same relation from 2012 to 2016, without much difference in the numbers.

2. Months Vs Frequency of Earthquakes



This plot, does not give any insight, as count is almost same across all the months. This indicates that earthquake is not seasonal. However, March has slightly high count.

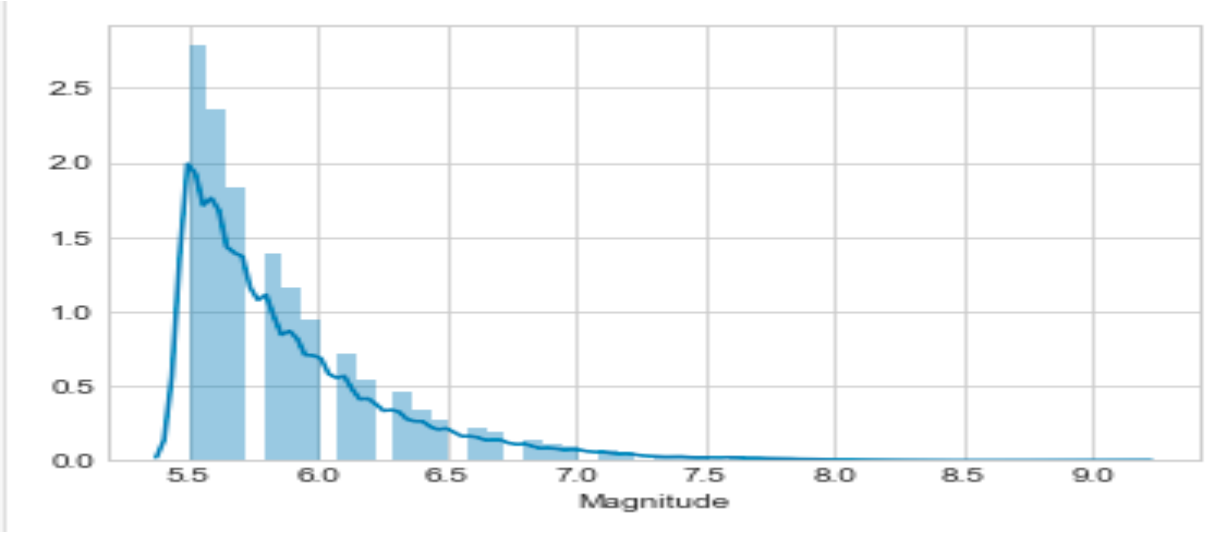
3. Days Vs Frequency of Earthquakes



I also plotted a graph against days of the month, in order to see if natural phenomenon like Full Moon, eclipse, high tide, low tide etc. has any effect on the distribution. I can see that distribution is almost same across all the days, but during last day of the month the count is low. However, I do not think it provides us any useful insight.

I also plotted the graph against Hour, Minute and seconds, but it did not provide any useful insight.

4. Magnitude Vs Frequency of Earthquake



We can see that, mostly the Magnitude of earthquake is 5.5 and it gradually decreases afterwards. Majority of the earthquake are on the magnitude of 5.5 to 6.0.

5. North/South Hemisphere Vs Magnitude

I have divided the data into north and south geographic poles based on longitude and latitude. I have taken two hemisphere, North and South.

Nothing much changes in the northern and southern hemisphere. Magnitude remains the same, 5.5.