WHO LIFE EXPECTANCY

END OF BOOTCAMP PROJECT: HEALTHCARE DATASET

NIYO Bootcamps

Department for Education

SKILLS FOR LIFE

I AM SUZY AUROLLE DJOMAKO

I graduated in 2013 of bachelor in Biomedical Science. It's been exactly 10 years that I have been struggling to register a Biomedical Scientist, so I ended up studying some more, went into Nursing but realized it was not for me. I then in 2016 decided to return into bioscience and enrolled on a master in Medical Microbiology. Afterwards, I got my first lab job in 2018, and yet it took me another 5 years to register with the HCPC. I signed up for this bootcamp because I would like to develop into a health Data Analyst. I know that IT is the future as everything is becoming digital especially in healthcare sciences. I am excited about graduating from the NIYO Data Analytics bootcamp and hopeful for what the future hold for me. I am determined to not relent, continue learning and be the best girl in tech I can be.

NIYO Bootcamps

Department for Education

SKILLS FOR LIFE

WHY HEALTHCARE DATASET?

- Every human being should have a good health status. As the world advances to new heights of modernity, the air is getting polluted with toxic chemicals, food is genetically modified, and resistance of microorganisms to antibiotics is growing and many other adverse consequences. Individual's health deteriorates, making their life a misery.

- Since I can remember, I have always felt the need to helping people, and I believed there is no better way than through the modern healthcare system.

- Life expectancy is the average number of years that a newborn could expect to live, if he or she were to pass through life exposed to the gender and age-specific death rates prevailing at the time of his or her birth, for a specific year, in each country, territory, or geographic area.

MY PROJECT - OBJECTIVES

Identify	Analyse and identify	Determine
Identify the world top 10 countries with lowest life expectancy.	Analyze and identify the health determinants preventing the WHO from reaching its 2030 goal “Health Equity for healthy people 2030”.	Determine the cause of the extreme variation in life expectancy in “children” globally and suggest remedial actions.

NIYO Bootcamps

Department for Education

SKILLS FOR LIFE

DETERMINANT OF HEALTH

The Determinants of health are factors which influence health status and determine health differentials or health inequalities. They are many, for example:

Natural, biological factors (age, gender and ethnicity);

Behaviour and lifestyles (smoking, alcohol consumption, diet and physical exercise);

Physical and social environment (housing quality, the workplace and the wider urban and rural.

DATA CLEANING

These 3 applications were used to clean the data prior to different manipulation:

- Excel prior to excel analysis
- Power query prior to dashboard visualization
- Python prior to analysis and python visualization

MY PROJECT - EXCEL FINDINGS

Questions	Results
What is the total population of India over the year 2000-2015	6743512329
What is Cameroon (the highest recorded) life expectancy?	57.3
How many countries have a life expectancy value of 80 years?	65
What is the % of people that have had hepatitis_B in row 2930 for Zimbabwe amongst 1 year old?	79
If life expectancy is over 50, print Goodlife, if not print Bad life!	Good life, Bad life
How many countries have an average BMI of 18?	11
What is the country with the lowest life expectancy?	36.3, Haiti
What is the country with the highest life expectancy?	89, this appears 11 times.

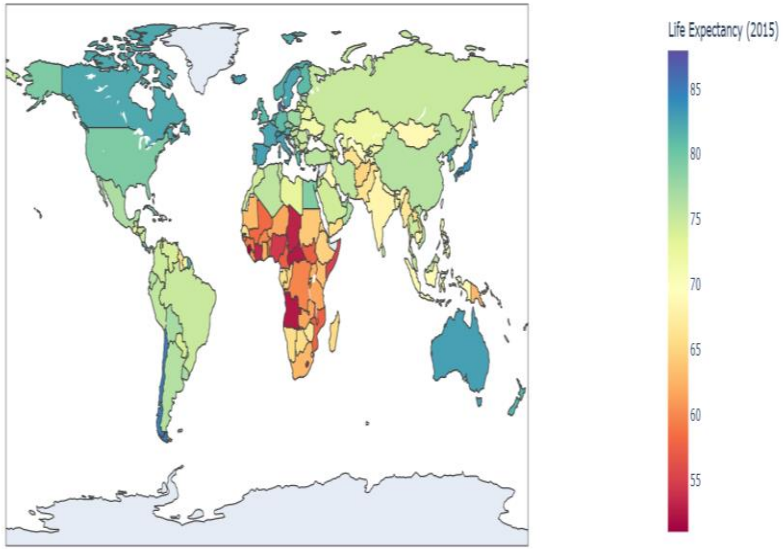
MY PROJECT - SQL ANALYSIS

```
data.describe()
```

