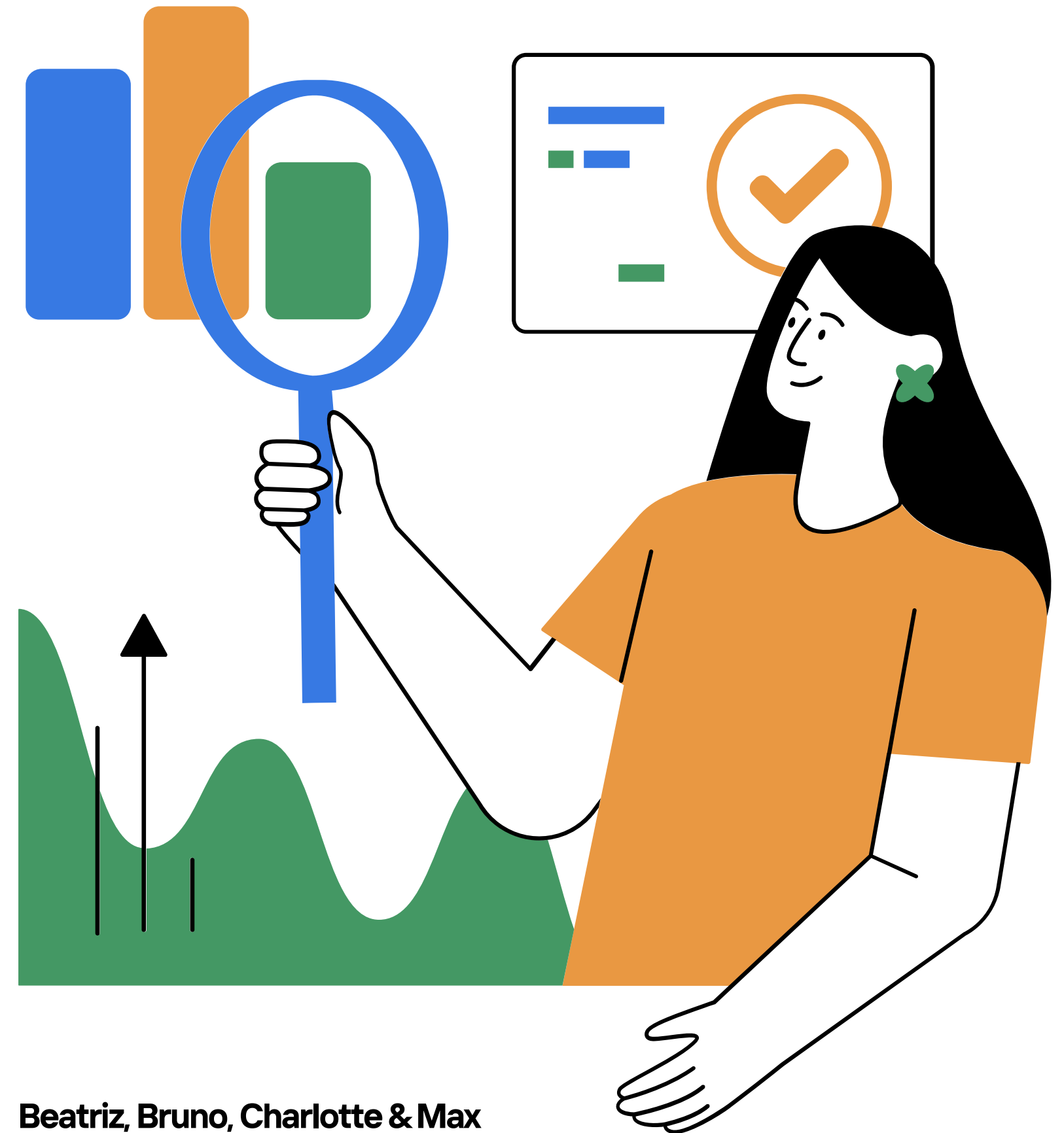
