Global Health Observatory Analysis

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Problem Statement

Health plays a vital role in deciding Life Expectancy. People all over the world pay a lot to insurance companies to secure the finance if there is a health emergency. It becomes very important to understand which factors directly or indirectly affect life expectancy.

- What are the predicting variables actually affecting life expectancy?
- Should a country having a lower life expectancy value(<65) increase its healthcare expenditure to improve its average lifespan?
- How do Infant and Adult mortality rates affect life expectancy?
- Does Life Expectancy have a positive or negative correlation with eating habits, lifestyle, exercise, smoking, drinking alcohol, etc?
- What is the impact of schooling on the lifespan of humans?
- Does Life Expectancy have a positive or negative relationship with drinking alcohol?
- Do densely populated countries tend to have a lower life expectancy?
- What is the impact of Immunization coverage on life Expectancy?

Data Set Overview

- **COUNTRY DATA**

Table showing the metrics of the country with important parameters.

Unique key

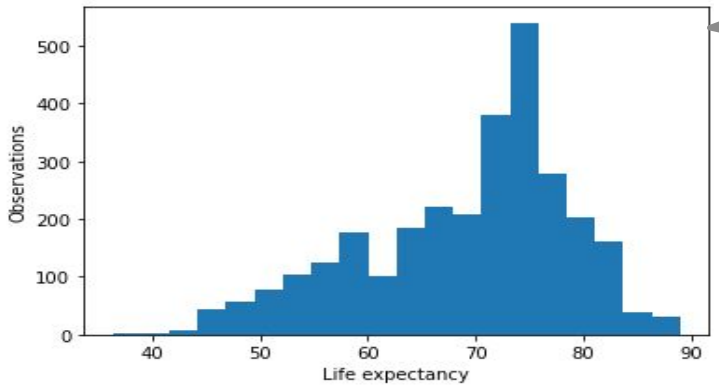
Country
Year
Status
Life expectancy
Adult Mortality
Alcohol
Total expenditure
GDP
Population
thinness 1 - 19 years
thinness 5 - 9 years
Income composition of resources (ICOR)
Schooling

- **IMMUNIZATION DATA**

Table showing diseases, mortality, and immunization coverage factors of the country.

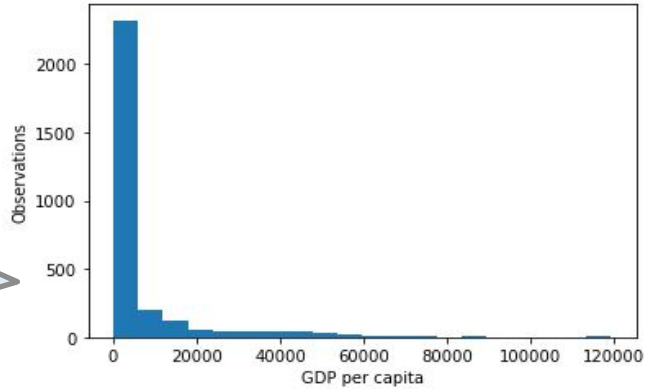
Country
Year
Infant deaths
Hepatitis B
Measles
BMI
Under-five death
Polio
Diphtheria
HIV/AID

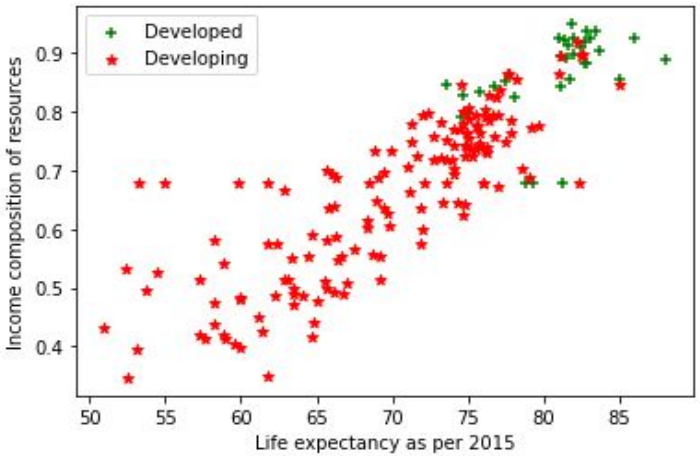
Overall Distribution of Performance Indicators



70-80 years is the most occurring Life expectancy

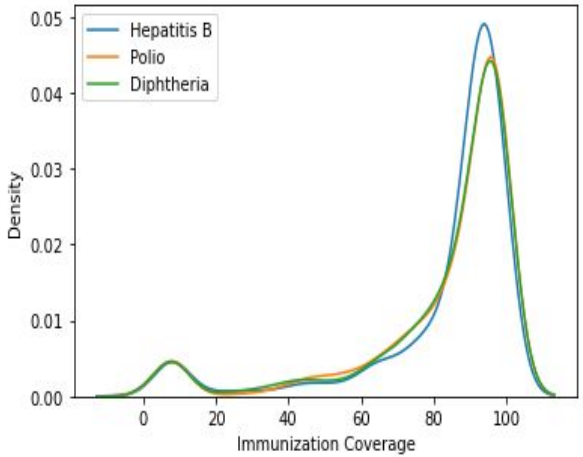
Lot of countries have very low GDP per capita





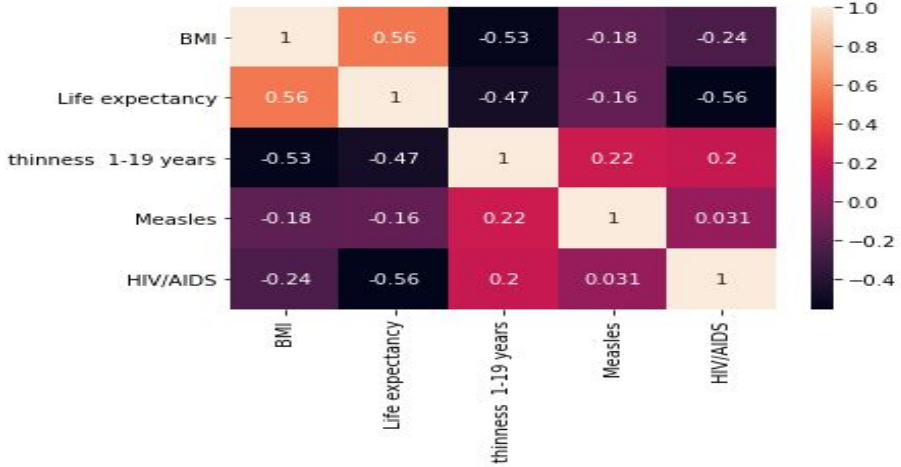
- Life expectancy increases wrt ICOR in Developed and Developing Countries
- Although Developed countries have ICOR and Life expectancy in higher range