	year	life_expectancy	adult_mortality	infant_deaths	alcohol	percentage_expenditure
count	2938.000000	2938.000000	2938.000000	2938.000000	2938.000000	2938.000000
mean	2007.518720	69.224932	164.796448	30.303948	4.602861	738.251295
std	4.613841	9.507640	124.080302	117.926501	3.916288	1987.914858
min	2000.000000	36.300000	1.000000	0.000000	0.010000	0.000000
25%	2004.000000	63.200000	74.000000	0.000000	1.092500	4.685343
50%	2008.000000	72.000000	144.000000	3.000000	4.160000	64.912906
75%	2012.000000	75.600000	227.000000	22.000000	7.390000	441.534144
max	2015.000000	89.000000	723.000000	1800.000000	17.870000	19479.911610

8 rows × 21 columns

MY PROJECT - PYTHON ANALYSIS



Top 10 Countries with Least Life Expectancy

	country	life_expectancy
152	Sierra Leone	46.11250
31	Central African Republic	48.51250
94	Lesotho	48.78125
3	Angola	49.01875
100	Malawi	49.89375
32	Chad	50.38750
44	Côte d'Ivoire	50.38750
192	Zimbabwe	50.48750
164	Swaziland	51.32500
123	Nigeria	51.35625

Top 10 Countries with Most Life Expectancy

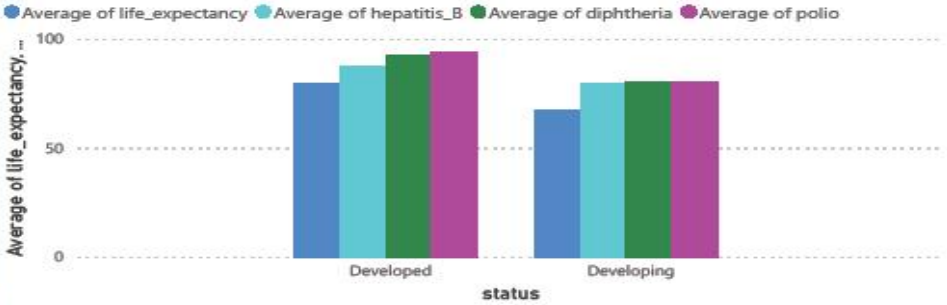
	country	life_expectancy
84	Japan	82.53750
165	Sweden	82.51875
75	Iceland	82.44375
166	Switzerland	82.33125
60	France	82.21875
82	Italy	82.18750
160	Spain	82.06875
7	Australia	81.81250
125	Norway	81.79375
30	Canada	81.68750

MY PROJECT - POWER BI DASHBOARD

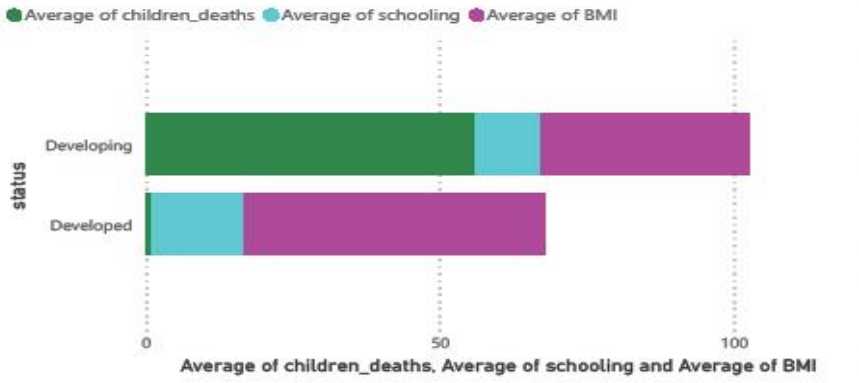
Data Analytic final project: WHO Life Expectancy Dashboard visualization

Sum of children_deaths by country

Average of life_expectancy, Average of hepatitis_B, Average of diphtheria, Average of polio and Average of schooling by status

