LIFE EXPECTANCY ANALYSIS

Presentation

Team Fearless

Name	Role
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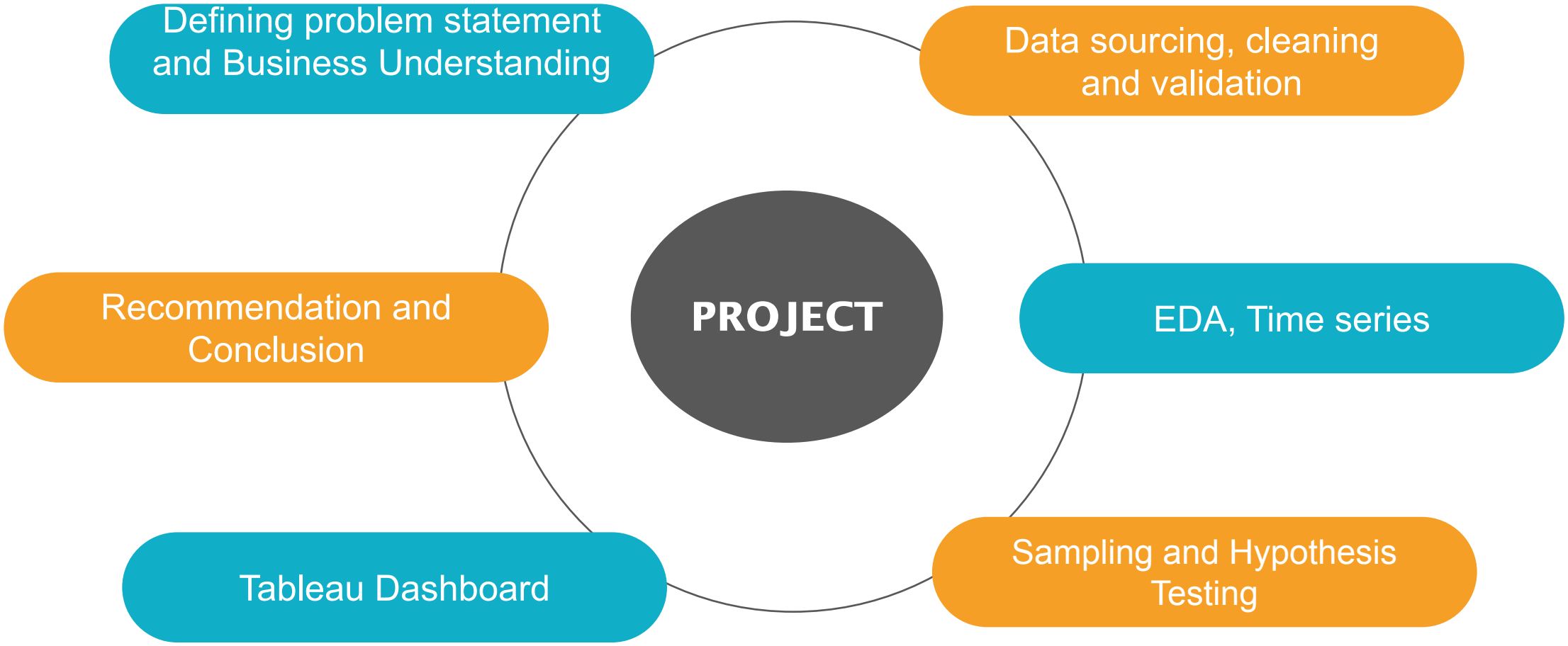
 Wanjiku Githu	• Tableau Dashboard/Python notebook

INTRODUCTION

- Life expectancy is the number of years that an individual is expected to live as determined by statistics. It is the age to which an average person is expected to live, based on the person's sex, health factors, and other demographic data.

- The World Health Organisation (WHO) states that: "Investing in health and promoting it throughout the lifespan is the only way to ensure that more people will reach old age in good health and capable of contributing to society; intellectually, spiritually and physically" (WHO 1998a: 6)

Project Analysis



RESEARCH QUESTION

- It is important to study the factors that contribute to life expectancy and analyze the change over the years 2000-2015.

Specific research objectives:

- Which factors contribute highly to life expectancy?
- Difference between life expectancy in developed and developing countries
- Impact of immunization coverage on life expectancy
- What factors need to be improved ?..e.g schooling, immunization, healthcare expenditure?

