

Final Project (Group 2)

Group 2

2024-05-09

- Research Question/Hypothesis: What variable in the world happiness report (family, health, trust, generosity, and economics) has the greatest effect on a nation's happiness score?
- Hypothesis: Economics plays the largest role in a nation's happiness score.

```
library(readxl)
library(dplyr)
library(ggplot2)
library(tidyr)
```

```
data <- read_excel("2019.xls")
```

```
colnames(data)
```

```
## [1] "Overall rank"           "Country or region"
## [3] "Score"                 "GDP per capita"
## [5] "Social support"        "Healthy life expectancy"
## [7] "Freedom to make life choices" "Generosity"
## [9] "Perceptions of corruption"
```

```
library(readxl)
```

```
data <- read_excel("2019.xls")
```

```
data <- read_excel("2019.xls")
```

```
print(colnames(data))
```

```
## [1] "Overall rank"           "Country or region"
## [3] "Score"                 "GDP per capita"
## [5] "Social support"        "Healthy life expectancy"
## [7] "Freedom to make life choices" "Generosity"
## [9] "Perceptions of corruption"
```

```
data <- data %>%
  rename(
    Economy = `GDP per capita`,
    Social = 'Social support',
    Health = `Healthy life expectancy`,
    Freedom = `Freedom to make life choices`,
    Corruption = 'Perceptions of corruption',
    Happiness_Score = `Score`
  )
print(colnames(data))
```

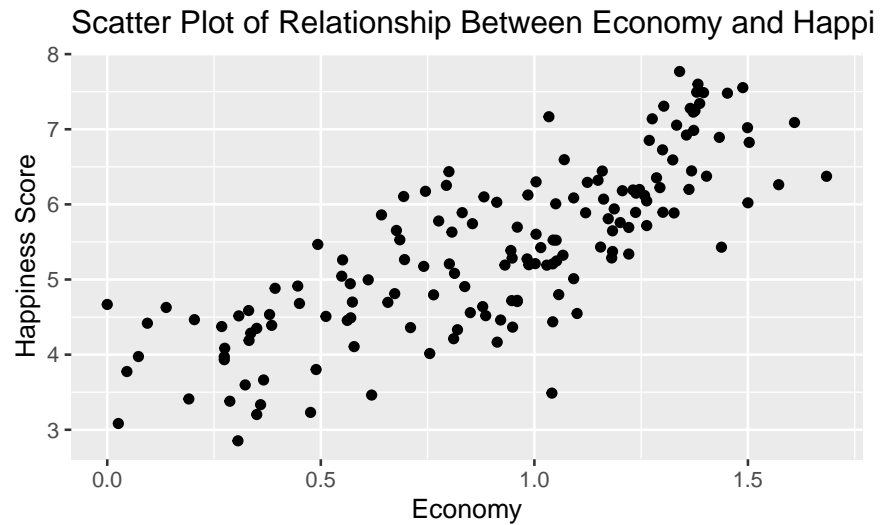
```
## [1] "Overall rank"      "Country or region" "Happiness_Score"
## [4] "Economy"           "Social"            "Health"
## [7] "Freedom"           "Generosity"        "Corruption"
```

```
head(
  select(data, Economy, Social, Health, Freedom, Corruption, Happiness_Score)
)
```

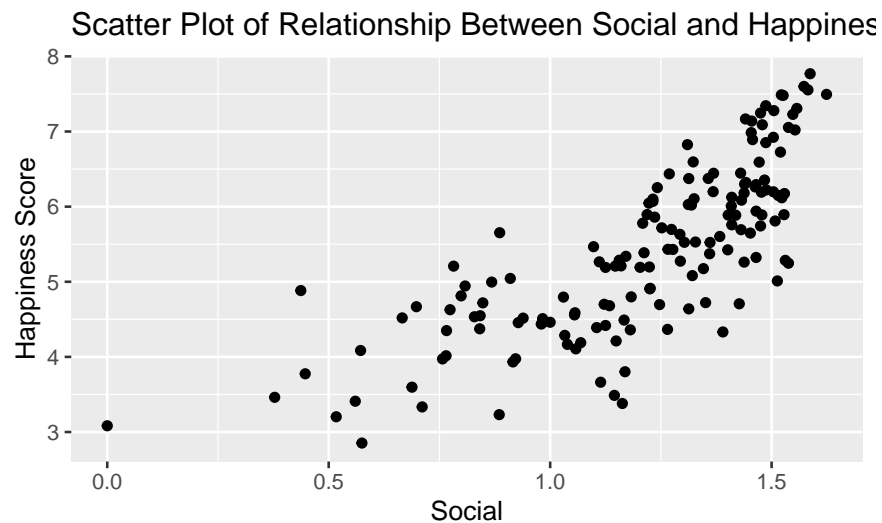
Economy	Social	Health	Freedom	Corruption	Happiness_Score
1.340	1.587	0.986	0.596	0.393	7.769
1.383	1.573	0.996	0.592	0.410	7.600
1.488	1.582	1.028	0.603	0.341	7.554
1.380	1.624	1.026	0.591	0.118	7.494
1.396	1.522	0.999	0.557	0.298	7.488
1.452	1.526	1.052	0.572	0.343	7.480