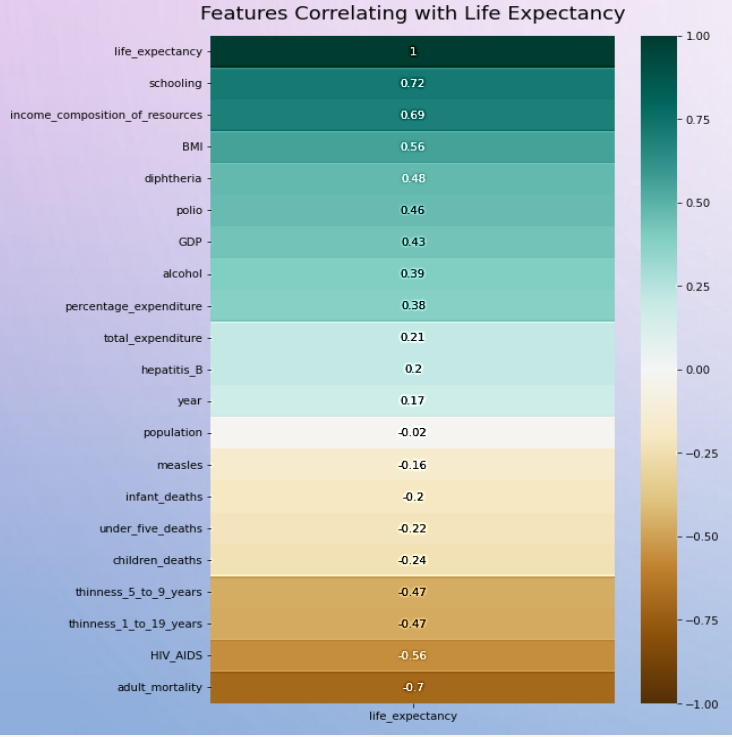


Average of children_deaths, Average of schooling and Average of BMI by status



Sum of percentage_expenditure by country

PYTHON CORRELATION AND HEAT MAP

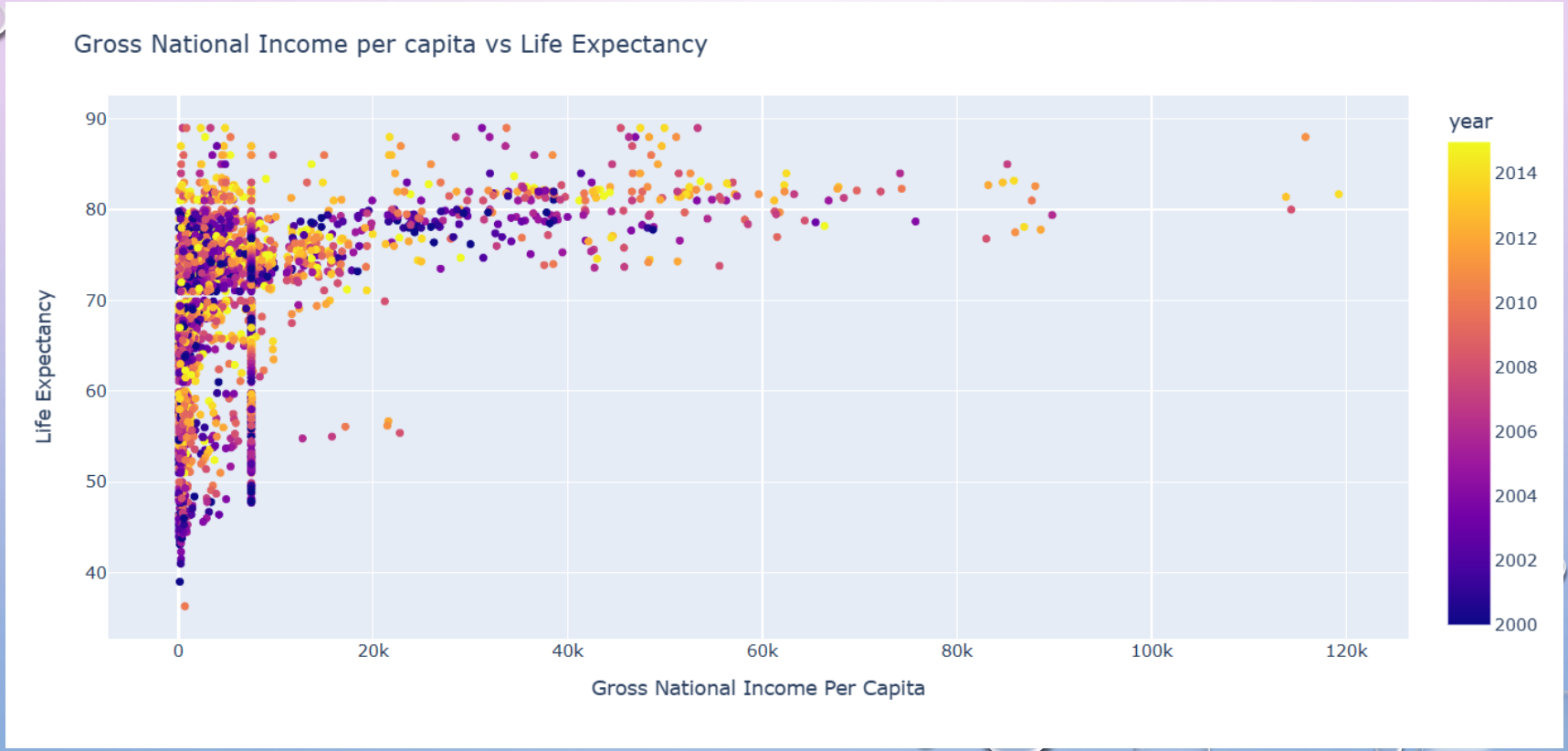


We can see that life expectancy positively correlate with schooling, income composition and BMI; negatively correlate with children death, HIV-AIDS and adult mortality.

```
df.corr()['life_expectancy']
```

```
year                             0.170819
life_expectancy                  1.000000
adult_mortality                 -0.696390
infant_deaths                   -0.196769
alcohol                          0.388918
percentage_expenditure           0.381418
hepatitis_B                      0.170219
measles                         -0.157767
BMI                              0.556901
under_five_deaths               -0.222738
polio                            0.458399
total_expenditure                0.208844
diphtheria                       0.472211
HIV_AIDS                        -0.556703
GDP                              0.430461
population                      -0.029014
thinness_1_to_19_years          -0.468002
thinness_5_to_9_years           -0.462473
income_composition_of_resources  0.688662
schooling                        0.713054
Name: life_expectancy, dtype: float64
```

PYTHON VISUALIZATION



MY PROJECT - RECOMMENDATIONS/INSIGHTS

Leverage	Invest in	Build	Invest in	Create and promote	Increase	Address
Leverage the current response to strengthen both pandemic preparedness and health systems	Invest in essential public health functions including those needed for all-hazards emergency risk management	Build a strong primary health care foundation	Invest in institutionalized mechanisms for whole-of-society engagement	Create and promote enabling environments for research, innovation and learning	Increase domestic and global investment in health system foundations and all-hazards emergency risk management	Address pre-existing inequities and the disproportionate impact of COVID-19 on marginalized and vulnerable populations

