World Happiness Data Analysis

and

Visualization

Number of countries observed : 158

Measure of Happiness : Happiness Score, Happiness Rank

Features observed : Economy (GDP per Capita) , Family, Health (Life Expectancy),
Trust (Government Corruption), Generosity, Dystopia Residual

World Regions Division : 'Western Europe', 'North America', 'Australia and New Zealand',
'Middle East and Northern Africa', 'Latin America and Caribbean',
'Southeastern Asia', 'Central and Eastern Europe', 'Eastern Asia',
'Sub-Saharan Africa', 'Southern Asia' (total 10)

Top 10 happiest countries (with Happiness Rank) :

Rank. Country

1. Switzerland	2 .Iceland
3. Denmark	4 .Norway
5 .Canada	6 .Finland
7.Netherlands	8.Sweden
9.New Zealand	10. Australia

Least happy countries (with Happiness Rank) :

Rank. Country

149. Chad	150. Guinea
151. Ivory Coast	152. Burkina Faso
153. Afghanistan	154. Rwanda
155. Benin	156. Syria
157. Burundi	158. Togo

**Region with most number of countries** : Sub-Saharan Africa (has 40 countries)

Mean happiness score of the world : 5.37
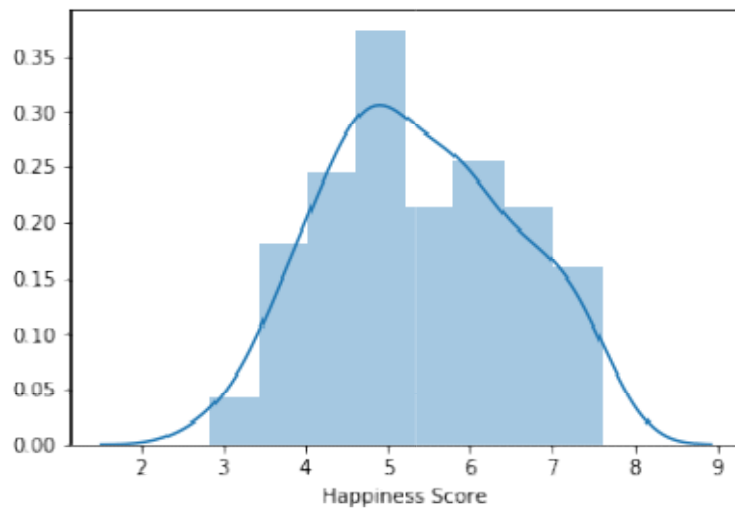
**Region-wise Mean Happiness Score in descending order :**

| Region	Mean Happiness Score
Australia and New Zealand	7.285000
North America	7.273000
Western Europe	6.689619
Latin America and Caribbean	6.144682
Eastern Asia	5.626167
Middle East and Northern Africa	5.406900
Central and Eastern Europe	5.332931
Southeastern Asia	5.317444
Southern Asia	4.580857
Sub-Saharan Africa	4.202800

Correlation among features :
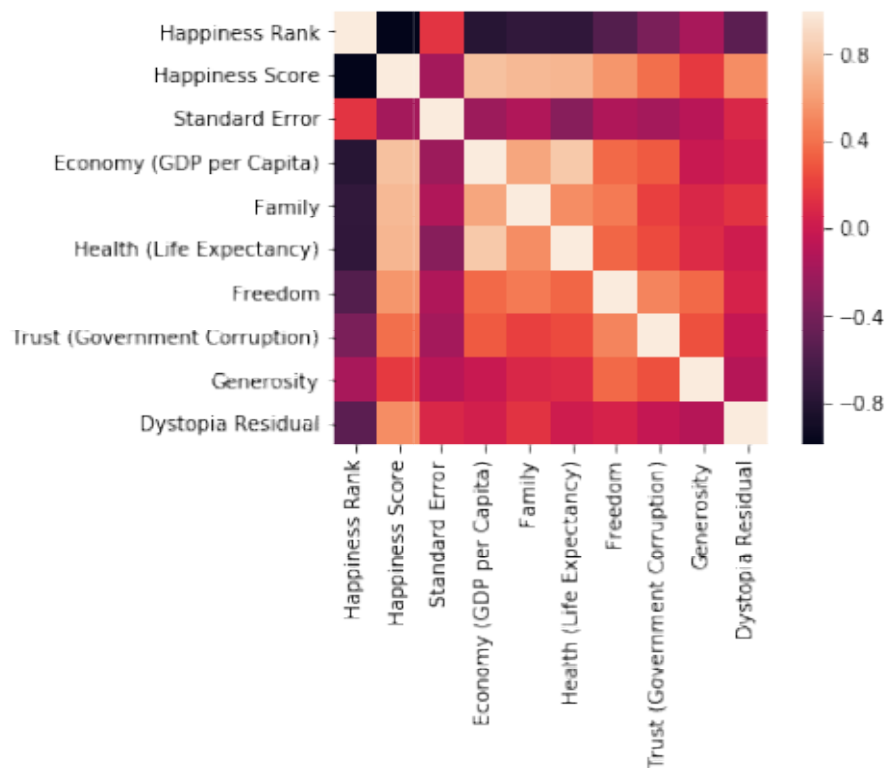
The heat map shows the correlations among the features. The lighter the shade higher is the correlation between two features and vice-versa. Here, we can observe that 'Happiness Score' is correlated almost all the features except 'Happiness Rank', minimum with 'Standard Error', 'Generosity' and more with the rest. GDP, Family & Health shows highest correlation.