Most of the countries have higher Immunization coverage for all diseases

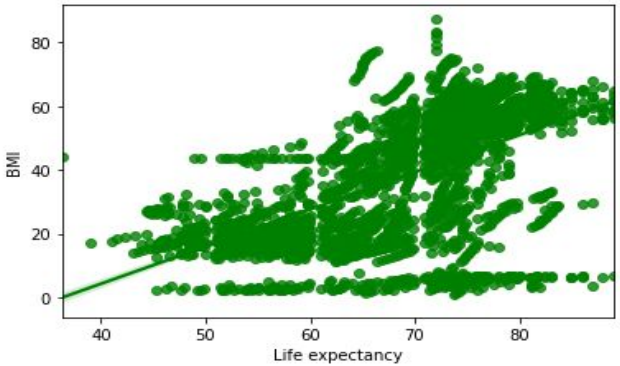


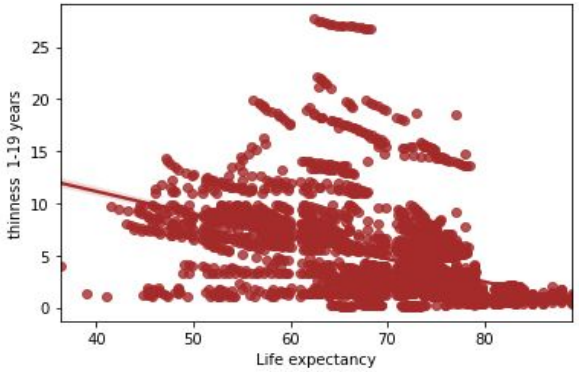
Correlated factors of Life Expectancy

- No parameters have strong positive or strong negative correlation with **Life expectancy**
- Maximum positive correlation with **BMI**: **0.56**
- Nearly **0.5** positive correlation with **Thinness** also
- Maximum negative correlation with **HIV/AIDS**: **-0.56**



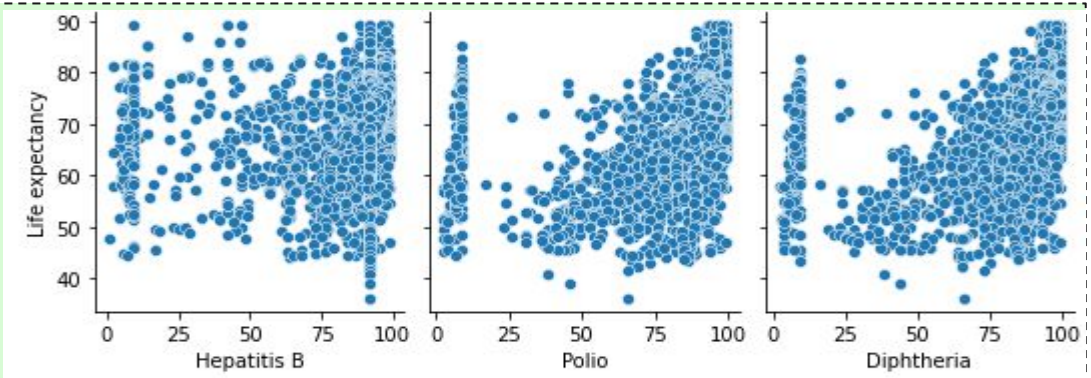
Positive & Negative Correlation with Life expectancy



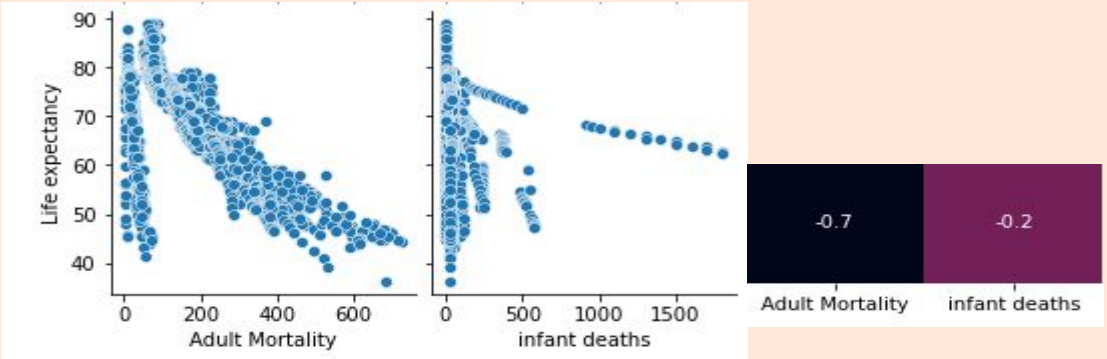


Effect of Immunization & Mortality on Life Expectancy

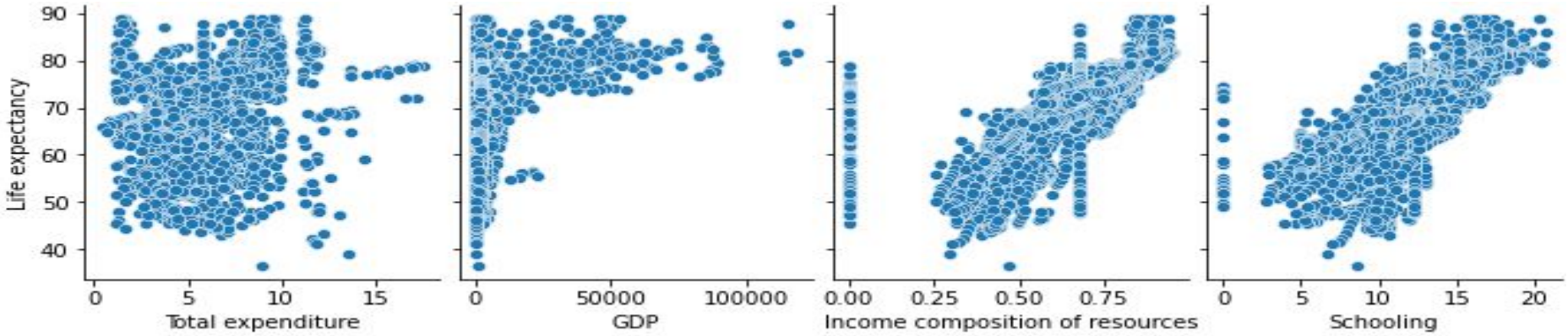
- **Immunization is causing positive impact** on Life expectancy
- **Polio & Diphtheria Immunization has more impact** on Life expectancy compared to Polio Immunization



