Submitted by: Angelo Luis C. Cu

```
!pip install hvplot
```

```
Requirement already satisfied: hvplot in /usr/local/lib/python3.10/dist-packages (0.9.2)
Requirement already satisfied: bokeh>=1.0.0 in /usr/local/lib/python3.10/dist-packages (from hvplot) (3.3.4)
Requirement already satisfied: colorcet>=2 in /usr/local/lib/python3.10/dist-packages (from hvplot) (3.1.0)
Requirement already satisfied: holoviews>=1.11.0 in /usr/local/lib/python3.10/dist-packages (from hvplot) (1.17.1)
Requirement already satisfied: pandas in /usr/local/lib/python3.10/dist-packages (from hvplot) (2.0.3)
Requirement already satisfied: numpy>=1.15 in /usr/local/lib/python3.10/dist-packages (from hvplot) (1.25.2)
Requirement already satisfied: packaging in /usr/local/lib/python3.10/dist-packages (from hvplot) (24.0)
Requirement already satisfied: panel>=0.11.0 in /usr/local/lib/python3.10/dist-packages (from hvplot) (1.3.8)
Requirement already satisfied: param<3.0,>=1.12.0 in /usr/local/lib/python3.10/dist-packages (from hvplot) (2.1.0)
Requirement already satisfied: Jinja2>=2.9 in /usr/local/lib/python3.10/dist-packages (from bokeh>=1.0.0->hvplot) (3.1.3)
Requirement already satisfied: contourpy>=1 in /usr/local/lib/python3.10/dist-packages (from bokeh>=1.0.0->hvplot) (1.2.1)
Requirement already satisfied: pillow>=7.1.0 in /usr/local/lib/python3.10/dist-packages (from bokeh>=1.0.0->hvplot) (9.4.0)
Requirement already satisfied: PyYAML>=3.10 in /usr/local/lib/python3.10/dist-packages (from bokeh>=1.0.0->hvplot) (6.0.1)
Requirement already satisfied: tornado>=5.1 in /usr/local/lib/python3.10/dist-packages (from bokeh>=1.0.0->hvplot) (6.3.3)
Requirement already satisfied: xyzservices>=2021.09.1 in /usr/local/lib/python3.10/dist-packages (from bokeh>=1.0.0->hvplot) (2024.4.0)
Requirement already satisfied: pyviz-comms>=0.7.4 in /usr/local/lib/python3.10/dist-packages (from holoviews>=1.11.0->hvplot) (3.0.2)
Requirement already satisfied: python-dateutil>=2.8.2 in /usr/local/lib/python3.10/dist-packages (from pandas->hvplot) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in /usr/local/lib/python3.10/dist-packages (from pandas->hvplot) (2023.4)
Requirement already satisfied: tzdata>=2022.1 in /usr/local/lib/python3.10/dist-packages (from pandas->hvplot) (2024.1)
Requirement already satisfied: markdown in /usr/local/lib/python3.10/dist-packages (from panel>=0.11.0->hvplot) (3.6)
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Requirement already satisfied: requests in /usr/local/lib/python3.10/dist-packages (from panel>=0.11.0->hvplot) (2.31.0)
Requirement already satisfied: tqdm>=4.48.0 in /usr/local/lib/python3.10/dist-packages (from panel>=0.11.0->hvplot) (4.66.2)
Requirement already satisfied: bleach in /usr/local/lib/python3.10/dist-packages (from panel>=0.11.0->hvplot) (6.1.0)
Requirement already satisfied: typing-extensions in /usr/local/lib/python3.10/dist-packages (from panel>=0.11.0->hvplot) (4.11.0)
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.10/dist-packages (from Jinja2>=2.9->bokeh>=1.0.0->hvplot) (2.1.
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.10/dist-packages (from python-dateutil>=2.8.2->pandas->hvplot) (1.16.0
Requirement already satisfied: webencodings in /usr/local/lib/python3.10/dist-packages (from bleach->panel>=0.11.0->hvplot) (0.5.1)
Requirement already satisfied: uc-micro-py in /usr/local/lib/python3.10/dist-packages (from linkify-it-py->panel>=0.11.0->hvplot) (1.0.3
Requirement already satisfied: mdurl~=0.1 in /usr/local/lib/python3.10/dist-packages (from markdown-it-py->panel>=0.11.0->hvplot) (0.1.2
Requirement already satisfied: charset-normalizer<4,>=2 in /usr/local/lib/python3.10/dist-packages (from requests->panel>=0.11.0->hvplot
Requirement already satisfied: idna<4,>=2.5 in /usr/local/lib/python3.10/dist-packages (from requests->panel>=0.11.0->hvplot) (3.7)
Requirement already satisfied: urllib3<3,>=1.21.1 in /usr/local/lib/python3.10/dist-packages (from requests->panel>=0.11.0->hvplot) (2.0
Requirement already satisfied: certifi>=2017.4.17 in /usr/local/lib/python3.10/dist-packages (from requests->panel>=0.11.0->hvplot) (202
```

