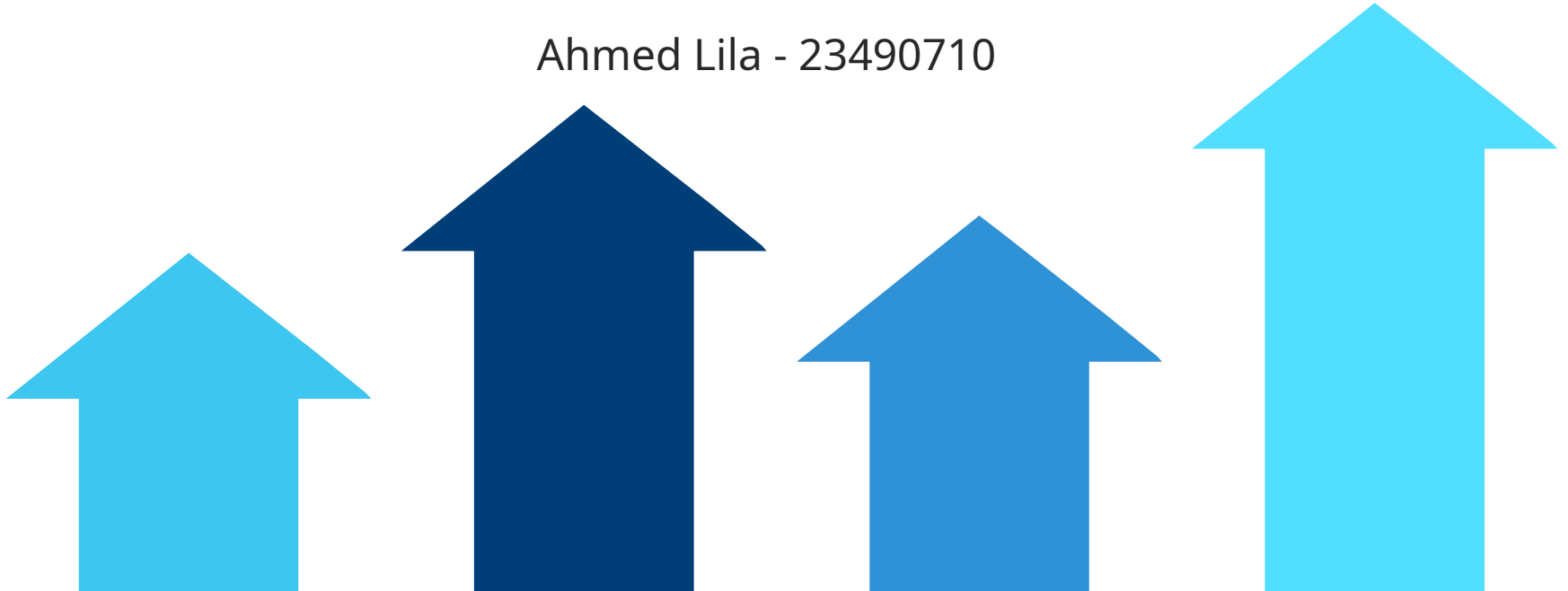


Assessing Life Expectancy and Healthcare Access in the Americas

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Introduction

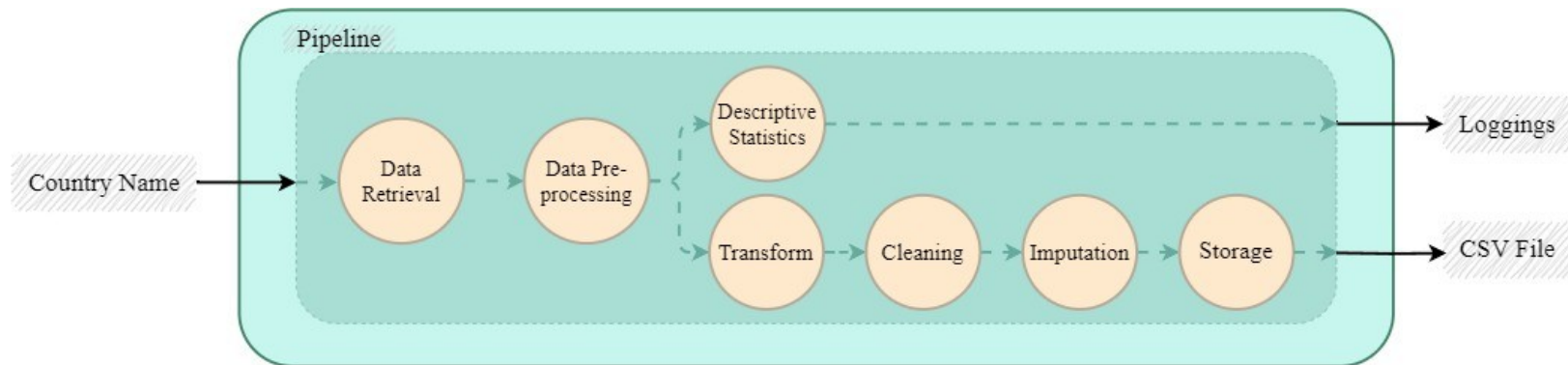
Problem Statement:

Access to healthcare significantly influences public health outcomes, such as life expectancy.

Research Question:

Does healthcare access impact life expectancy in the Americas, specifically in the USA and Brazil?

Pipeline



Data Overview

Data Sources:

- WHO (hypertension prevalence, immunization rates, UHC index)
- World Bank (life expectancy data)

Key Metrics:

Life Expectancy, UHC Index, Immunization Rates (DTP3, MVC2), Hypertension Prevalence.

DIM_TIME	Life Expectancy	HYP_PER_100_N	HYP_PER_100_NL	HYP_PER_100_NU	UHC_INDEX_N	DTP3_100_N	MVC2_PER_100_N
1990	65.985	39.45	30.4	48.5	68.0	98.0	95.0
1991	66.31	39.8	31.6	48.0	68.0	98.0	95.0
1992	66.708	40.15	32.8	47.5	68.0	98.0	95.0
1993	67.109	40.5	33.9	47.1	68.0	98.0	95.0
1994	67.568	40.849999999999994	34.9	46.8	68.0	98.0	95.0
1995	67.919	41.3	35.9	46.7	68.0	98.0	95.0
1996	68.409	41.75	36.8	46.7	68.0	98.0	95.0
1997	68.813	42.1	37.6	46.6	68.0	98.0	95.0
1998	69.189	42.55	38.4	46.7	68.0	98.0	95.0
1999	69.524	42.9	39.0	46.8	68.0	98.0	95.0
2000	69.737	43.35	39.7	47.0	68.0	98.0	95.0
2001	70.195	43.8	40.3	47.3	69.0	98.0	95.0
2002	70.41	44.15	40.8	47.5	70.0	99.0	80.0
2003	70.72	44.599999999999994	41.4	47.8	71.0	99.0	74.0
2004	71.131	44.95	41.8	48.1	72.0	99.0	68.0
2005	71.753	45.35	42.2	48.5	73.0	99.0	61.0
2006	72.037	45.650000000000006	42.6	48.7	73.6	99.0	55.0
2007	72.365	45.8	42.8	48.8	74.2	99.0	49.0
2008	72.715	46.05	43.1	49.0	74.8	99.0	56.0
2009	72.948	46.1	43.2	49.0	75.4	99.0	55.0
2010	73.182	46.099999999999994	43.3	48.9	76.0	99.0	53.0
2011	73.343	46.05	43.3	48.8	77.2	99.0	71.0
2012	73.552	46.0	43.2	48.8	78.4	95.0	70.0
2013	73.918	45.85	43.0	48.7	79.6	97.0	69.0
2014	74.306	45.7	42.7	48.7	80.8	93.0	89.0
2015	74.332	45.55	42.3	48.8	82.0	96.0	80.0
2016	74.442	45.4	41.9	48.9	82.0	89.0	77.0
2017	74.827	45.3	41.3	49.3	82.0	83.0	67.0
2018	75.109	45.2	40.7	49.7	81.5	87.0	76.0
2019	75.338	45.05	39.9	50.2	81.0	70.0	54.0
2020	74.009	45.05	39.9	50.2	80.5	77.0	44.0
2021	72.75	45.05	39.9	50.2	80.0	68.0	46.0
2022	73.425	45.05	39.9	50.2	80.0	77.0	58.0

Methodology

Data Preprocessing:

Cleaning and unifying datasets.