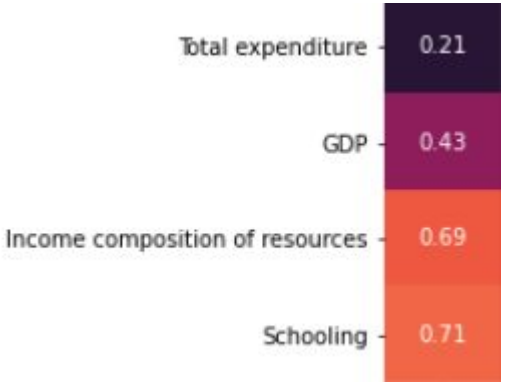
- **Mortality Rate has negative impact** on Life expectancy
- **Adult Mortality Rate is having a very high correlation** of 0.7 on Life expectancy



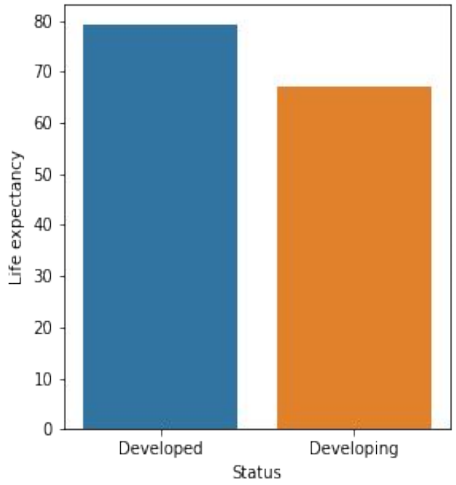
Effect of Socio-Economic factors on Life Expectancy

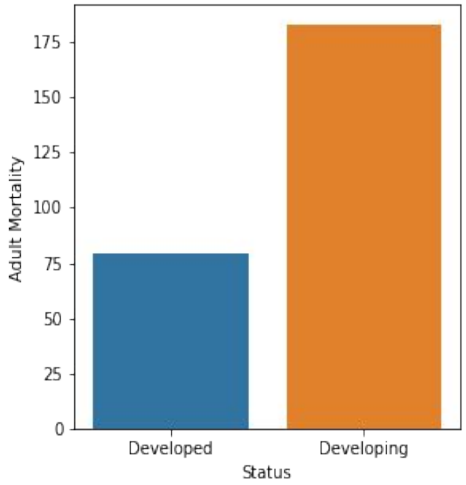


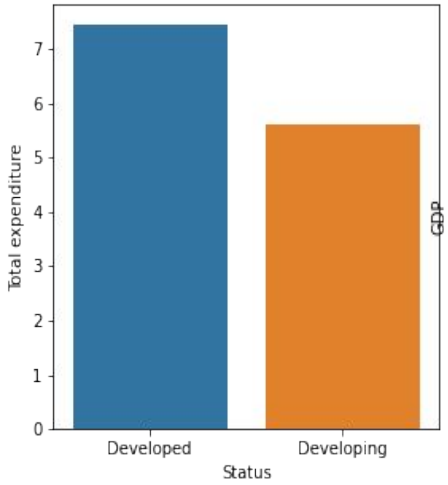
- **Life expectancy tends to increase with economic condition** of the country
- HDI in terms of Income composition of resources is the most impacting economic factor on Life Expectancy
- **Schooling has the highest positive** impact on Life Expectancy

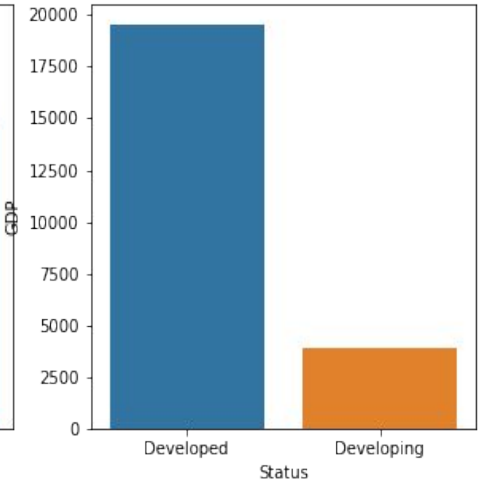


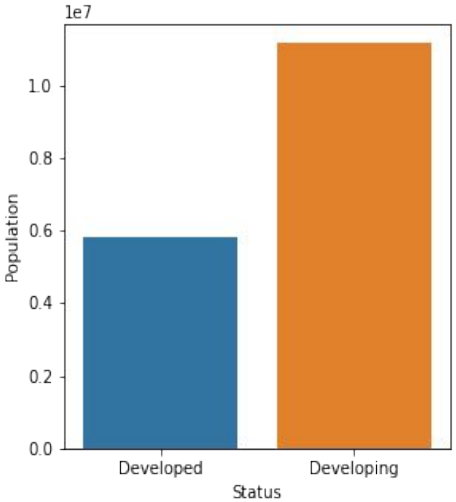
Let’s compare Life expectancy with different factors by developed and developing countries.