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import hvplot.pandas

from sklearn.model_selection import train_test_split
from sklearn import metrics
from sklearn.linear_model import LinearRegression

%matplotlib inline
```

```
life_df = pd.read_csv('/content/data/Life Expectancy Data.csv')
life_df
```

	Country	Year	Status	Life expectancy	Adult Mortality	infant deaths	Alcohol	percentage expenditure	Hepatitis B	Measles	...	Polio	Total expenditure	D
0	Afghanistan	2015	Developing	65.0	263.0	62	0.01	71.279624	65.0	1154	...	6.0	8.16	
1	Afghanistan	2014	Developing	59.9	271.0	64	0.01	73.523582	62.0	492	...	58.0	8.18	
2	Afghanistan	2013	Developing	59.9	268.0	66	0.01	73.219243	64.0	430	...	62.0	8.13	
3	Afghanistan	2012	Developing	59.5	272.0	69	0.01	78.184215	67.0	2787	...	67.0	8.52	
4	Afghanistan	2011	Developing	59.2	275.0	71	0.01	7.097109	68.0	3013	...	68.0	7.87	
...	...	...	...	...	...	...	...	...	...	...	...	...	...	
2933	Zimbabwe	2004	Developing	44.3	723.0	27	4.36	0.000000	68.0	31	...	67.0	7.13	
2934	Zimbabwe	2003	Developing	44.5	715.0	26	4.06	0.000000	7.0	998	...	7.0	6.52	
2935	Zimbabwe	2002	Developing	44.8	73.0	25	4.43	0.000000	73.0	304	...	73.0	6.53	
2936	Zimbabwe	2001	Developing	45.3	686.0	25	1.72	0.000000	76.0	529	...	76.0	6.16	
2937	Zimbabwe	2000	Developing	46.0	665.0	24	1.68	0.000000	79.0	1483	...	78.0	7.10	

2938 rows × 22 columns

Data Wrangling

```
# checks for duplicate values
life_df[life_df.duplicated()].shape[0]
```

```
0
```

```
# changes spaces to underscores for easier column access
life_df.columns = [column.replace(' ', '_') for column in life_df.columns]
life_df.columns = [column.strip('_') for column in life_df.columns]
life_df
```

	Country	Year	Status	Life_expectancy	Adult_Mortality	infant_deaths	Alcohol	percentage_expenditure	Hepatitis_B	Measles
0	Afghanistan	2015	Developing	65.0	263.0	62	0.01	71.279624	65.0	1154
1	Afghanistan	2014	Developing	59.9	271.0	64	0.01	73.523582	62.0	492
2	Afghanistan	2013	Developing	59.9	268.0	66	0.01	73.219243	64.0	430
3	Afghanistan	2012	Developing	59.5	272.0	69	0.01	78.184215	67.0	2787
4	Afghanistan	2011	Developing	59.2	275.0	71	0.01	7.097109	68.0	3013
...	...	...	...	...	...	...	...	...	...	...
2933	Zimbabwe	2004	Developing	44.3	723.0	27	4.36	0.000000	68.0	31
2934	Zimbabwe	2003	Developing	44.5	715.0	26	4.06	0.000000	7.0	998
2935	Zimbabwe	2002	Developing	44.8	73.0	25	4.43	0.000000	73.0	304
2936	Zimbabwe	2001	Developing	45.3	686.0	25	1.72	0.000000	76.0	529
2937	Zimbabwe	2000	Developing	46.0	665.0	24	1.68	0.000000	79.0	1483

2938 rows × 22 columns