NIYO Bootcamps

Department for Education

SKILLS FOR LIFE

CHALLENGES

- The data set was large with many null values up to 652 in countries
- The data was spread over 15 years but many developing country had gap in their data
- I struggled with the fact that there was only two category: country and status
- I struggled with finding realistic recommendations to the developing country to help them close the gap in inequality in health.

CONCLUSION AND KEY LEARNINGS

I have learnt that a lot still to be done to have global equality in health.

Poorer countries have higher population but also higher children death, and mortality rate in children.

I also found out the life expectancy in countries like Sierra Leone is 34-year-old, which is almost 3 times lower than in developed countries.

PROJECT RECOMMENDATIONS

- Creating a society where everyone has an opportunity to live a healthy life requires action across government. While social protection measures such as income replacement benefits, pensions, free school meals, social housing are widely used in developed countries.
- In poorer countries more have to be done in health promotions, education and auditing of investments made or AID given by NGO and WHO because, developing country suffers from lack of audit and inspection, so that shows that even though children mortality is decreasing over time, a child born in a country like Sierra Leone in 2023 still has a life expectancy of about 35 years old.
- Public health can lead the way in creating a more equitable, healthier society by continuing to look for long-term solutions through sound public health research and by encouraging health-focused policy across health disciplines.

THANK YOU TO EVERYONE FOR LISTENING
THANKS TO NIYO FOR THE OPPORTUNITY AND TO MY TUTORS FOR ALL THEIR SUPPORTS.