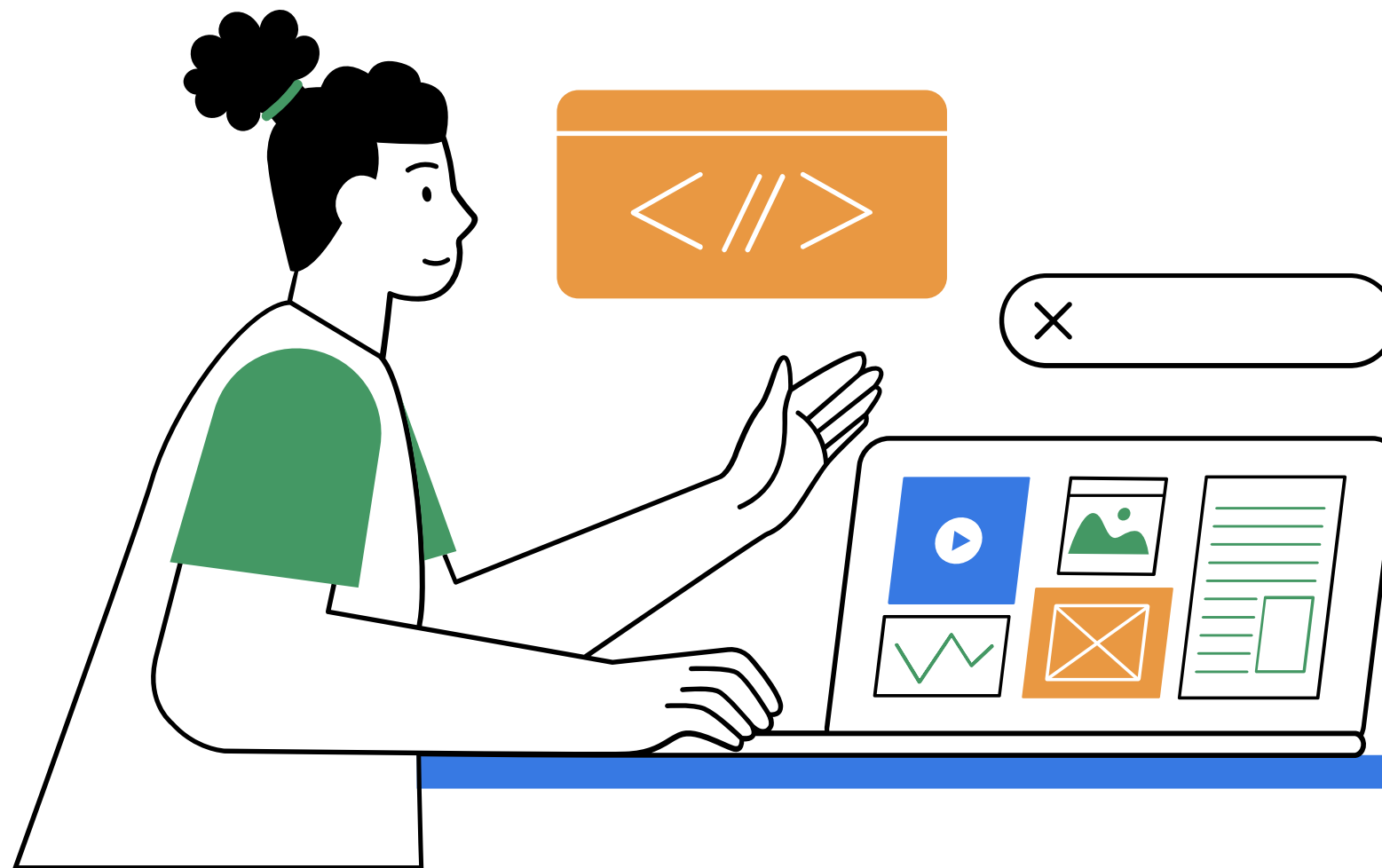