```
# checks for missing values
life_df.info()
# life expectancy, adult mortality, alcohol, hepatitis B, BMI,
# polio-diptheria, gdp-schooling have NaN values
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2938 entries, 0 to 2937
Data columns (total 22 columns):
 #   Column                           Non-Null Count  Dtype  
---  ------                           --------------  -----  
 0   Country                          2938 non-null   object 
 1   Year                             2938 non-null   int64  
 2   Status                           2938 non-null   object 
 3   Life_expectancy                  2928 non-null   float64
 4   Adult_Mortality                  2928 non-null   float64
 5   infant_deaths                    2938 non-null   int64  
 6   Alcohol                          2744 non-null   float64
 7   percentage_expenditure           2938 non-null   float64
 8   Hepatitis_B                      2385 non-null   float64
 9   Measles                          2938 non-null   int64  
 10  BMI                              2904 non-null   float64
 11  under-five_deaths                2938 non-null   int64  
 12  Polio                            2919 non-null   float64
 13  Total_expenditure                2712 non-null   float64
 14  Diphtheria                       2919 non-null   float64
 15  HIV/AIDS                         2938 non-null   float64
 16  GDP                              2490 non-null   float64
 17  Population                       2286 non-null   float64
 18  thinness__1-19_years             2904 non-null   float64
 19  thinness_5-9_years               2904 non-null   float64
 20  Income_composition_of_resources  2771 non-null   float64
 21  Schooling                        2775 non-null   float64
dtypes: float64(16), int64(4), object(2)
memory usage: 505.1+ KB
```

```
# as all of the missing values are from columns with numerical values,
# and the missing values are less than half of the total count,
# I decided to fill them with their mean
# since country is available, I decided to group them by country to try to minimize bias

for column in life_df.columns:
  if life_df[column].dtype != 'object':
    life_df[column] = life_df.groupby('Country')[column].transform(lambda x: x.fillna(x.mean()))

life_df
```

	Country	Year	Status	Life_expectancy	Adult_Mortality	infant_deaths	Alcohol	percentage_expenditure	Hepatitis_B	Measles
0	Afghanistan	2015	Developing	65.0	263.0	62	0.01	71.279624	65.0	1154
1	Afghanistan	2014	Developing	59.9	271.0	64	0.01	73.523582	62.0	492
2	Afghanistan	2013	Developing	59.9	268.0	66	0.01	73.219243	64.0	430
3	Afghanistan	2012	Developing	59.5	272.0	69	0.01	78.184215	67.0	2787
4	Afghanistan	2011	Developing	59.2	275.0	71	0.01	7.097109	68.0	3013
...	...	...	...	...	...	...	...	...	...	...
2933	Zimbabwe	2004	Developing	44.3	723.0	27	4.36	0.000000	68.0	31
2934	Zimbabwe	2003	Developing	44.5	715.0	26	4.06	0.000000	7.0	998
2935	Zimbabwe	2002	Developing	44.8	73.0	25	4.43	0.000000	73.0	304
2936	Zimbabwe	2001	Developing	45.3	686.0	25	1.72	0.000000	76.0	529
2937	Zimbabwe	2000	Developing	46.0	665.0	24	1.68	0.000000	79.0	1483

2938 rows × 22 columns

```
life_df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2938 entries, 0 to 2937
Data columns (total 22 columns):
 #   Column                           Non-Null Count  Dtype  
 ---  ------                          --------------  -----
  0   Country                         2938 non-null   object
  1   Year                            2938 non-null   int64
  2   Status                          2938 non-null   object
  3   Life_expectancy                 2928 non-null   float64
  4   Adult_Mortality                 2928 non-null   float64
  5   infant_deaths                   2938 non-null   int64
  6   Alcohol                         2921 non-null   float64
  7   percentage_expenditure          2938 non-null   float64
  8   Hepatitis_B                     2794 non-null   float64
  9   Measles                         2938 non-null   int64
  10  BMI                             2904 non-null   float64
  11  under-five_deaths               2938 non-null   int64
  12  Polio                           2938 non-null   float64
  13  Total_expenditure               2906 non-null   float64
  14  Diphtheria                      2938 non-null   float64
  15  HIV/AIDS                        2938 non-null   float64
  16  GDP                             2533 non-null   float64
  17  Population                      2290 non-null   float64
  18  thinness__1-19_years            2904 non-null   float64
  19  thinness_5-9_years              2904 non-null   float64
  20  Income_composition_of_resources 2771 non-null   float64
  21  Schooling                       2775 non-null   float64
 dtypes: float64(16), int64(4), object(2)
 memory usage: 505.1+ KB
```