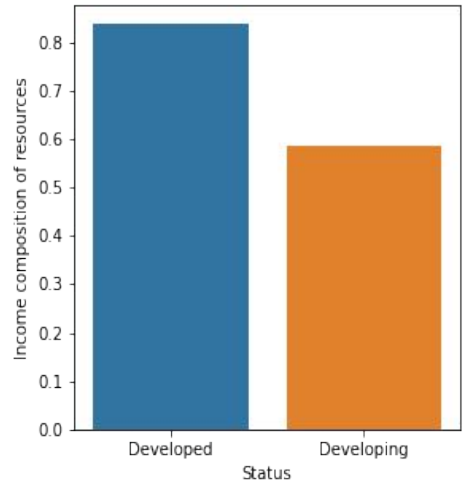

Life expectancy
Developed
Developing
Status

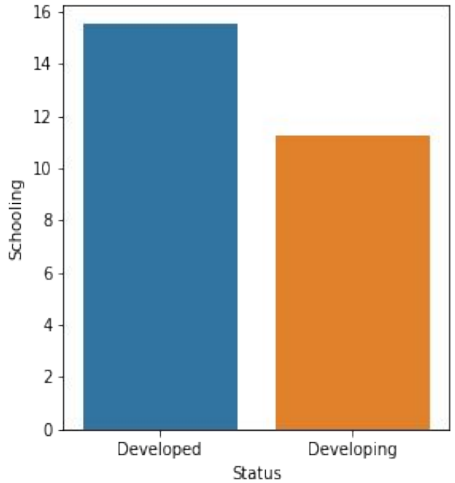

Adult Mortality
Developed
Developing
Status

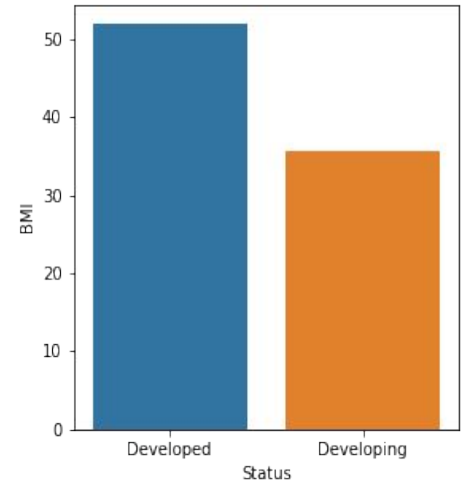

Total expenditure
Developed
Developing
Status


GDP
Developed
Developing
Status


1e7
Population
Developed
Developing
Status

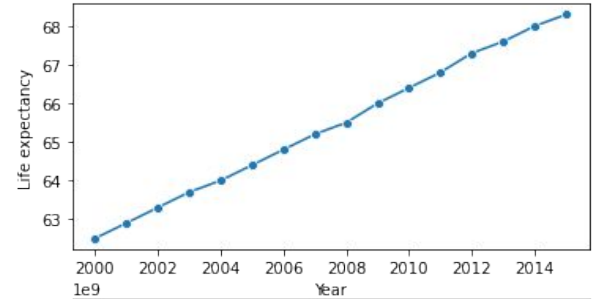

Income composition of resources
Developed
Developing
Status

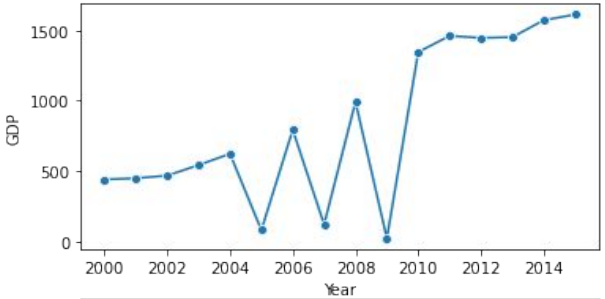

Schooling
Developed
Developing
Status

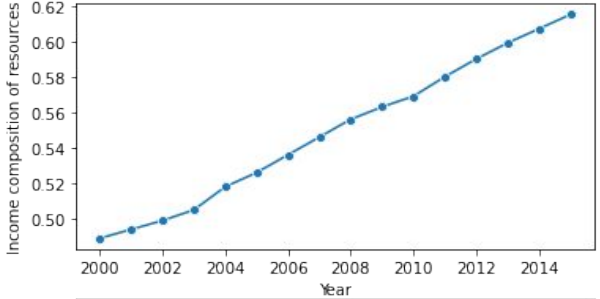

BMI
Developed
Developing
Status

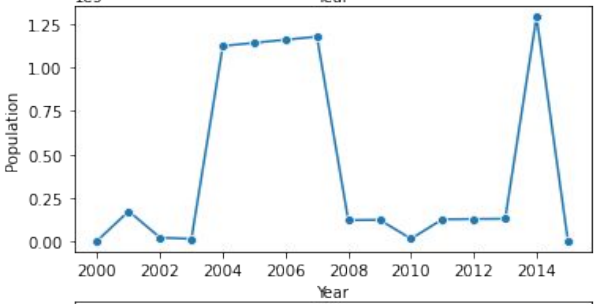
Now take India, the United States of America, China, the Central African Republic, Bhutan to compare by different variable wrt Life expectancy.

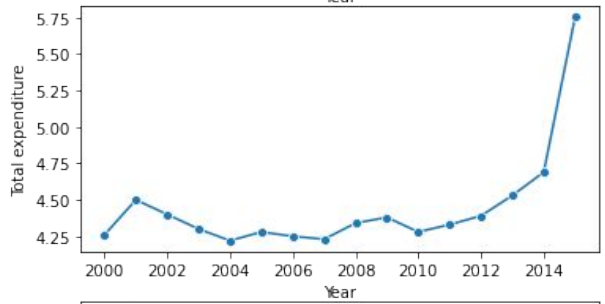
Life expectancy comparision wrt other factors Of India: Developing-136