[Module 2: Junhyung Kim, Jiho Lee]

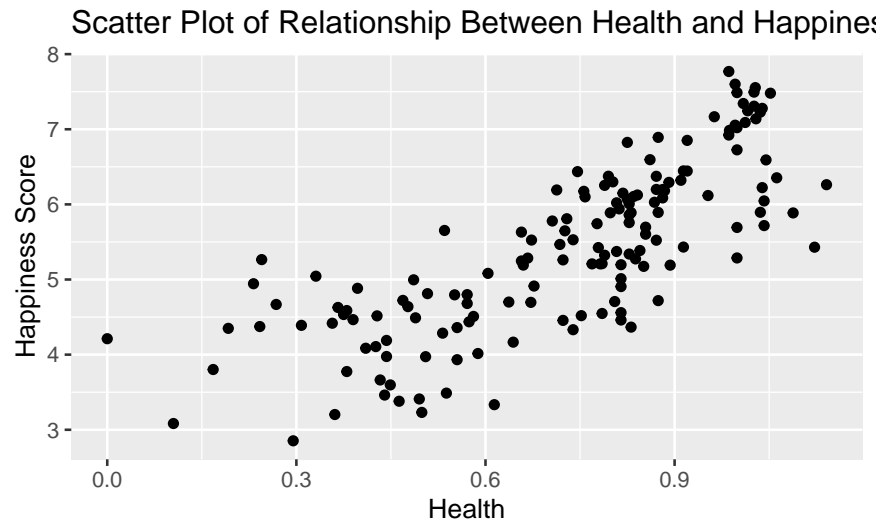
```
data %>%
  ggplot() +
  geom_point(mapping = aes (x = Economy, y= Happiness_Score)) +
  labs(title =
    "Scatter Plot of Relationship Between Economy and Happiness Score",
    x = "Economy", y = "Happiness Score")
```



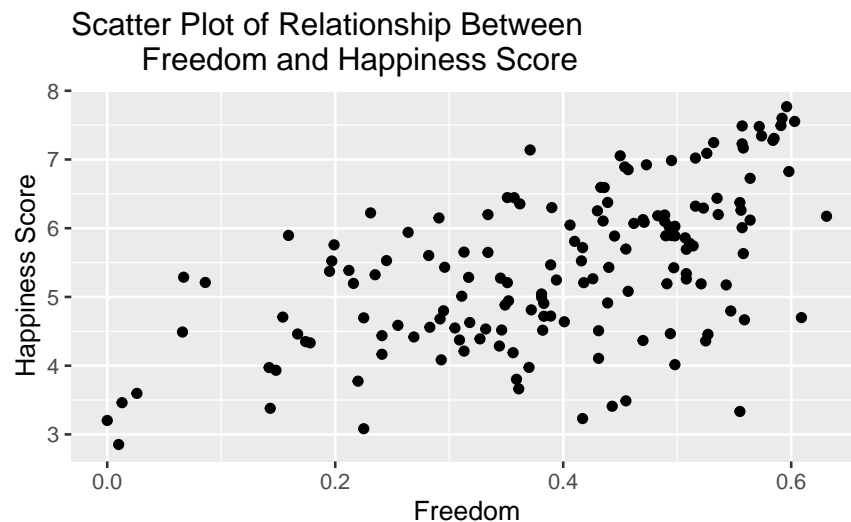
```
data %>%
  ggplot() +
  geom_point(mapping = aes (x = Social, y= Happiness_Score)) +
  labs(title =
    "Scatter Plot of Relationship Between Social and Happiness Score",
    x = "Social", y = "Happiness Score")
```