```
# since there are countries without data for that specific column at all,
# I decided to fill them with the general mean

for column in life_df.columns:
  if life_df[column].dtype != 'object':
    life_df[column] = life_df[column].fillna(life_df[column].mean())

life_df.info()
# all missing data are handled
```

```
 <class 'pandas.core.frame.DataFrame'>
 RangeIndex: 2938 entries, 0 to 2937
 Data columns (total 22 columns):
  #   Column                          Non-Null Count  Dtype
 ---  ------                          --------------  -----
  0   Country                         2938 non-null   object
  1   Year                            2938 non-null   int64
  2   Status                          2938 non-null   object
  3   Life_expectancy                 2938 non-null   float64
  4   Adult_Mortality                 2938 non-null   float64
  5   infant_deaths                   2938 non-null   int64
  6   Alcohol                         2938 non-null   float64
  7   percentage_expenditure          2938 non-null   float64
  8   Hepatitis_B                     2938 non-null   float64
  9   Measles                         2938 non-null   int64
  10  BMI                             2938 non-null   float64
  11  under-five_deaths               2938 non-null   int64
  12  Polio                           2938 non-null   float64
  13  Total_expenditure               2938 non-null   float64
  14  Diphtheria                      2938 non-null   float64
  15  HIV/AIDS                        2938 non-null   float64
  16  GDP                             2938 non-null   float64
  17  Population                      2938 non-null   float64
  18  thinness__1-19_years            2938 non-null   float64
  19  thinness_5-9_years              2938 non-null   float64
  20  Income_composition_of_resources 2938 non-null   float64
  21  Schooling                       2938 non-null   float64
 dtypes: float64(16), int64(4), object(2)
 memory usage: 505.1+ KB
```

```
# converting categorical to numerical data
columns = [
    'Country','Status'
] # columns to get the unique values
unique_values = []

# gets the unique values of a column and appends it to the unique_values list
for column in columns:
  unique_values.append(life_df[column].unique().tolist())
unique_values
```

```
 [['Afghanistan',
   'Albania',
   'Algeria',
   'Angola',
   'Antigua and Barbuda',
   'Argentina',
   'Armenia',
   'Australia',
   'Austria',
   'Azerbaijan',
   'Bahamas',
   'Bahrain',
   'Bangladesh',
   'Barbados',
   'Belarus',
   'Belgium',
   'Belize',
   'Benin',
   'Bhutan',
   'Bolivia (Plurinational State of)',
   'Bosnia and Herzegovina',
   'Botswana',
   'Brazil',
   'Brunei Darussalam',
   'Bulgaria',
   'Burkina Faso',
   'Burundi',
   "Côte d'Ivoire",
   'Cabo Verde',
       'Cambodia',
       'Cameroon',
       'Canada',
       'Central African Republic',
       'Chad',
       'Chile',
       'China',
       'Colombia',
       'Comoros',
       'Congo',
       'Cook Islands',
       'Costa Rica',
       'Croatia',
       'Cuba',
       'Cyprus',
       'Czechia',
       "Democratic People's Republic of Korea",
       'Democratic Republic of the Congo',
       'Denmark',
       'Djibouti',
       'Dominica',
       'Dominican Republic',
       'Ecuador',
       'Egypt',
       'El Salvador',
       'Equatorial Guinea',
       'Eritrea',
       'Estonia',
       'Ethiopia',
```

```
# creates the dictionaries
result_dicts = [] # stores the results here

for data in unique_values:
  keys = [i for i in data]
  values = [i for i in range(1, len(data)+1)]
  result_dicts.append({keys[i] : values[i] for i in range(len(values))})
result_dicts
```