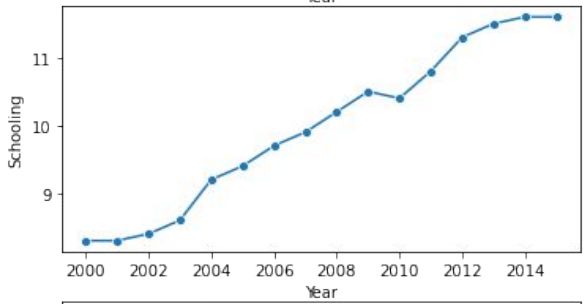


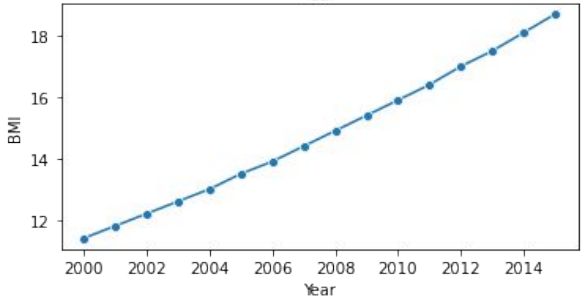


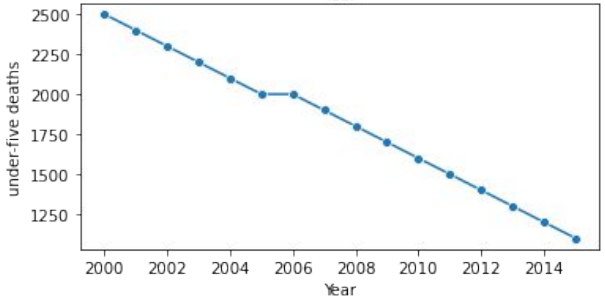


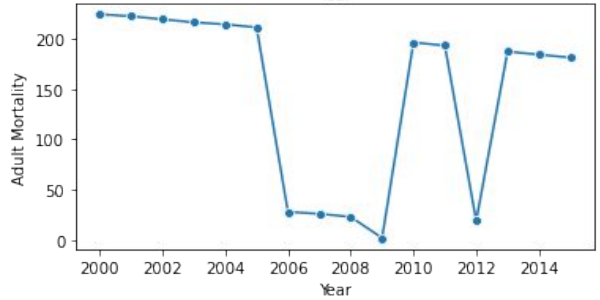




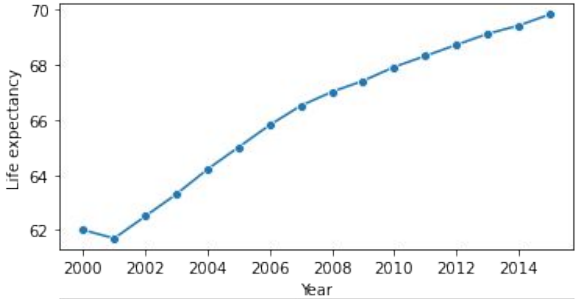


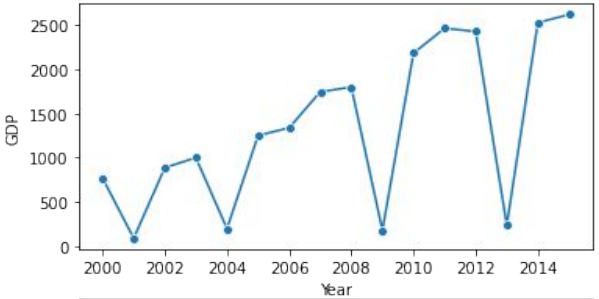


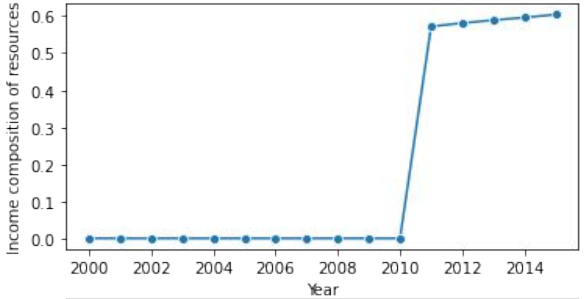


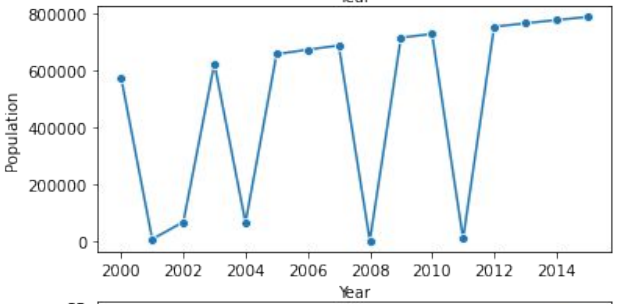


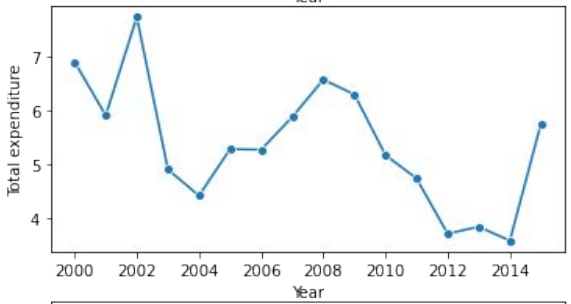
Life expectancy comparision wrt other factors Of United States of America: Developed-31