Tools used:

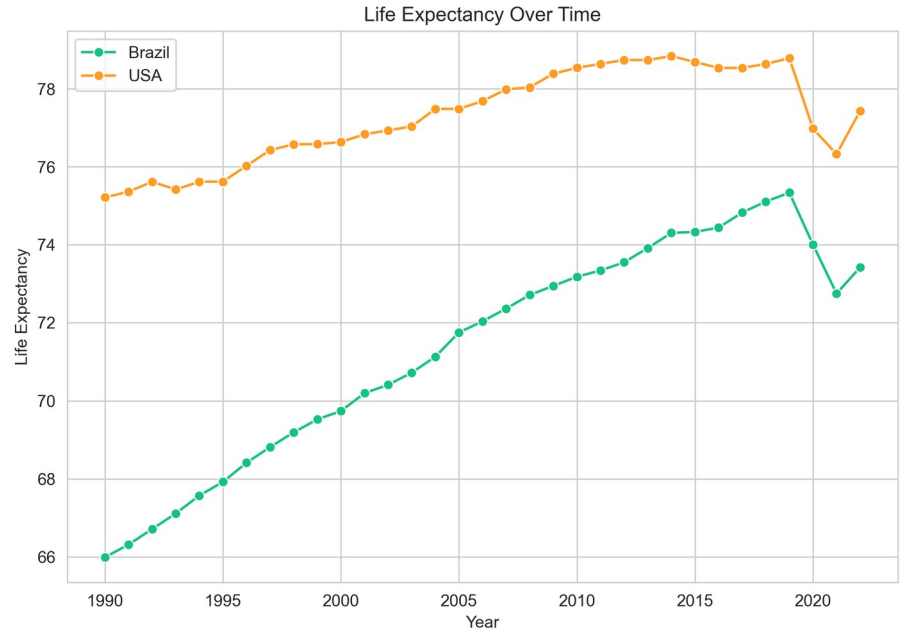
Python, Pandas, and SQLite

Data Analysis:

- Trends (e.g., life expectancy over time)
- Correlation analysis (relationship between health factors and life expectancy)

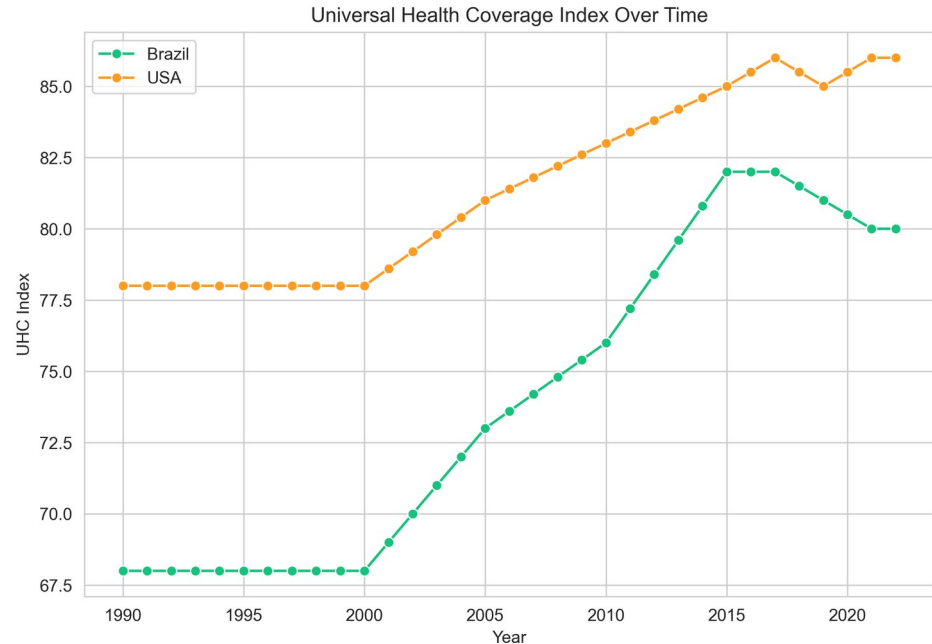
Findings: Life Expectancy Trends

- **USA:** Steady increase, higher overall life expectancy.
- **Brazil:** Rapid growth but lower baseline.
- Both show declines post-2018.
- **Insight:** Healthcare advancements significantly influence life expectancy trends.