```
       'Qatar': 137,
       'Republic of Korea': 138,
       'Republic of Moldova': 139,
       'Romania': 140,
       'Russian Federation': 141,
       'Rwanda': 142,
       'Saint Kitts and Nevis': 143,
       'Saint Lucia': 144,
       'Saint Vincent and the Grenadines': 145,
       'Samoa': 146,
       'San Marino': 147,
       'Sao Tome and Principe': 148,
       'Saudi Arabia': 149,
       'Senegal': 150,
       'Serbia': 151,
       'Seychelles': 152,
       'Sierra Leone': 153,
       'Singapore': 154,
       'Slovakia': 155,
       'Slovenia': 156,
       'Solomon Islands': 157,
       'Somalia': 158,
       'South Africa': 159,
       'South Sudan': 160,
       'Spain': 161,
       'Sri Lanka': 162,
       'Sudan': 163,
       'Suriname': 164,
       'Swaziland': 165,
       'Sweden': 166,
       'Switzerland': 167,
       'Syrian Arab Republic': 168,
       'Tajikistan': 169,
       'Thailand': 170,
       'The former Yugoslav republic of Macedonia': 171,
       'Timor-Leste': 172,
       'Togo': 173,
       'Tonga': 174,
       'Trinidad and Tobago': 175,
       'Tunisia': 176,
       'Turkey': 177,
       'Turkmenistan': 178,
       'Tuvalu': 179,
       'Uganda': 180,
       'Ukraine': 181,
       'United Arab Emirates': 182,
       'United Kingdom of Great Britain and Northern Ireland': 183,
       'United Republic of Tanzania': 184,
       'United States of America': 185,
       'Uruguay': 186,
       'Uzbekistan': 187,
       'Vanuatu': 188,
       'Venezuela (Bolivarian Republic of)': 189,
       'Viet Nam': 190,
       'Yemen': 191,
       'Zambia': 192,
       'Zimbabwe': 193},
      {'Developing': 1, 'Developed': 2}]
```

```
# maps the categorical data to their numerical counterparts
for column in range(len(columns)):
  life_df.replace(result_dicts[column], inplace=True)

life_df
```

	Country	Year	Status	Life_expectancy	Adult_Mortality	infant_deaths	Alcohol	percentage_expenditure	Hepatitis_B	Measles	...
0	1	2015	1	65.0	263.0	62	0.01	71.279624	65.0	1154	...
1	1	2014	1	59.9	271.0	64	0.01	73.523582	62.0	492	...
2	1	2013	1	59.9	268.0	66	0.01	73.219243	64.0	430	...
3	1	2012	1	59.5	272.0	69	0.01	78.184215	67.0	2787	...
4	1	2011	1	59.2	275.0	71	0.01	7.097109	68.0	3013	...
...	...	...	...	...	...	...	...	...	...	...	...
2933	193	2004	1	44.3	723.0	27	4.36	0.000000	68.0	31	...
2934	193	2003	1	44.5	715.0	26	4.06	0.000000	7.0	998	...
2935	193	2002	1	44.8	73.0	25	4.43	0.000000	73.0	304	...
2936	193	2001	1	45.3	686.0	25	1.72	0.000000	76.0	529	...
2937	193	2000	1	46.0	665.0	24	1.68	0.000000	79.0	1483	...

2938 rows × 22 columns

Exploratory Data Analysis

```
life_df.describe()
"""
According to this data, the average country is developing,
with a life expectancy of 69 years and a population of 12.73 Million
"""
```

	Country	Year	Status	Life_expectancy	Adult_Mortality	infant_deaths	Alcohol	percentage_expenditure	Hepatit
count	2938.000000	2938.000000	2938.000000	2938.000000	2938.000000	2938.000000	2938.000000	2938.000000	2938.00
mean	96.091219	2007.518720	1.174268	69.224932	164.796448	30.303948	4.600849	738.251295	78.64
std	56.250042	4.613841	0.379405	9.507640	124.080302	117.926501	4.027279	1987.914858	24.55
min	1.000000	2000.000000	1.000000	36.300000	1.000000	0.000000	0.010000	0.000000	1.00
25%	47.000000	2004.000000	1.000000	63.200000	74.000000	0.000000	0.930000	4.685343	73.50
50%	94.000000	2008.000000	1.000000	72.000000	144.000000	3.000000	3.780000	64.912906	88.00
75%	146.000000	2012.000000	1.000000	75.600000	227.000000	22.000000	7.677500	441.534144	96.00
max	193.000000	2015.000000	2.000000	89.000000	723.000000	1800.000000	17.870000	19479.911610	99.00

8 rows × 22 columns