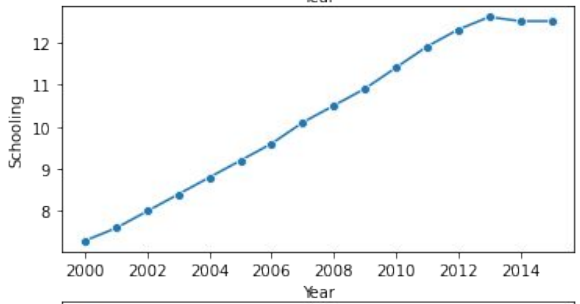


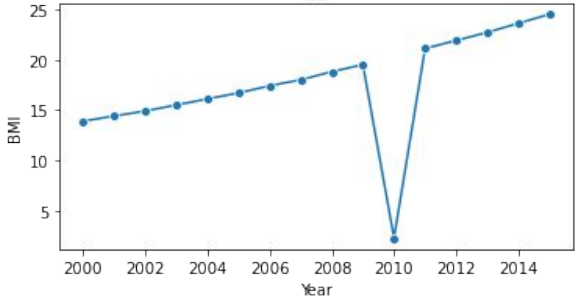


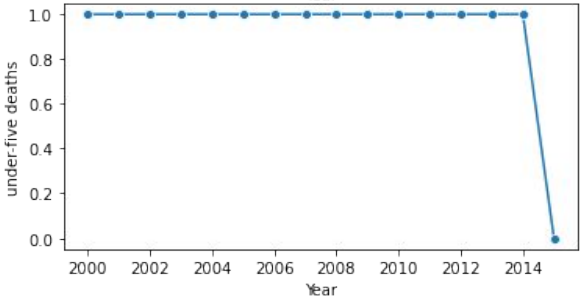


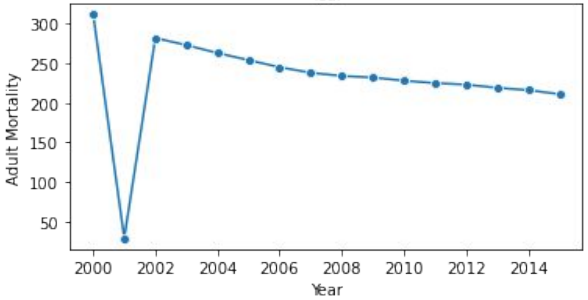




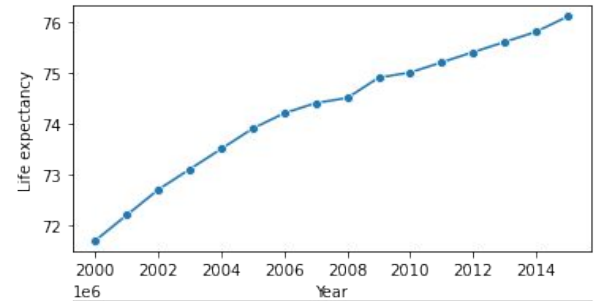


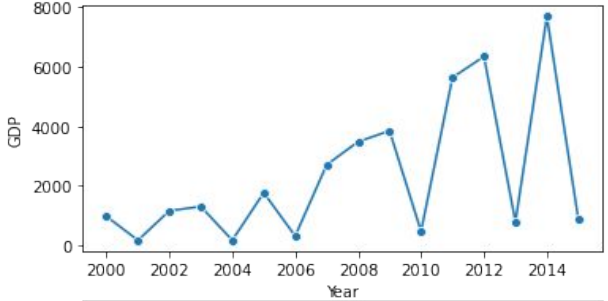


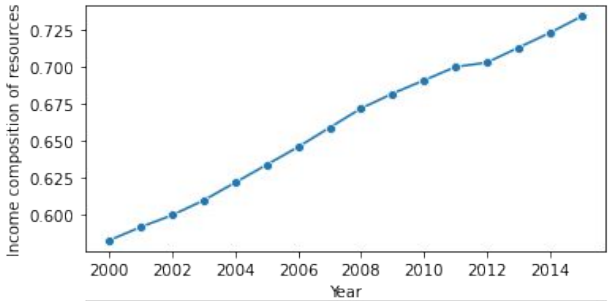


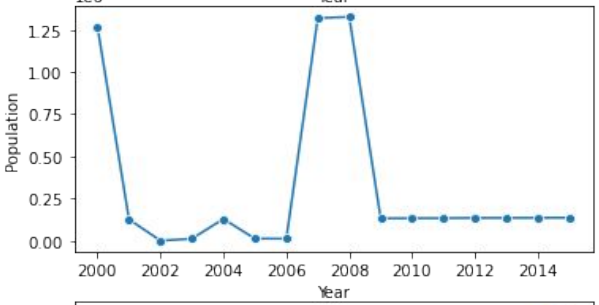


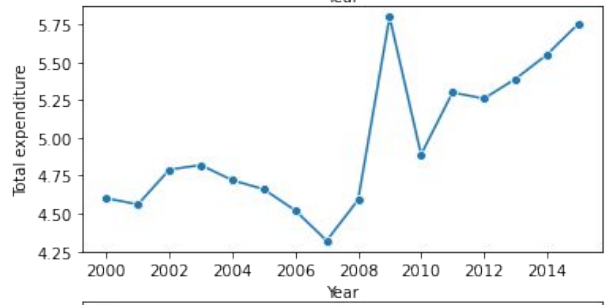
Life expectancy comparision wrt other factors Of China: Developing-56