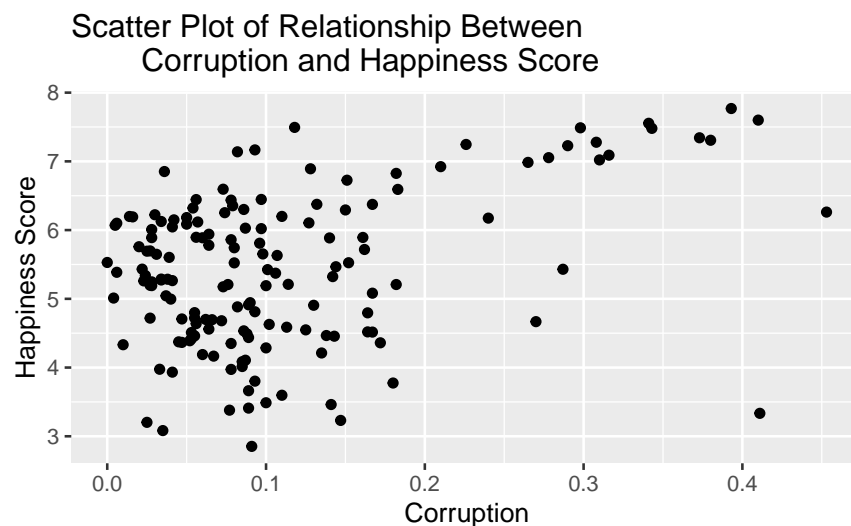
```
data %>%
  ggplot() +
  geom_point(mapping = aes (x = Health, y= Happiness_Score)) +
  labs(title =
    "Scatter Plot of Relationship Between Health and Happiness Score",
    x = "Health", y = "Happiness Score")
```



```
data %>%
  ggplot() +
  geom_point(mapping = aes (x = Freedom, y= Happiness_Score)) +
  labs(title =
    "Scatter Plot of Relationship Between
    Freedom and Happiness Score",
    x = "Freedom", y = "Happiness Score")
```



```
data %>%
  ggplot() +
  geom_point(mapping = aes (x = Corruption, y= Happiness_Score)) +
  labs(title =
    "Scatter Plot of Relationship Between
    Corruption and Happiness Score",
    x = "Corruption", y = "Happiness Score")
```



[Module 4: Eugene Kim - Explanatory Data Analysis]

```
str(data)
```

```
## tibble [156 x 9] (S3: tbl_df/tbl/data.frame)
##  $ Overall rank      : num [1:156] 1 2 3 4 5 6 7 8 9 10 ...
##  $ Country or region: chr [1:156] "Finland" "Denmark" "Norway" "Iceland" ...
##  $ Happiness_Score   : num [1:156] 7.77 7.6 7.55 7.49 7.49 ...
##  $ Economy           : num [1:156] 1.34 1.38 1.49 1.38 1.4 ...
##  $ Social            : num [1:156] 1.59 1.57 1.58 1.62 1.52 ...
##  $ Health            : num [1:156] 0.986 0.996 1.028 1.026 0.999 ...
##  $ Freedom           : num [1:156] 0.596 0.592 0.603 0.591 0.557 0.572 0.574 0.585 0.584 0.5...
##  $ Generosity        : num [1:156] 0.153 0.252 0.271 0.354 0.322 0.263 0.267 0.33 0.285 0.24...
##  $ Corruption        : num [1:156] 0.393 0.41 0.341 0.118 0.298 0.343 0.373 0.38 0.308 0.226
```

```
head(
  select(data, Economy, Social, Health, Freedom, Corruption, Happiness_Score)
)
```

Economy	Social	Health	Freedom	Corruption	Happiness_Score
1.340	1.587	0.986	0.596	0.393	7.769
1.383	1.573	0.996	0.592	0.410	7.600
1.488	1.582	1.028	0.603	0.341	7.554
1.380	1.624	1.026	0.591	0.118	7.494
1.396	1.522	0.999	0.557	0.298	7.488
1.452	1.526	1.052	0.572	0.343	7.480

```
tail(data)
```

Overall rank	Country or region	Happiness_Score	Economy	Social	Health	Freedom	Generosity	Corruption
151	Yemen	3.380	0.287	1.163	0.463	0.143	0.108	0.077
152	Rwanda	3.334	0.359	0.711	0.614	0.555	0.217	0.411
153	Tanzania	3.231	0.476	0.885	0.499	0.417	0.276	0.147
154	Afghanistan	3.203	0.350	0.517	0.361	0.000	0.158	0.025
155	Central African Republic	3.083	0.026	0.000	0.105	0.225	0.235	0.035
156	South Sudan	2.853	0.306	0.575	0.295	0.010	0.202	0.091