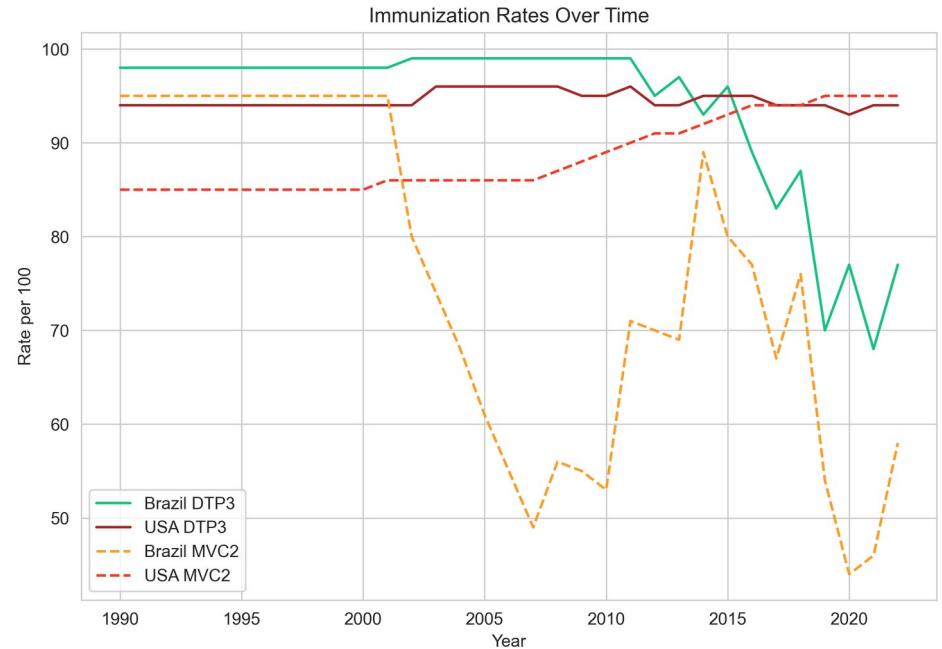
Findings: Universal Health Coverage (UHC)

- **USA:** High and stable UHC Index (78–86).
- **Brazil:** Notable improvement (67–81), then slight decline post-2015.
- **Insight:** Investments in healthcare infrastructure improve public health outcomes.