Why are we happy?



Beatriz, Bruno, Charlotte & Max



Our Data

World Happiness Report

"The World Happiness Report Up to 2023 dataset offers a comprehensive and up-to-date examination of happiness metrics and the factors influencing well-being on a global scale."

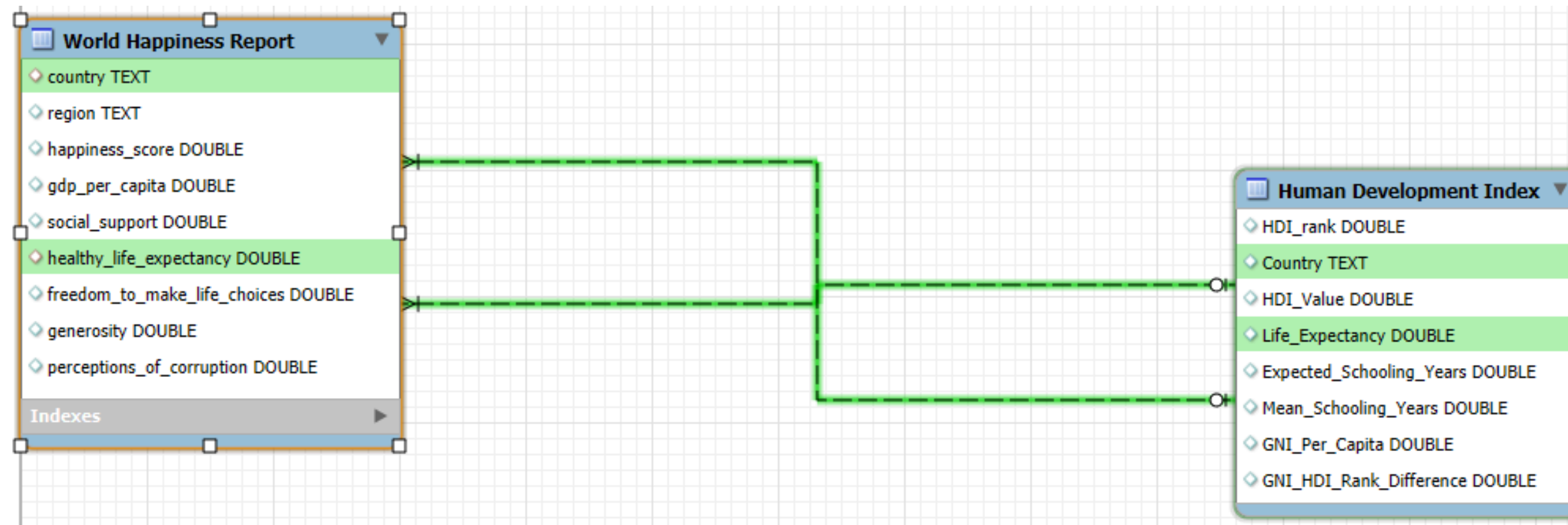
Source: Kaggle

Human Development Index (HDI)

"The Human Development Index (HDI) is a summary measure of average achievement in: a long and healthy life, being knowledgeable and having a decent standard of living. The HDI is the geometric mean of normalized indices for each of the three dimensions."