Global Happiness Rankings :
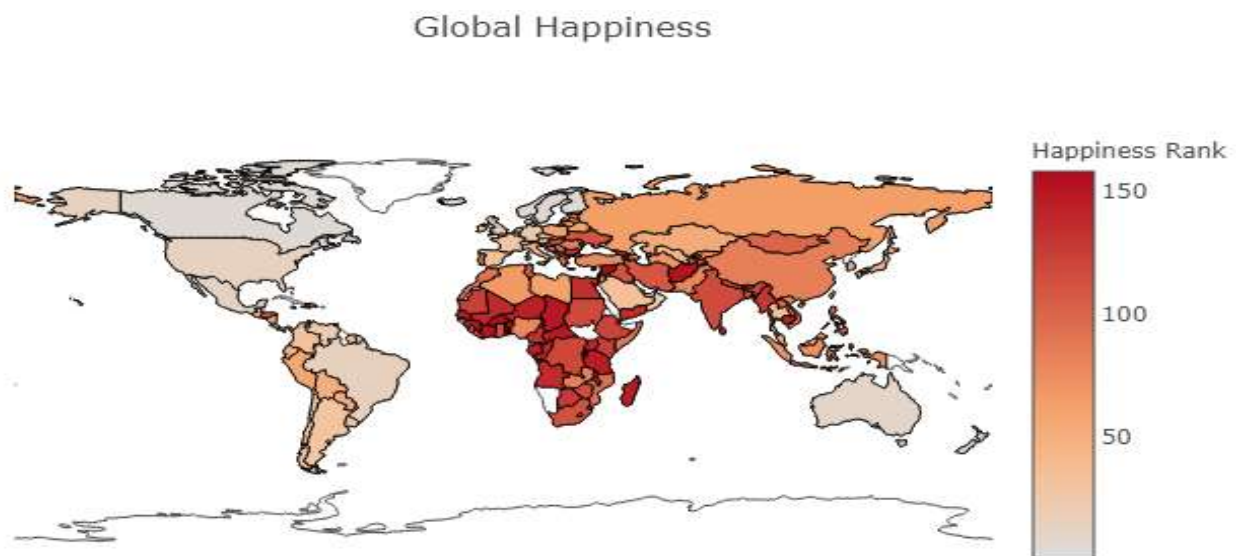
Happiness Rank Distribution among regions :
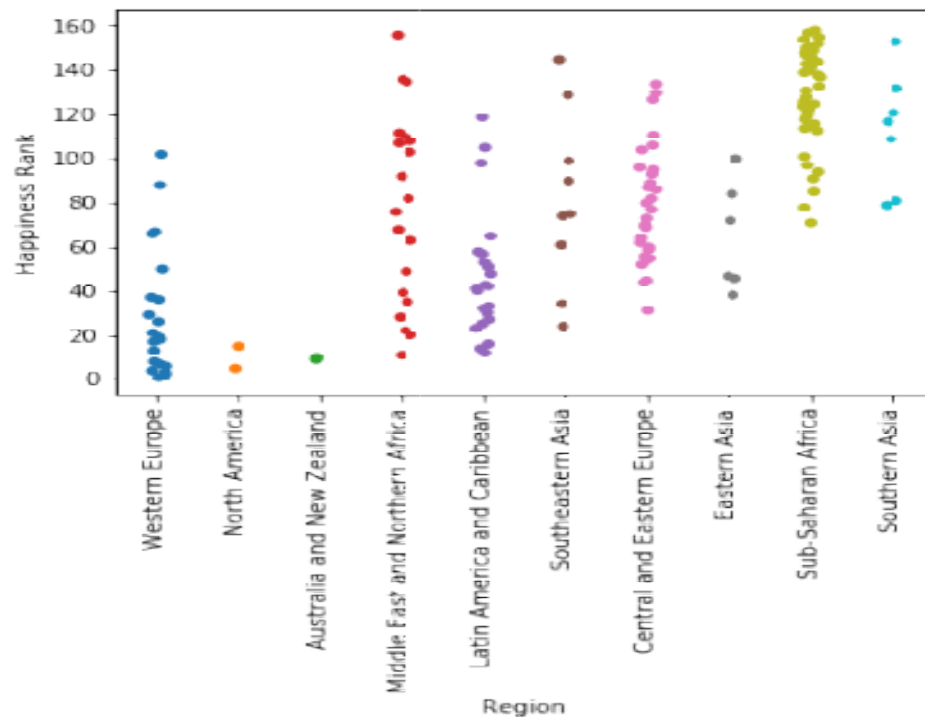
The western countries, Australia & New Zealand have better Happiness Ranks. The eastern countries have moderate ranks while the middle region, Africa have the highest ranks implying fairly high unhappiness. The Sub-Saharan Africa has the worst Happiness Rankings.