Data Sourcing and Cleaning

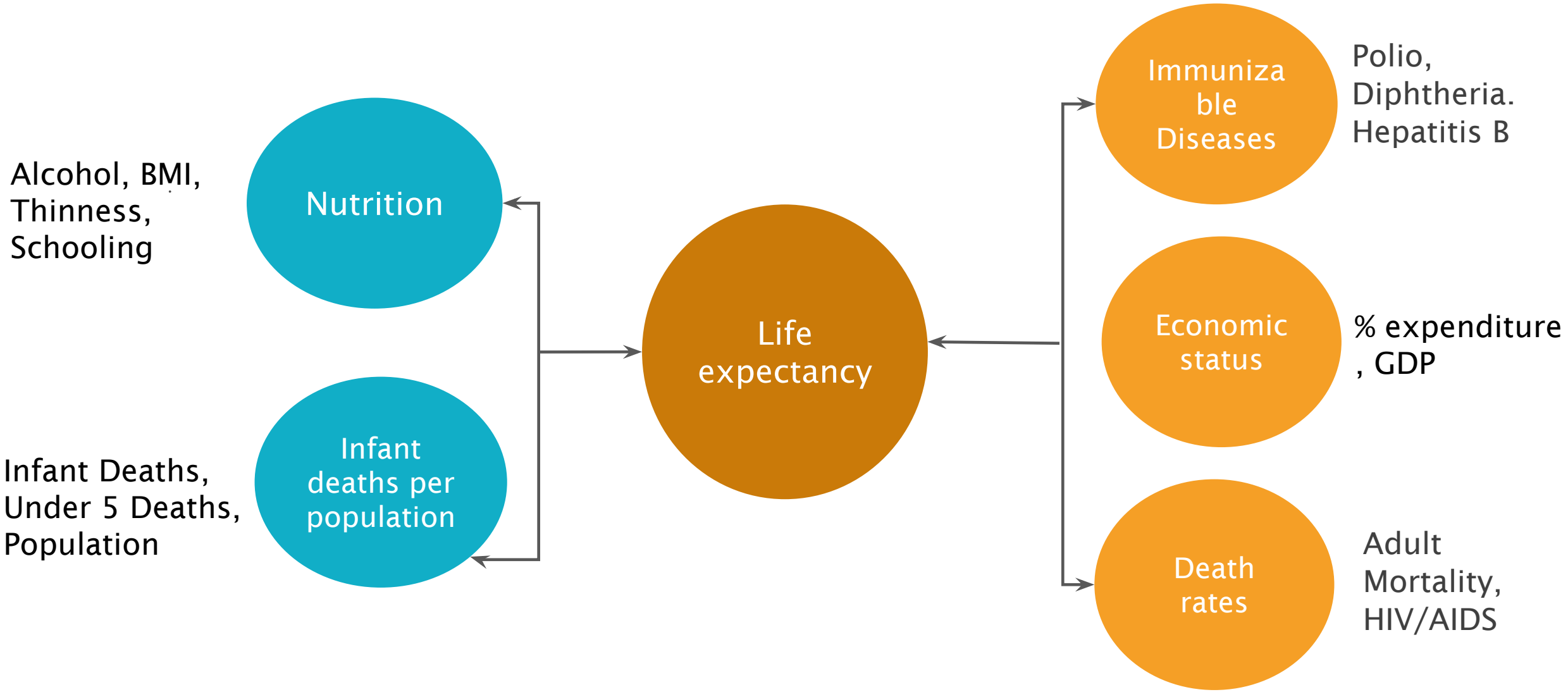
Data source: Kaggle

The original datasets were collected by Global Health Observatory under WHO. The datasets were merged into one dataset and provided on the kaggle website.

