BUSINESS SCENARIO – Analysis on Impact of economy on Health Life Expectancy of a country.

OBJECTIVE – Predicting Health Life Expectancy of People by assessing it with the economy of a country.

DATA SOURCE -
https://www.kaggle.com/unsdsn/world-happiness

AIM – To develop an analysis which predicts the health life expectancy using factors such as economy and Health Expectancy.

SUMMARY - The health life expectancy is the number of years a certain individual can be predicted to live for, at the time of his birth. The economy of the country is also better known as the GDP.

A Higher income implies better access to housing, education, health services and other items which tend to lead to improved health, lower rates of mortality and higher life expectancy. It is not surprising, therefore, that aggregate income has been a pretty good predictor of life expectancy.

FINDINGS -

The dataset used in this project is from United Nations. To make things easier they have normalized the data. The economy of a country (GDP) is in thousands of dollars but in my graph, you can see it ranging from 0 - 1.5 (example - 0.5 is equal to $50,000.)

The Health Life Expectancy can be seen in a range from 0-1 which means (0.5 is equal to 50 years.) Since both my X and Y values are numeric I have performed regression analysis on them.

United Nations does this normalization and I have received the dataset in the normalized form from the kaggle datasets.

(1) Economy has about 70% influence(r-square) on HealthExpectancy. High F-value 382.84 with a relation to p-value at <.00001 (near 0)

(2) Regression equation - HealthExpectancy = 0.1137 + 0.4653 * Economy

(3) Using the equation, we can derive that for each additional 10% increase in Economy, HE increases by 4%.

(4) Observations:

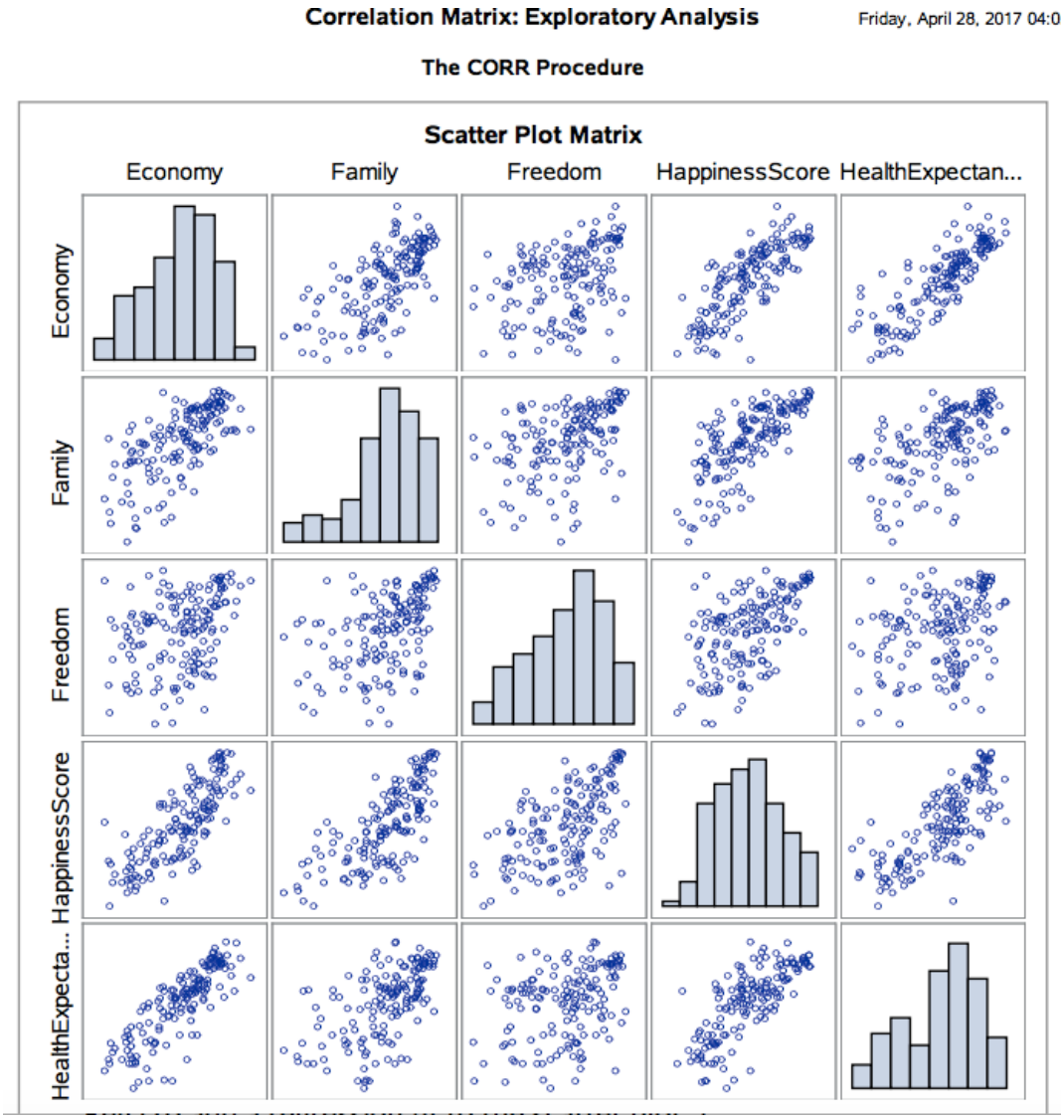
Observation	HealthExpectancy	Predicted
1	0.795	0.7846
5	0.8109	0.768