```
# comparing by developed and developing countries
developing_life = life_df.query('Status == 1')
developed_life = life_df.query('Status == 2')
```

```
developed_life.mean()
```

```
Country                            9.525309e+01
Year                               2.007523e+03
Status                             1.000000e+00
Life_expectancy                    6.712018e+01
Adult_Mortality                    1.827588e+02
infant_deaths                      3.638417e+01
Alcohol                            3.493100e+00
percentage_expenditure             3.234703e+02
Hepatitis_B                        7.745355e+01
Measles                            2.824926e+03
BMI                                3.547577e+01
under-five_deaths                  5.052514e+01
Polio                              8.000298e+01
Total_expenditure                  5.576311e+00
Diphtheria                         7.980067e+01
HIV/AIDS                           2.088664e+00
GDP                                4.668433e+03
Population                         1.374722e+07
thinness__1-19_years               5.582378e+00
thinness_5-9_years                 5.624522e+00
Income_composition_of_resources    5.845291e-01
Schooling                          1.125592e+01
dtype: float64
```

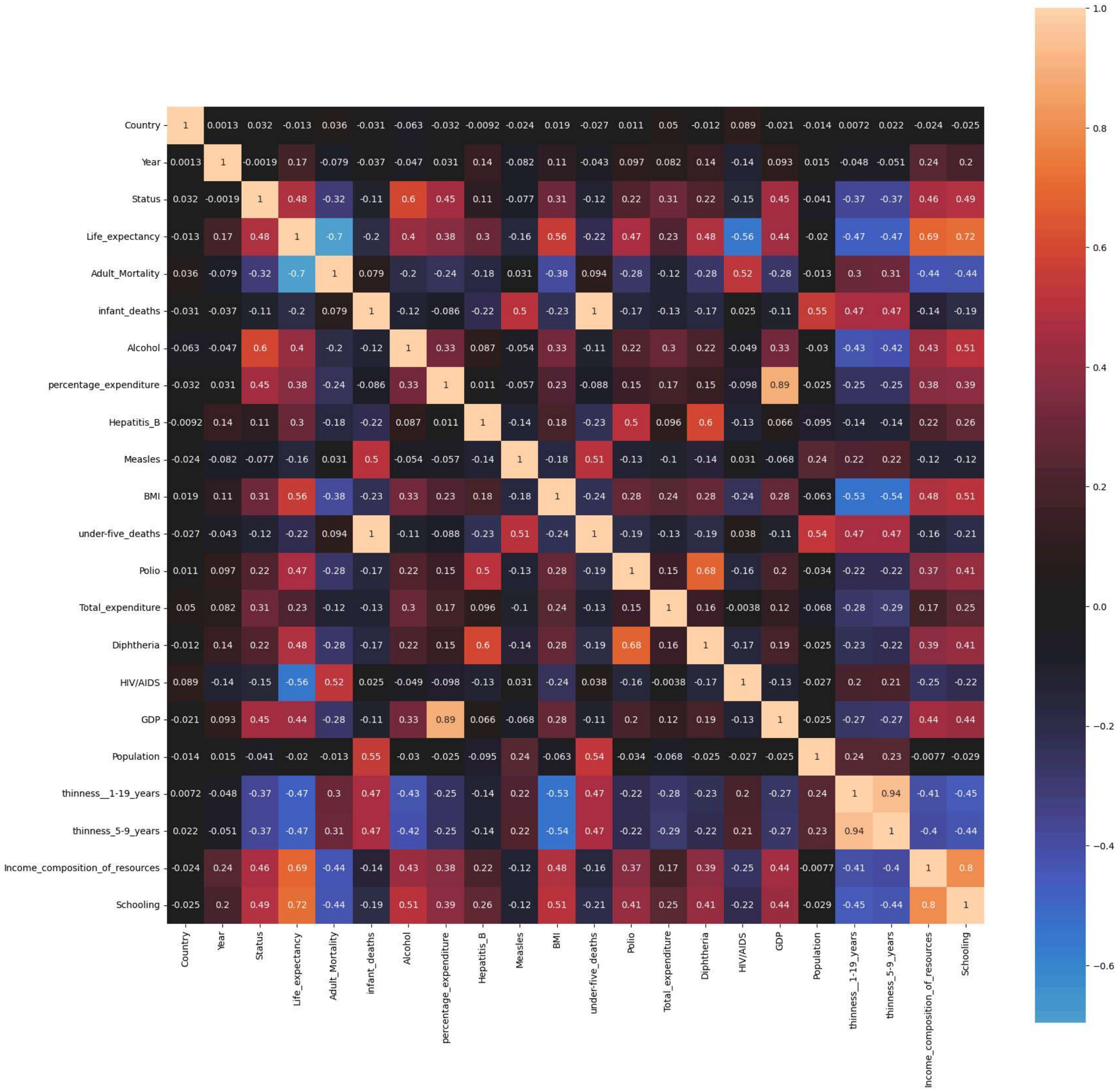
```
developing_life.mean()
```