Source: UNDP

Our Database Design

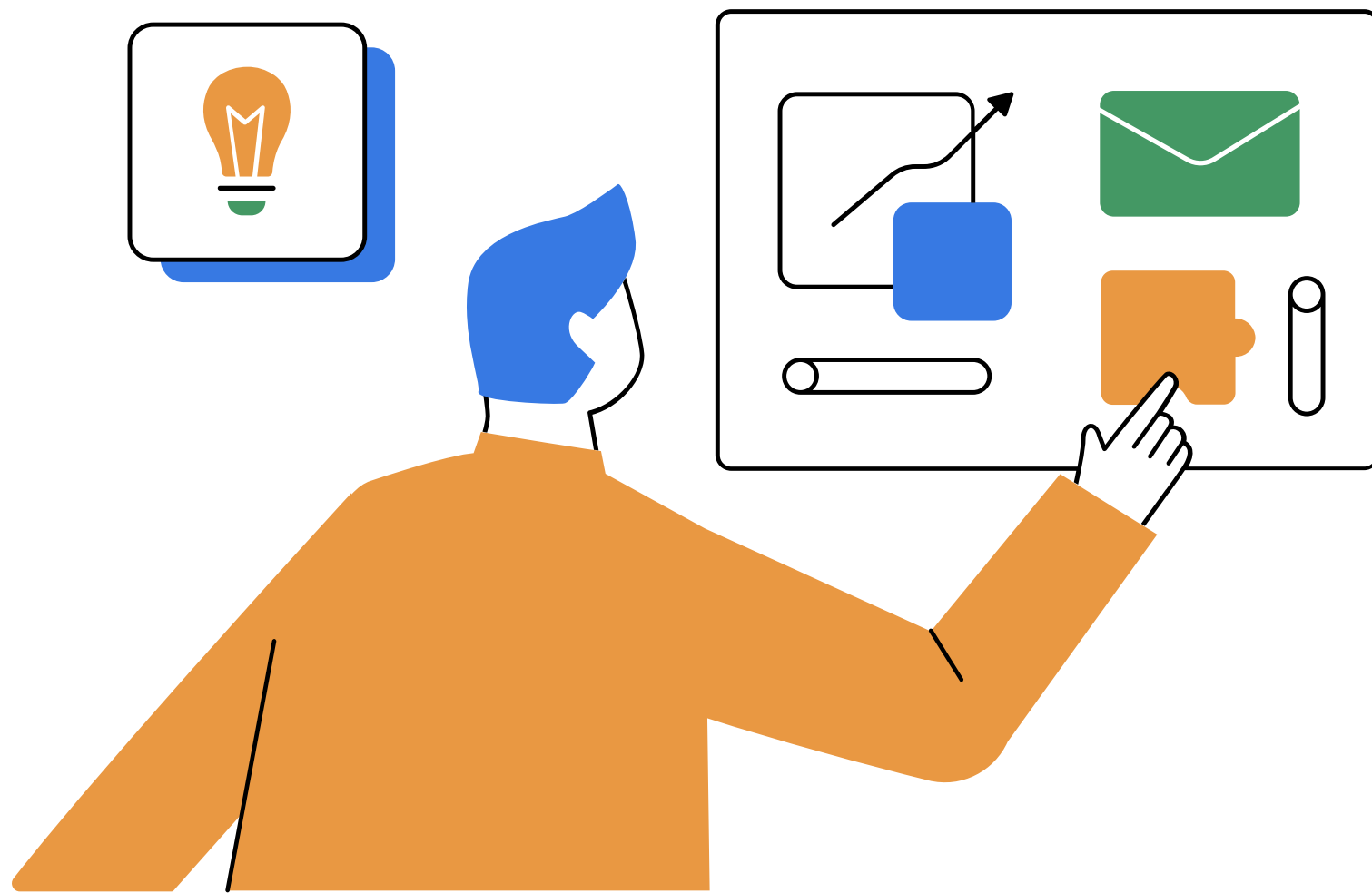


Remarks

Country as our foreign key to allow the analysis of life expectancy and health metrics by country



Our Hypotheses



Hypothesis 01

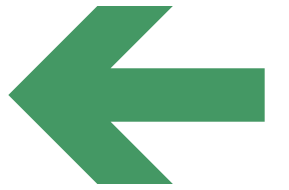
Western Europe and North America consistently rank higher in happiness compared to other regions.

Hypothesis 02

Higher GDP per capita is strongly correlated with higher happiness scores.

Hypothesis 03

Countries with a higher HDI have higher happiness scores.



Hypothesis 01

Western Europe and North America consistently rank higher in happiness compared to other regions.

region	avg_happiness_score
North America and ANZ	7.09
Western Europe	6.9
Latin America and Caribbean	5.95
Central and Eastern Europe	5.88
East Asia	5.88
Commonwealth of Independent States	5.8
Southeast Asia	5.43
Middle East and North Africa	5.17
Sub-Saharan Africa	4.48
South Asia	4.27

**Problem: North America
Results Mixed with
Australia and New
Zealand.**

	country	region
▸	New Zealand	North America and ANZ
	Australia	North America and ANZ
	Canada	North America and ANZ
	United States	North America and ANZ

**North America and
ANZ leads in happiness
scores, followed by
Western Europe.**



Hypothesis 01

Western Europe and North America consistently rank higher in happiness compared to other regions.

Task: Isolate Regions and Calculate the new Happiness Score for both regions

	country	region	happiness_score
	Canada	North America and ANZ	7.025
▶	United States	North America and ANZ	6.977

	avg_happiness_score
▶	7

	country	region	happiness_score
▶	New Zealand	North America and ANZ	7.2
	Australia	North America and ANZ	7.162

	avg_happiness_score
▶	7.18

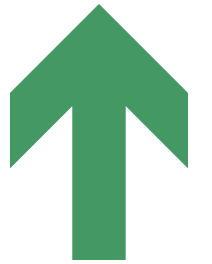
Hypothesis 01

Western Europe and North America consistently rank higher in happiness compared to other regions.