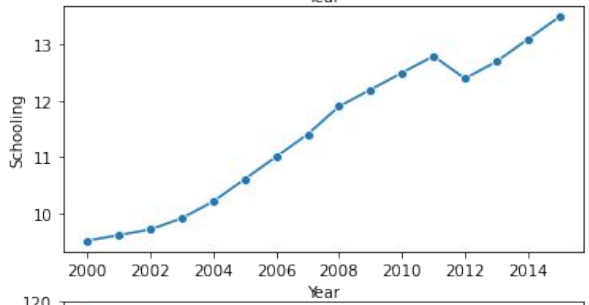


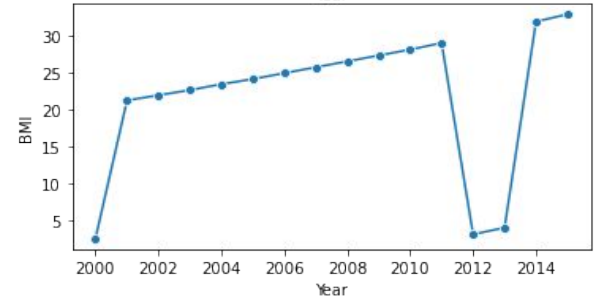


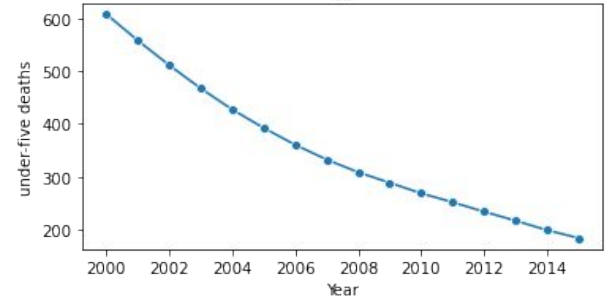


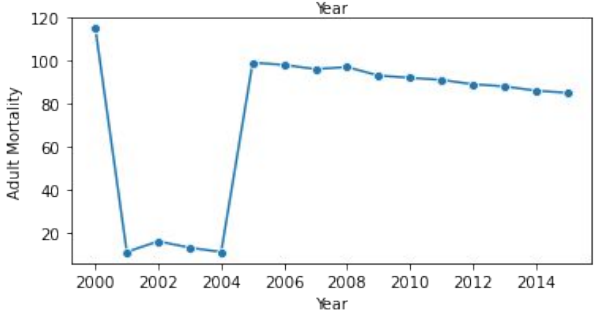




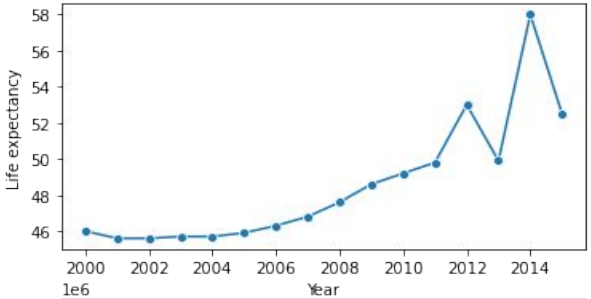


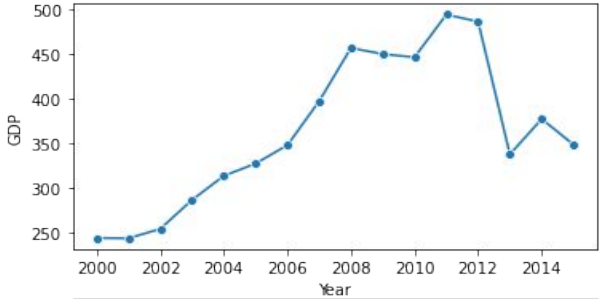


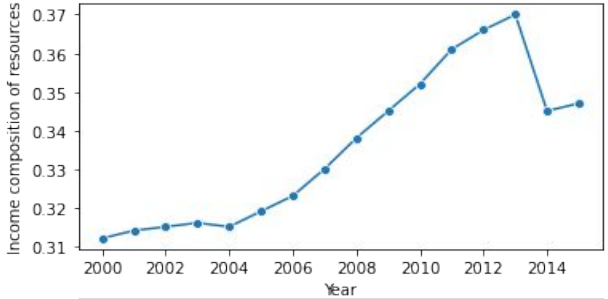


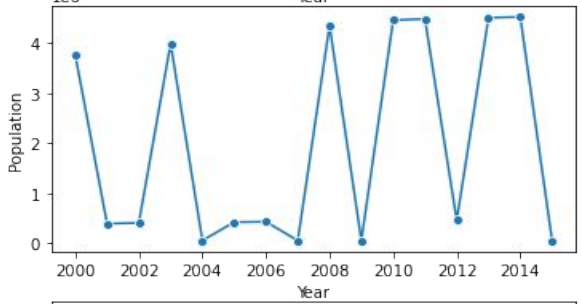


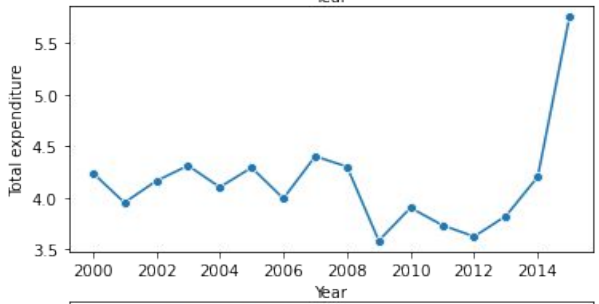
Life expectancy comparision wrt other factors Of Central African Republic: Developing-192

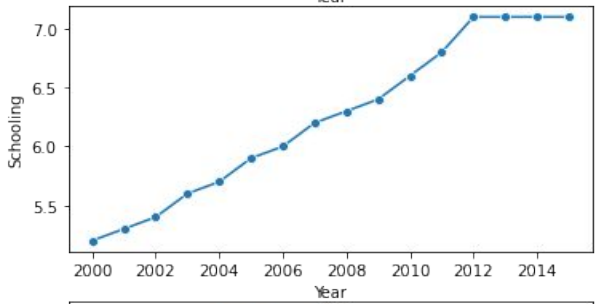


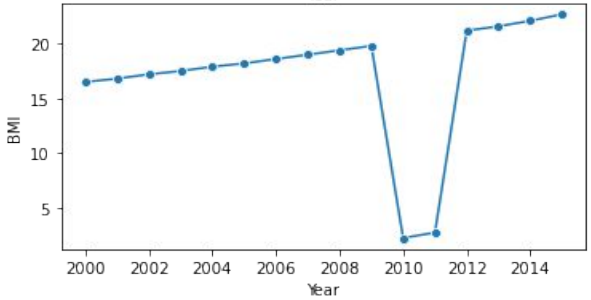


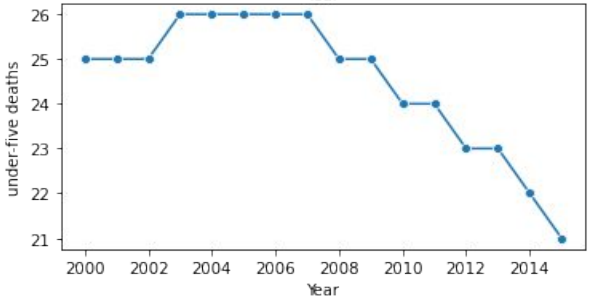


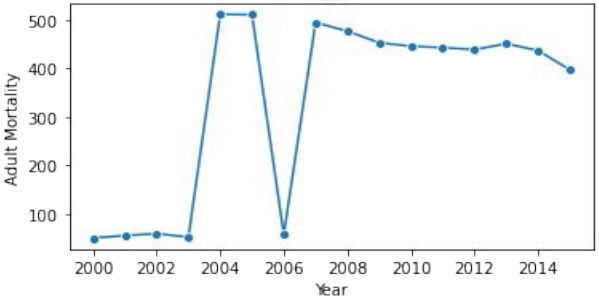




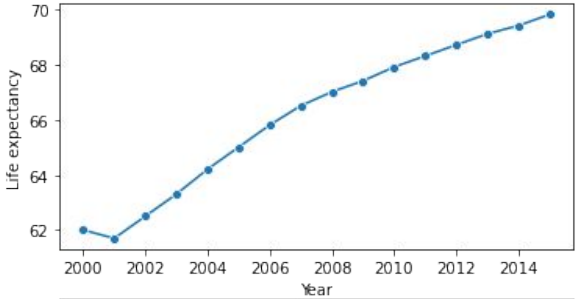


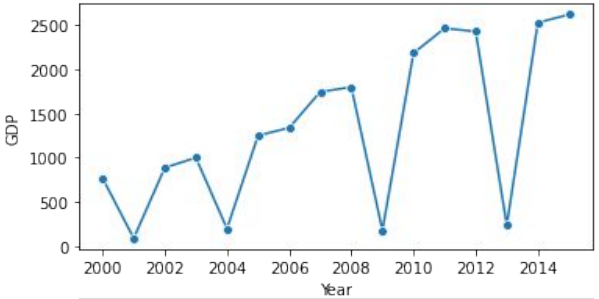


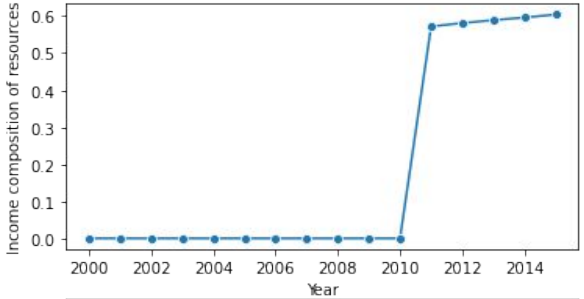


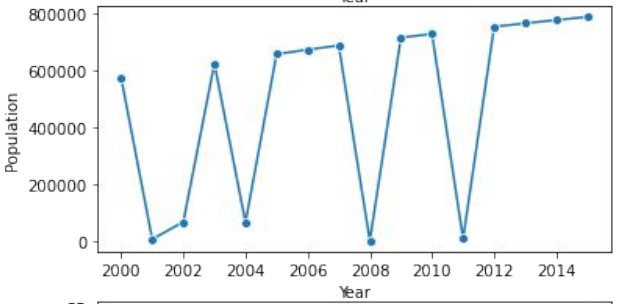


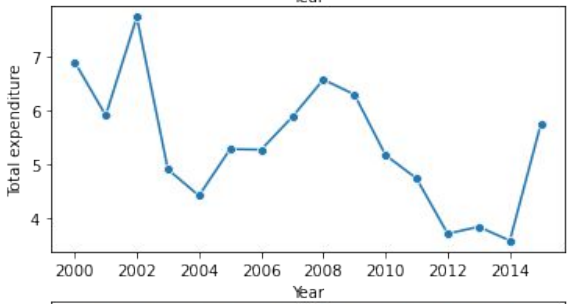
Life expectancy comparision wrt other factors Of Bhutan: Developing-133