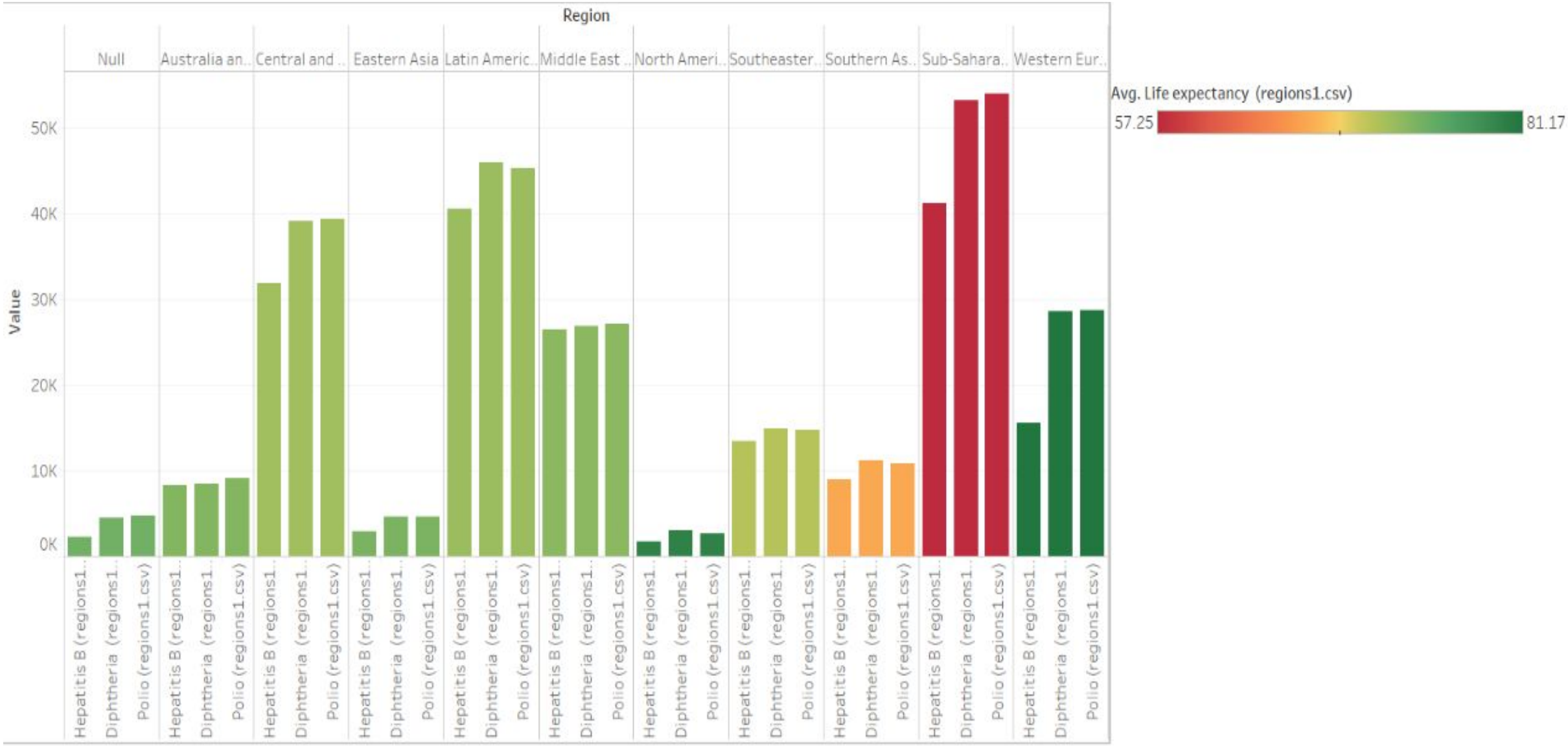
Data Cleaning

- Standardizing Column names
- Dealing with missing data by interpolation
- Checking for anomalies
- Dealing with duplicate entries-none was found