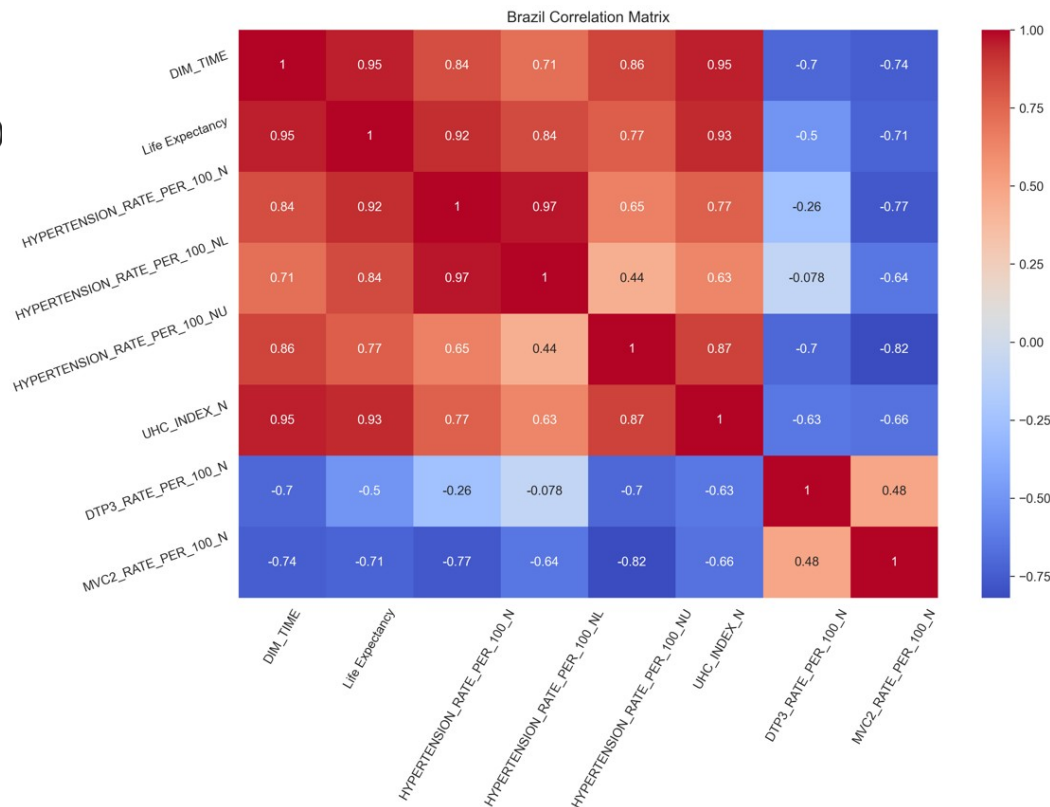
Findings: Immunization Rates

- **USA:** Stable immunization rates (~90%).
- **Brazil:** Declining DTP3 and MCV2 rates (<50%).
- **Insight:** Brazil's vaccination challenges impact long-term health indicators.



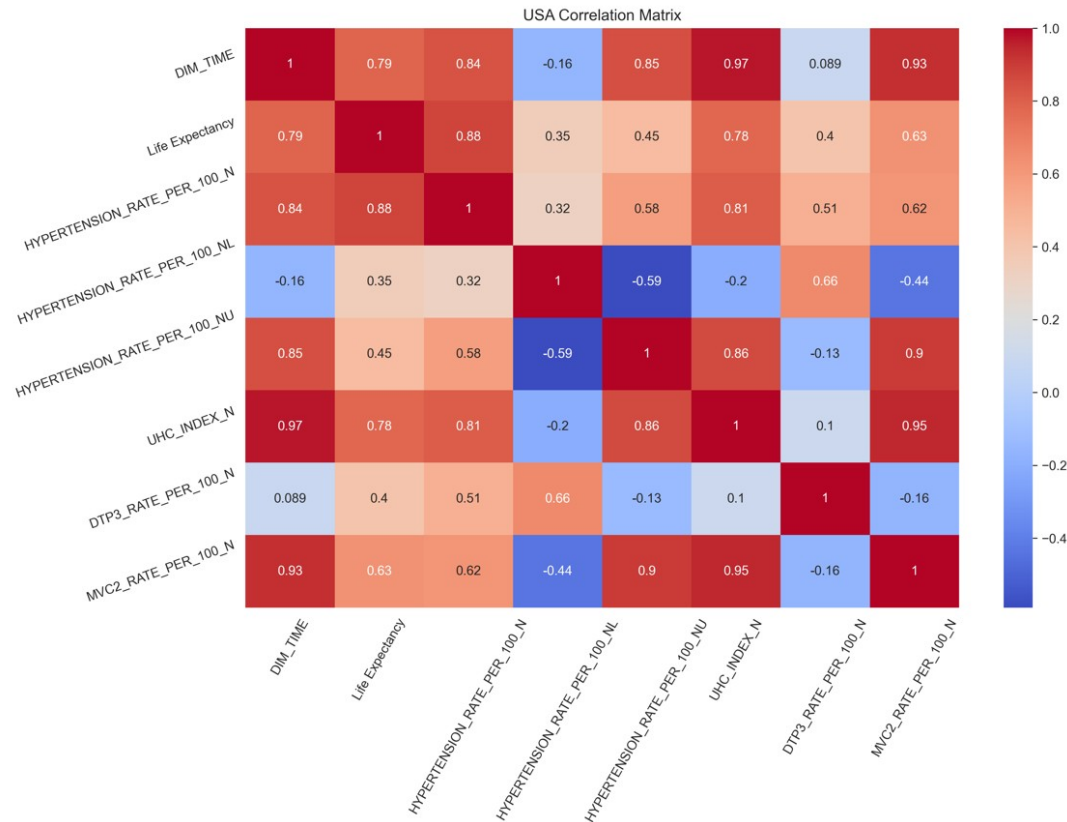
Findings: Life Expectancy Correlation

- **Brazil:** Strong positive correlation: UHC Index (0.93) hypertension management (0.92). Negative correlation: DTP3 (-0.5), MCV2 (-0.71).
- **Insight:** UHC Index and consistent immunization play critical roles in public health.



Findings: Life Expectancy Correlation

- **USA:** Positive correlation: UHC Index (0.78), MCV2 (0.63), hypertension (0.88).
- **Insight:** UHC Index and consistent immunization play critical roles in public health.



Limitations

Data gaps:

Missing or inconsistent data from some years.

Limited Variables:

Additional factors (e.g., healthcare expenditure) could provide deeper insights.

Imputation:

May introduce bias in trend analysis.



Thanks!