Linear Regression Coefficients for Happiness Score as output variable :

Feature	Coefficient
Standard Error	-0.000663
Economy (GDP per Capita)	1.000128
Family	0.999810
Health (Life Expectancy)	0.999984
Freedom	0.999720
Trust (Government Corruption)	0.999885
Generosity	0.999747
Dystopia Residual	0.999955

All the features except Standard Error, have high coefficient value showing that they are correlated to the output(Happiness Score) strongly.

GDP is the most dominant feature affecting the output while Freedom, Generosity are slightly less dominant.
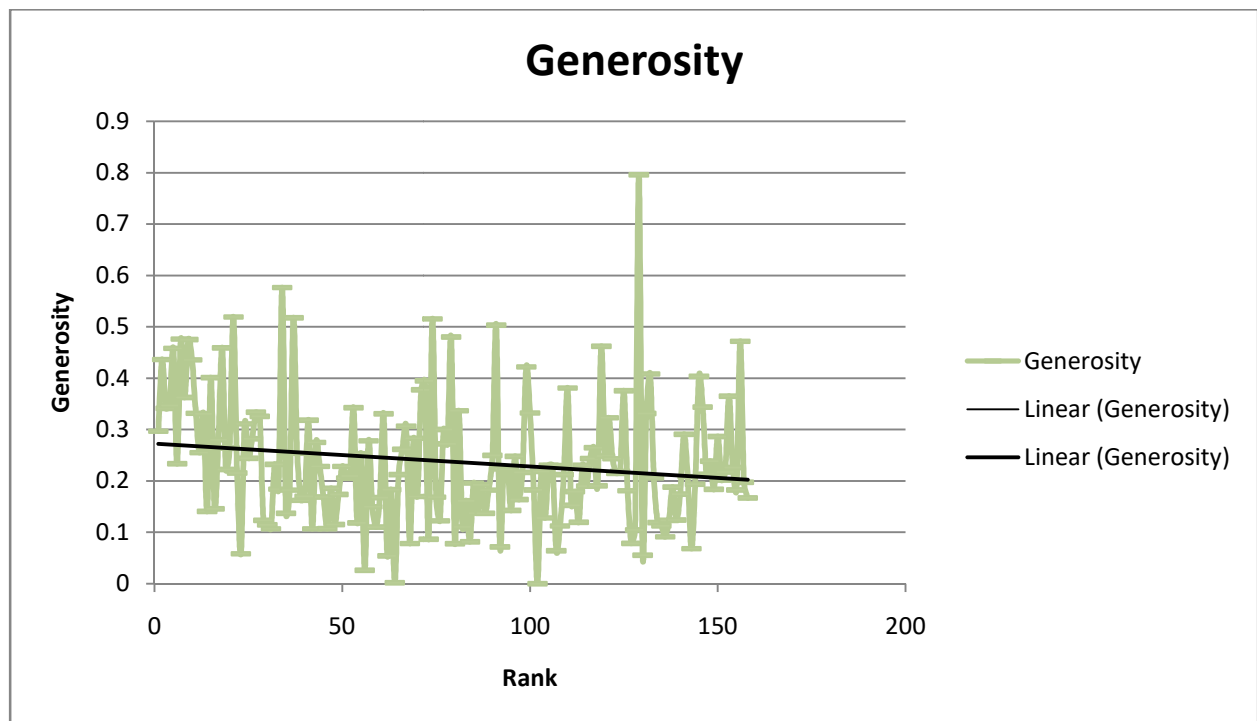
Generosity

Better Happiness Rank doesn't imply generosity but generosity implies higher Happiness Score. We can see an outlier. Myanmar has highest generosity in spite of having a poor happiness score. The trend shows that increasing Happiness Rank decreases the Generosity.

Modelling Happiness :

Earlier we saw that Happiness Score has correlations with almost all the features. The regression model shows that a linear line can be fit into data to get a trend.

Regression of feature: Economy (GDP per Capita)

Regression of feature: Family

Regression of feature: Health (Life Expectancy)

Regression of feature: Freedom

Regression of feature: Trust (Government Corruption)

Regression of feature: Generosity