```
Country                            1.000625e+02
Year                               2.007500e+03
Status                             2.000000e+00
Life_expectancy                    7.919785e+01
Adult_Mortality                    7.968555e+01
infant_deaths                      1.494141e+00
Alcohol                            9.849678e+00
percentage_expenditure             2.703600e+03
Hepatitis_B                        8.430827e+01
Measles                            4.990059e+02
BMI                                5.180391e+01
under-five_deaths                  1.810547e+00
Polio                              9.373633e+01
Total_expenditure                  7.554042e+00
Diphtheria                         9.347656e+01
```

```
HIV/AIDS                           1.000000e-01
GDP                                2.021901e+04
Population                         7.937177e+06
thinness__1-19_years               1.320703e+00
thinness_5-9_years                 1.296680e+00
Income_composition_of_resources    8.314013e-01
Schooling                          1.548429e+01
dtype: float64
```

```
plt.figure(figsize=(20,20))
sns.heatmap(
    life_df.sort_index().corr(),
    annot=True, center=0, square=True
)
```

```
<Axes: >
```



Country 1 0.0013 0.032 -0.013 0.036 -0.031 -0.063 -0.032 -0.0092 -0.024 0.019 -0.027 0.011 0.05 -0.012 0.089 -0.021 -0.014 0.0072 0.022 -0.024 -0.025
Year 0.0013 1 -0.0019 0.17 -0.079 -0.037 -0.047 0.031 0.14 -0.082 0.11 -0.043 0.097 0.082 0.14 -0.14 0.093 0.015 -0.048 -0.051 0.24 0.2
Status 0.032 -0.0019 1 0.48 -0.32 -0.11 0.6 0.45 0.11 -0.077 0.31 -0.12 0.22 0.31 0.22 -0.15 0.45 -0.041 -0.37 -0.37 0.46 0.49
Life_expectancy -0.013 0.17 0.48 1 -0.7 -0.2 0.4 0.38 0.3 -0.16 0.56 -0.22 0.47 0.23 0.48 -0.56 0.44 -0.02 -0.47 -0.47 0.69 0.72
Adult_Mortality 0.036 -0.079 -0.32 -0.7 1 0.079 -0.2 -0.24 -0.18 0.031 -0.38 0.094 -0.28 -0.12 -0.28 0.52 -0.28 -0.013 0.3 0.31 -0.44 -0.44
infant_deaths -0.031 -0.037 -0.11 -0.2 0.079 1 -0.12 -0.086 -0.22 0.5 -0.23 1 -0.17 -0.13 -0.17 0.025 -0.11 0.55 0.47 0.47 -0.14 -0.19
Alcohol -0.063 -0.047 0.6 0.4 -0.2 -0.12 1 0.33 0.087 -0.054 0.33 -0.11 0.22 0.3 0.22 -0.049 0.33 -0.03 -0.43 -0.42 0.43 0.51
percentage_expenditure -0.032 0.031 0.45 0.38 -0.24 -0.086 0.33 1 0.011 -0.057 0.23 -0.088 0.15 0.17 0.15 -0.098 0.89 -0.025 -0.25 -0.25 0.38 0.39