In above example, for observation number 1, which is Denmark, the actual Health Expectancy was 0.8 and predicted is 0.785

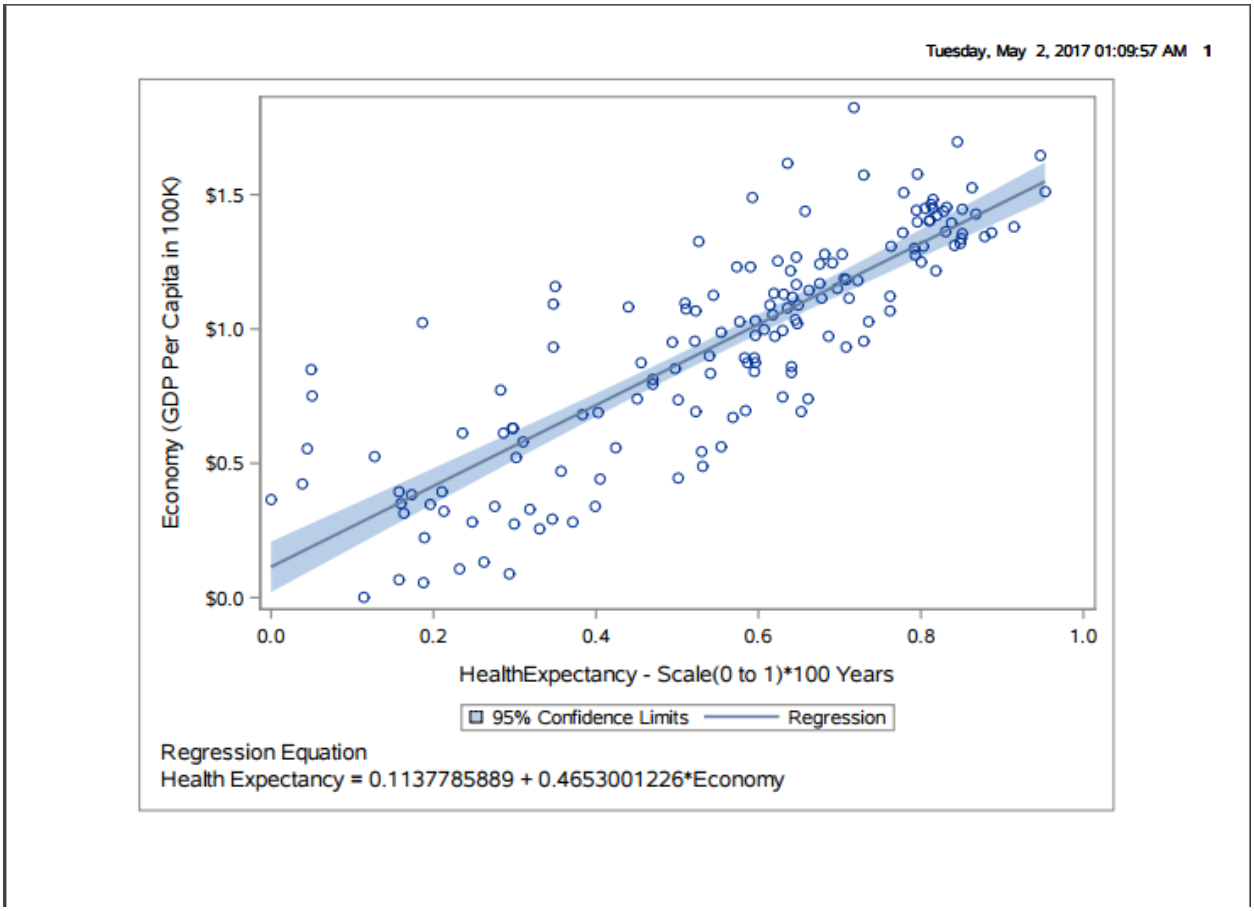
CONCLUSION

When economy of a country increases by 10%, the health expectancy of a person from that country will increase by 4%. This is derived from our regression equation. Also, higher income does not always lead to a higher life expectancy but it is safe to say that people of wealthier countries live longer.

PLOTS



REGRESSION ANALYSIS –



SAS CODE –

```
proc sgplot data=employee.wh;
  reg x=healthExpectancy y=economy / clm;
  label healthexpectancy = "HealthExpectancy - Scale(0 to 1)*100 Years";
  label economy = "Economy (GDP Per Capita in 100K)";
  format economy dollar12.;

  /* The following INSET statement can be used as */
  /* an alternative to the FOOTNOTE statement */
```

```
/* inset "&eqn" / position=bottomleft;  */

  footnote1 j=l "Regression Equation";
  footnote2 j=l "&eqn";
run;


proc reg data=employee.wh outest=regdata noprint;
  model healthExpectancy=Economy / clm;
run;
quit;

/* Place the regression equation in a macro variable. */
data _null_;
  set regdata;
  call symput('eqn',"Health Expectancy = "||Intercept||" + "||Economy||"*Economy");
run;


proc reg data=employee.wh plots=ResidualByPredicted;
var economy;
model healthexpectancy=economy / r clm cli;
run;


 ods graphics on;
title 'Correlation Matrix: Exploratory Analysis';
proc corr data=employee.wh nomiss plots(MAXPOINTS=NONE) plots=matrix(histogram) ;
var Economy family freedom happinessscore healthexpectancy;
  run;
ods graphics off;
  run;
```