Factor Analysis

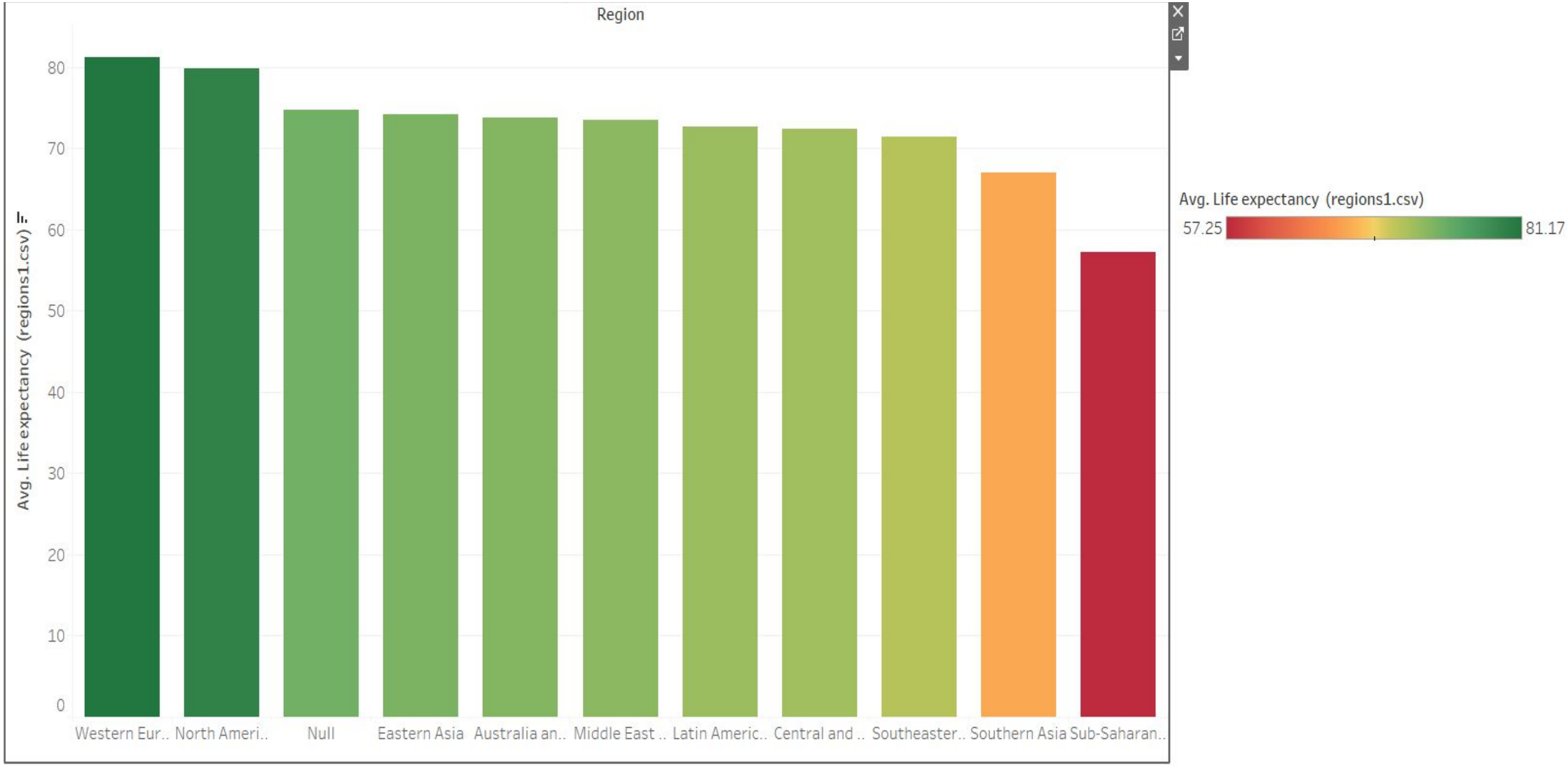


Life Expectancy vs Immunizable factors

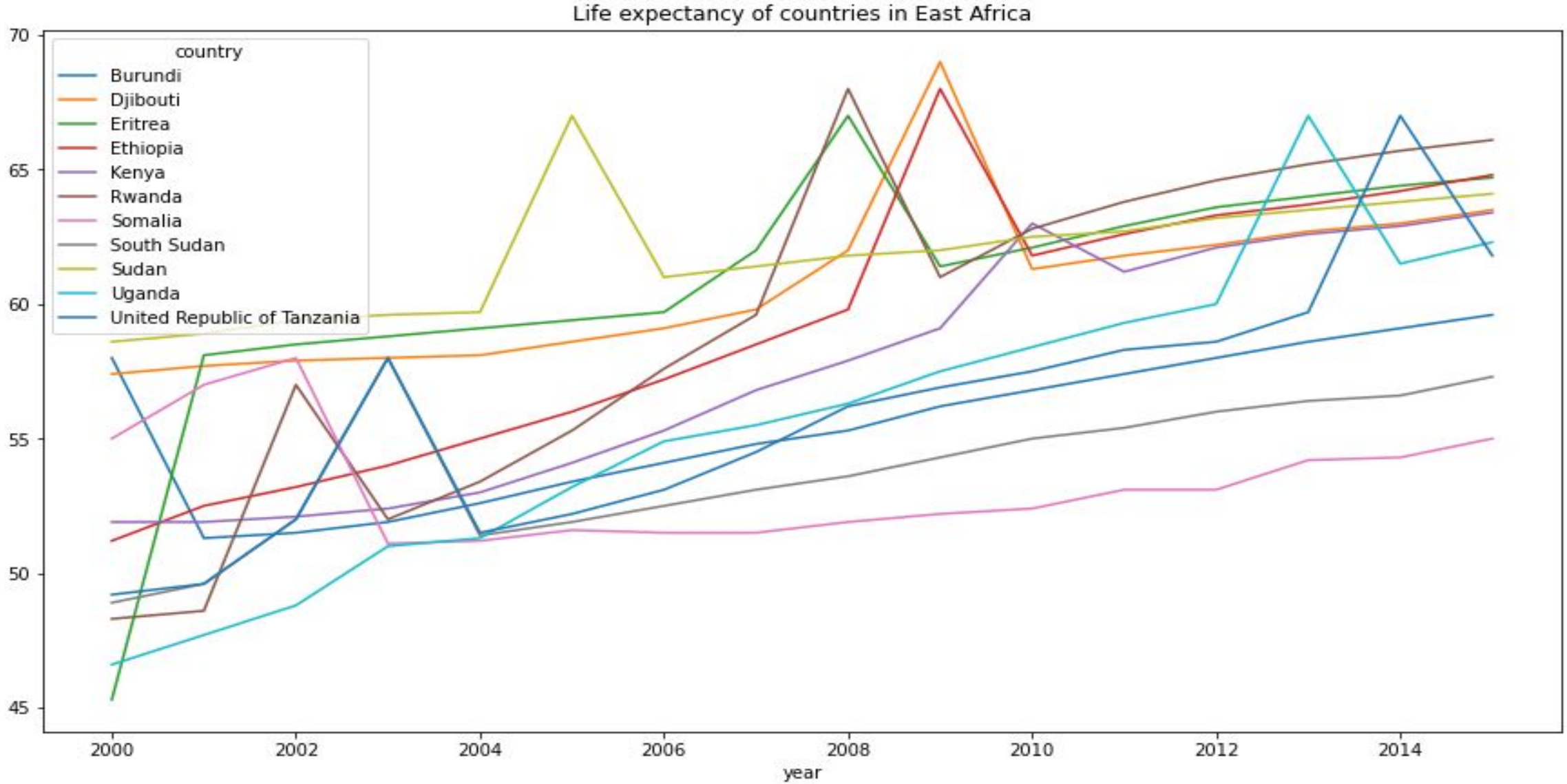


Percentage Expenditure to health per region

Average Life Expectancy per region



Time Series Analysis



Time Series Analysis

Life expectancy has increased gradually since 2000 to 2015 which can be attributed to factors such as:

- Schooling-free education > feeding students >better nutrition>improved life expectancy
- Free health care services e.g maternal care, vaccination of more children
- Improved economic status of a country in terms of GDP

Hypothesis Testing 1

Is there a statistically significant difference in the mean life expectancy between developing and developed countries?

Ho: the mean life expectancy is equal/similar in developed and developing countries.
H1: the mean life expectancy is not equal in developed and developing countries(claim). (is it lower or higher)

Z-score = -6.17. Critical region defined by $Z < -1.960$ or is $Z > 1.960$.
P-value =6.89e-10 is < $\alpha=0.05$. Therefore, we reject the null hypothesis and accept the alternate hypothesis.

There is enough statistical significance evidence at $\alpha=0.05$ to show that there is a difference.

Conclusion: Life expectancy in developed countries is higher than in developing countries by 12.65 difference

Hypothesis Testing 2

Is there a statistically significant difference in the mean immunization coverage(polio) in developed and developing countries?