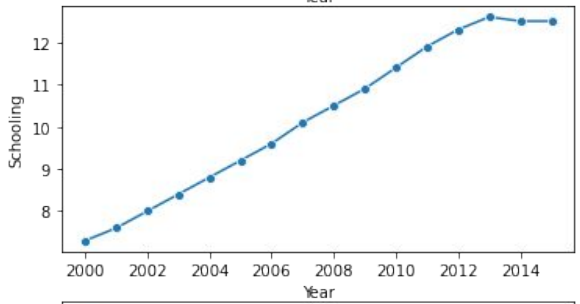


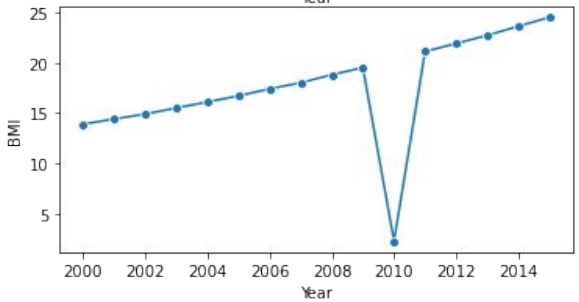


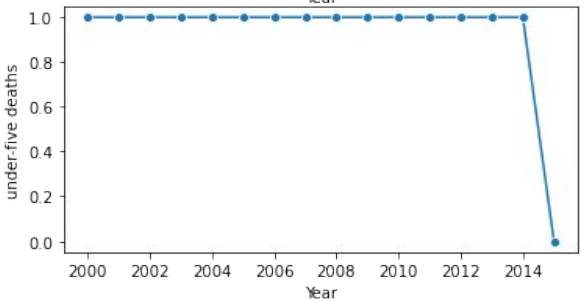


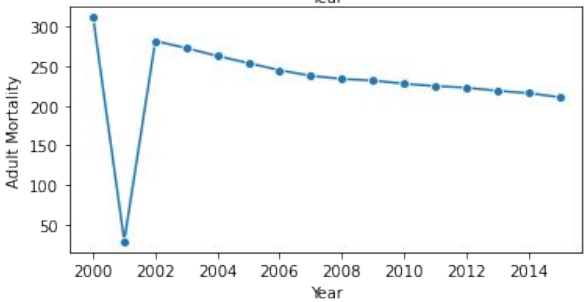






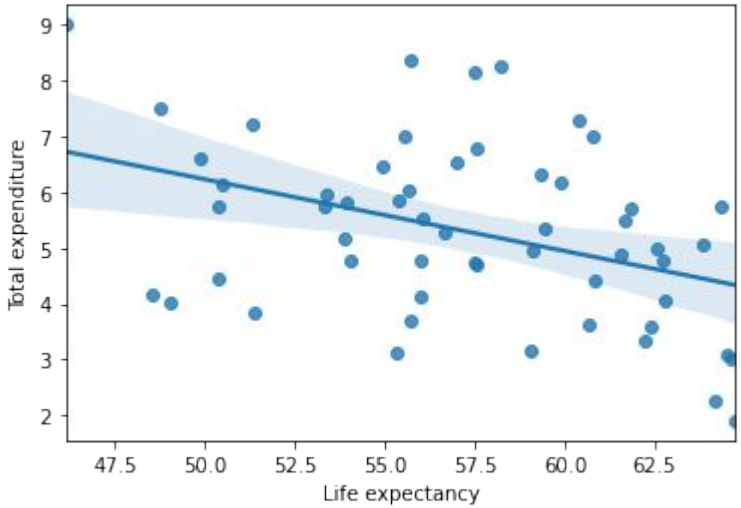






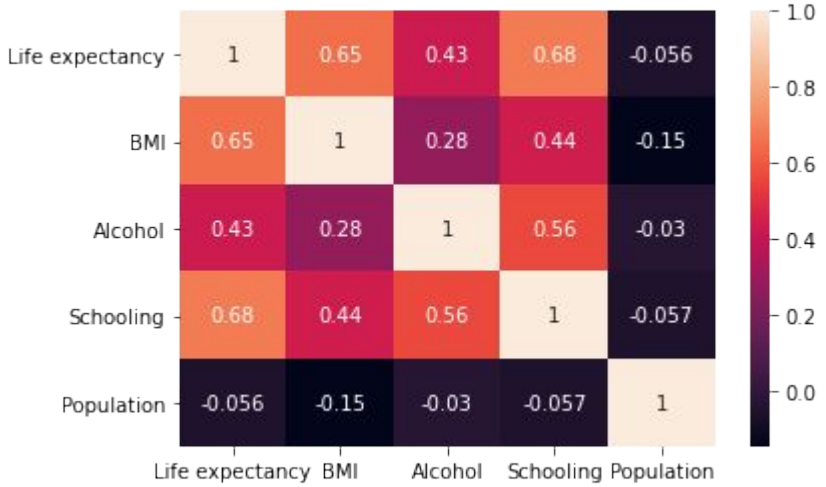
NO

Should a country having a lower life expectancy value(<65) increase its healthcare expenditure to improve its average lifespan?



- For some country even if they have higher total expenditure, they have low life expectancy.

- **Does Life Expectancy have a positive or negative correlation with eating habits(BMI), lifestyle, exercise, smoking, drinking alcohol, etc?**
- **Do densely populated countries tend to have a lower life expectancy?**



BMI	Weight Status
Below 18.5	Underweight
18.5 – 24.9	Normal or Healthy Weight
25.0 – 29.9	Overweight
30.0 and Above	Obese

	Life expectancy	BMI
12	69.30000	12.87500
18	66.16250	17.58125
76	65.41875	14.79375
118	66.48125	15.17500
142	72.10000	5.20000
161	73.40000	17.27500
189	74.77500	11.18750

	Life expectancy	BMI
21	56.05000	32.24375
72	59.86875	39.27500
130	61.68125	40.78750
158	57.50000	38.15000
159	53.87500	43.50000
162	61.82500	43.50000
177	64.61875	38.11875
190	63.86250	33.48750

Conclusion

- No parameters have strong positive or strong negative correlation with **Life expectancy** except **Schooling.**
- Countries which have higher Immunization coverage have higher life expectancy.
- **Life expectancy tends to increase with economic condition** of the country
- Life expectancy is high in developed countries, so mortality rate is low, this might be due to cause of higher total expenditure, GDP Schooling and lower population in developed countries.
- Total expenditure on health have not much impact on live expectancy.
- BMI also does not have much impact on life expectancy.
- some Densely populated countries might have lower life expectancy.

Thank You