Northern Western Europe vs Central Western Europe vs Southern Western Europe



country	region	happiness_score
Finland	Western Europe	7.821
Denmark	Western Europe	7.636
Iceland	Western Europe	7.557
Switzerland	Western Europe	7.512
Netherlands	Western Europe	7.415
Luxembourg	Western Europe	7.404
Sweden	Western Europe	7.384
Norway	Western Europe	7.365
New Zealand	North America and ANZ	7.2
Austria	Western Europe	7.163
Australia	North America and ANZ	7.162
Ireland	Western Europe	7.041
Germany	Western Europe	7.034
Canada	North America and ANZ	7.025
United States	North America and ANZ	6.977
United Kingdom	Western Europe	6.943
Belgium	Western Europe	6.805
France	Western Europe	6.687
Spain	Western Europe	6.476
Italy	Western Europe	6.467
Malta	Western Europe	6.447
Cyprus	Western Europe	6.221
Portugal	Western Europe	6.016
Greece	Western Europe	5.948
North Cyprus	Western Europe	5.467



Hypothesis 02

Higher GDP per capita is strongly correlated with higher happiness scores.

Top 10 countries with the highest GDP per capita

country	gdp_per_capita	happiness_score
Luxembourg	2.209	7.404
Singapore	2.149	6.48
Ireland	2.129	7.041
Switzerland	2.026	7.512
United Arab Emirates	1.998	6.576
Norway	1.997	7.365
United States	1.982	6.977
Hong Kong S.A.R. of China	1.957	5.425
Denmark	1.953	7.636
Netherlands	1.945	7.415

Top 10 countries with the lowest GDP per capita

country	gdp_per_capita	happiness_score
Venezuela	0	4.925
Niger	0.57	5.003
Mozambique	0.578	5.048
Liberia	0.636	5.122
Malawi	0.648	3.75
Chad	0.662	4.251
Madagascar	0.67	4.339
Sierra Leone	0.686	3.574
Yemen	0.691	4.197
Afghanistan	0.758	2.404

max_gdp_per_capita	min_gdp_per_capita	max_happiness_score	min_happiness_score
2.209	0	7.821	2.404

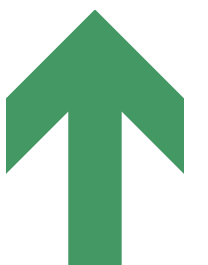


Hypothesis 02

Higher GDP per capita is strongly correlated with higher happiness scores.

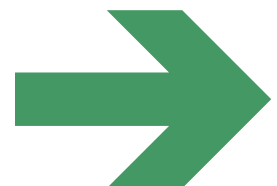
pearson_correlation
0.7637

The **Pearson correlation** coefficient is 0.7637 which indicates a strong positive relationship between GDP and happiness, suggesting that GDP plays a significant role in influencing happiness.



Hypothesis 03

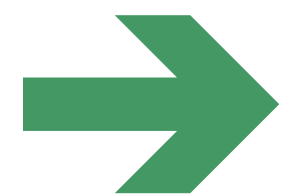
Countries with a higher HDI have higher happiness scores.



	Country	HDI_Value	happiness_score
▸	Switzerland	0.967	7.512
	Norway	0.966	7.365
	Iceland	0.959	7.557
	Denmark	0.952	7.636
	Sweden	0.952	7.384
	Germany	0.95	7.034
	Ireland	0.95	7.041
	Singapore	0.949	6.48
	Australia	0.946	7.162
	Netherlands	0.946	7.415
	Belgium	0.942	6.805
	Finland	0.942	7.821
	United Kin...	0.94	6.943
	New Zeala...	0.939	7.2
	United Ara...	0.937	6.576
	Canada	0.935	7.025
	Luxembourg	0.927	7.404
	United Sta...	0.927	6.977