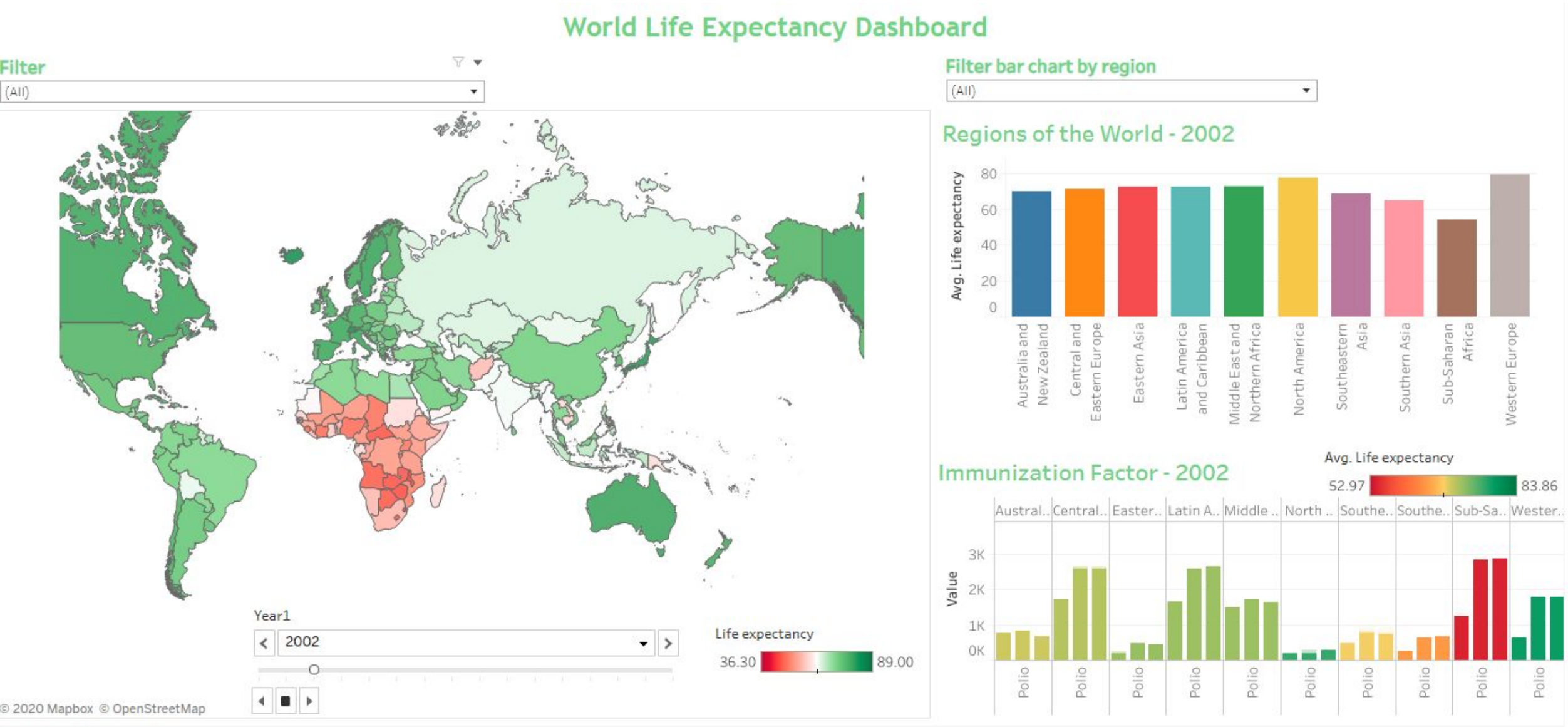
H0: there is no difference between the mean immunization coverage in developed and developing countries.
H1: there is a difference between the mean immunization coverage in developed and developing countries

Z-score = -4.287 falls in the critical region defined by Z < -1.960 or is Z > 1.960. The p-value of 1.805e-05 is < α=0.05. Therefore, we reject the null hypothesis and accept the alternate hypothesis.

There is enough statistical significance evidence at α=0.05 to show this difference.

Conclusion: The mean % of immunization coverage in developed countries is higher by 15.8%

Tableau dashboard



link :[tableau dashboard]

Recommendations

GENERAL

- Increase awareness on the mother to child transmission of HIV/AIDS > reduce infant deaths to HIV/AIDS
- Enroll more of the population to school > ensures more are fed > improved nutrition > improved life expectancy
- Citizens are encouraged to reduce alcohol consumption and reduce BMI. Lead more healthier lifestyles > increase overall life expectancy.

DEVELOPING COUNTRIES

- Improve immunization coverage
- Work towards improving economic status of country > increase % expenditure towards health


Thank You