Hepatitis_B -0.0092 0.14 0.11 0.3 -0.18 -0.22 0.087 0.011 1 -0.14 0.18 -0.23 0.5 0.096 0.6 -0.13 0.066 -0.095 -0.14 -0.14 0.22 0.26
Measles -0.024 -0.082 -0.077 -0.16 0.031 0.5 -0.054 -0.057 -0.14 1 -0.18 0.51 -0.13 -0.1 -0.14 0.031 -0.068 0.24 0.22 0.22 -0.12 -0.12
BMI 0.019 0.11 0.31 0.56 -0.38 -0.23 0.33 0.23 0.18 -0.18 1 -0.24 0.28 0.24 0.28 -0.24 0.28 -0.063 -0.53 -0.54 0.48 0.51
under-five_deaths -0.027 -0.043 -0.12 -0.22 0.094 1 -0.11 -0.088 -0.23 0.51 -0.24 1 -0.19 -0.13 -0.19 0.038 -0.11 0.54 0.47 0.47 -0.16 -0.21
Polio 0.011 0.097 0.22 0.47 -0.28 -0.17 0.22 0.15 0.5 -0.13 0.28 -0.19 1 0.15 0.68 -0.16 0.2 -0.034 -0.22 -0.22 0.37 0.41
Total_expenditure 0.05 0.082 0.31 0.23 -0.12 -0.13 0.3 0.17 0.096 -0.1 0.24 -0.13 0.15 1 0.16 -0.0038 0.12 -0.068 -0.28 -0.29 0.17 0.25
Diphtheria -0.012 0.14 0.22 0.48 -0.28 -0.17 0.22 0.15 0.6 -0.14 0.28 -0.19 0.68 0.16 1 -0.17 0.19 -0.025 -0.23 -0.22 0.39 0.41
HIV/AIDS 0.089 -0.14 -0.15 -0.56 0.52 0.025 -0.049 -0.098 -0.13 0.031 -0.24 0.038 -0.16 -0.0038 -0.17 1 -0.13 -0.027 0.2 0.21 -0.25 -0.22
GDP -0.021 0.093 0.45 0.44 -0.28 -0.11 0.33 0.89 0.066 -0.068 0.28 -0.11 0.2 0.12 0.19 -0.13 1 -0.025 -0.27 -0.27 0.44 0.44
Population -0.014 0.015 -0.041 -0.02 -0.013 0.55 -0.03 -0.025 -0.095 0.24 -0.063 0.54 -0.034 -0.068 -0.025 -0.027 -0.025 1 0.24 0.23 -0.0077 -0.029
thinness__1-19_years 0.0072 -0.048 -0.37 -0.47 0.3 0.47 -0.43 -0.25 -0.14 0.22 -0.53 0.47 -0.22 -0.28 -0.23 0.2 -0.27 0.24 1 0.94 -0.41 -0.45
thinness_5-9_years 0.022 -0.051 -0.37 -0.47 0.31 0.47 -0.42 -0.25 -0.14 0.22 -0.54 0.47 -0.22 -0.29 -0.22 0.21 -0.27 0.23 0.94 1 -0.4 -0.44
Income_composition_of_resources -0.024 0.24 0.46 0.69 -0.44 -0.14 0.43 0.38 0.22 -0.12 0.48 -0.16 0.37 0.17 0.39 -0.25 0.44 -0.0077 -0.41 -0.4 1 0.8
Schooling -0.025 0.2 0.49 0.72 -0.44 -0.19 0.51 0.39 0.26 -0.12 0.51 -0.21 0.41 0.25 0.41 -0.22 0.44 -0.029 -0.45 -0.44 0.8 1
Country
Year
Status
Life_expectancy
Adult_Mortality
infant_deaths
Alcohol
percentage_expenditure
Hepatitis_B
Measles
BMI
under-five_deaths
Polio
Total_expenditure
Diphtheria
HIV/AIDS
GDP
Population
thinness__1-19_years
thinness_5-9_years
Income_composition_of_resources
Schooling
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6