Hypothesis 03

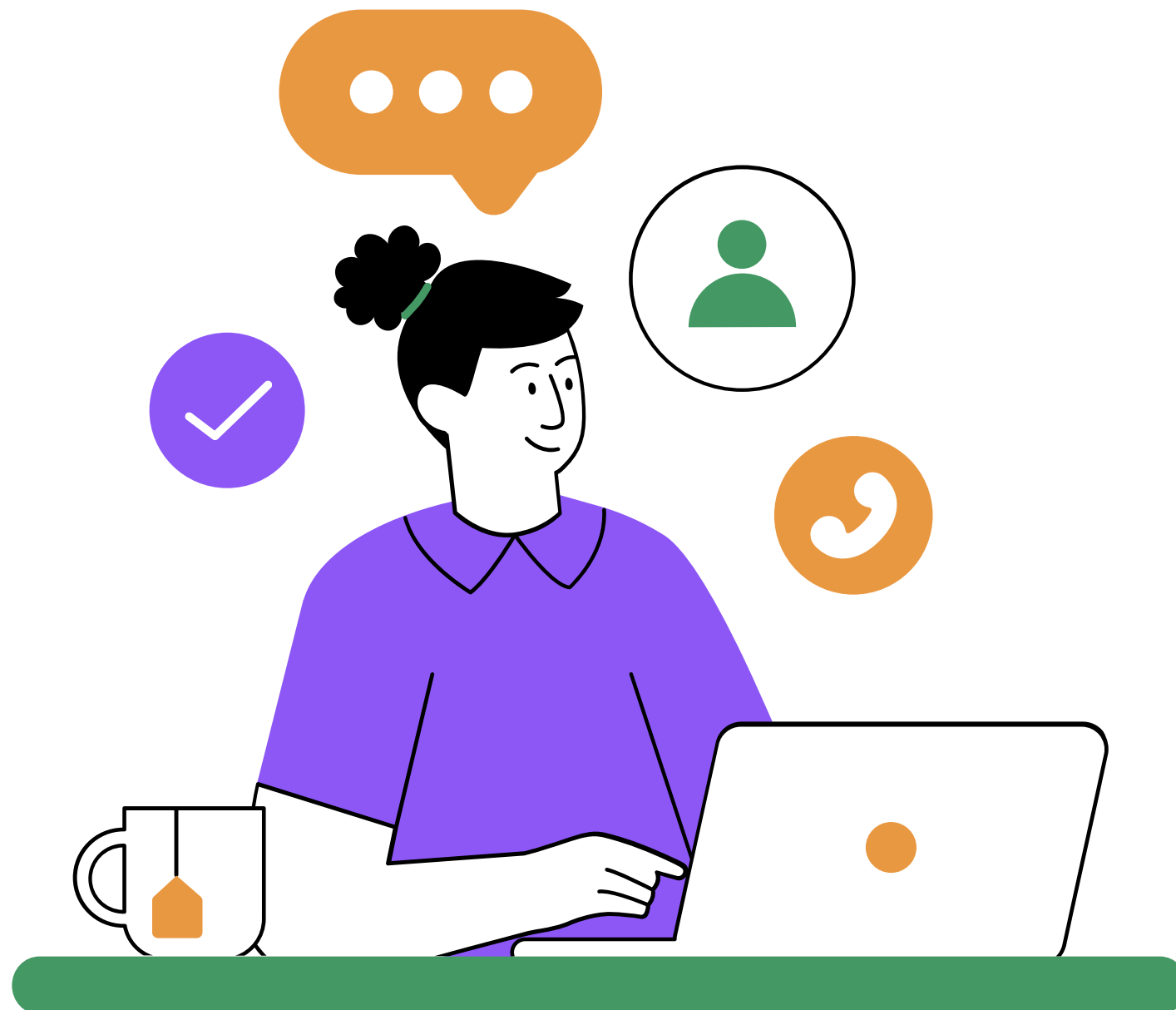
Countries with a higher HDI have higher happiness scores.



	HDI_Level	Avg_Happiness_Score
▶	Medium HDI	5.231041666666667
	Low HDI	4.321607142857142
	High HDI	6.585264150943399

	Country	HDI_Value	happiness_score	Difference
▶	Finland	0.942	7.821	6.879
	Denmark	0.952	7.636	6.684
	Iceland	0.959	7.557	6.5980000000000001
	Switzerland	0.967	7.512	6.545
	Luxembourg	0.927	7.404	6.477
	Netherlands	0.946	7.415	6.469
	Israel	0.915	7.364	6.449
	Sweden	0.952	7.384	6.432
	Norway	0.966	7.365	6.399
	New Zealand	0.939	7.2	6.261

Our Learnings



Check database

We originally went with a different subject and developed hypotheses only to find out too late that our database presented a lot of issues we could not solve, even with help from our teachers. While not jumping into EDA before building hypotheses sounds great, checking if you can use the database is still smart.

Problem Solving

However we managed to recover quickly and chose a new dataset. Not only was this very productive but we kept group dynamics in tact well. We solved all our roadbumps in a cooperative and understanding manner and tried to spread our time and energies fairly.

Thank You

from Beatriz, Bruno, Charlotte & Max

