**Step 1**

Selected Database:

World Development Indicators (WDI)

Three Indicators:

* Poverty Headcount Ratio: The percentage of the population living below the national poverty line.
* Gini Coefficient: A measure of income inequality within a country. A Gini coefficient of 0 represents perfect equality, while 1 indicates maximum inequality.
* Income Share Held by Lowest 20%: The percentage of total national income earned by the bottom 20% of the population.

**Step 2**

Entities:

* COUNTRY:

Attributes: Country Code (PK), Country Name, Region

* INDICATOR:

Attributes: Indicator Code (PK), Indicator Name, Description, Category

* OBSERVATION:

Attributes: Indicator Code (FK), Country Code (FK), Year, Value

Relationships:

COUNTRY and INDICATOR are connected through OBSERVATION

A close up of a label

Description automatically generated

In this ER model, we have three main entities: COUNTRY, INDICATOR, and OBSERVATION. Each entity has its attributes, including primary keys (PKs) to uniquely identify each record. The OBSERVATION entity serves as a junction table, linking COUNTRY and INDICATOR entities through foreign keys (FKs). This design efficiently captures the relationship between countries and various indicators over time, allowing for comprehensive data analysis and querying. The OBSERVATION table includes foreign keys from both the COUNTRY table and the INDICATOR table. Together, these foreign keys form a composite key. This composite key uniquely identifies each record in the OBSERVATION table by combining the values of the foreign keys from the COUNTRY and INDICATOR tables. By using this combination, the OBSERVATION table ensures that each unique pairing of COUNTRY and INDICATOR is properly captured, allowing for accurate tracking and analysis of data across different countries and indicators.

**Step 3**

20 World Bank datasets:

1. World Development Indicators (WDI)

2. Education Statistics - All Indicators

3. Gender Statistics

4. Health Nutrition and Population Statistics

5. Statistical Capacity Indicators

6. External Debt and Financial Flows Statistics

7. IDA Results Measurement System, Tier I Database – WDI

8. Millennium Development Goals

9. Quarterly Public Sector Debt

10. Joint External Debt Hub

11. Doing Business

12. Global Economic Monitor (GEM)

13. Quarterly External Debt Statistics GDDS

14. Quarterly External Debt Statistics SDDS

15. Social Development Indicators

16. Urban Development Indicators

17. Economic Policy Indicators

18. External Debt Indicators

19. Human Development Indicators

20. Poverty and Inequality Indicators

30 indicators:

1. Primary completion rate
2. Secondary completion rate
3. Tertiary enrollment rate
4. Literacy rate, adult
5. Net enrollment rate, primary
6. Gross intake ratio in first grade of primary education
7. School enrollment, primary (% gross)
8. School enrollment, secondary (% gross)
9. School enrollment, tertiary (% gross)
10. Adjusted net enrollment rate, primary
11. Expected years of schooling
12. Learning-adjusted years of schooling
13. Persistence to grade 5
14. Lower secondary completion rate
15. Gross graduation ratio, tertiary
16. Human Capital Index (HCI)
17. Gender Parity Index for primary and secondary school enrollment
18. Female labor force participation rate
19. Male labor force participation rate
20. Gender Development Index (GDI)
21. Gender Inequality Index (GII)
22. Women in parliament (% of total)
23. Poverty headcount ratio at $2.15 a day (2017 PPP)
24. Income share held by lowest 20%
25. Gini index (World Bank estimate)
26. Poverty gap at $2.15 a day (2017 PPP)
27. Poverty headcount ratio at $1.90 a day (2011 PPP)
28. GDP growth (annual %)
29. GDP per capita (constant 2010 US$)
30. Gross national income (GNI) per capita (constant 2010 US$)

**Step 4**

Adjusted ERD:

The selected indicators provide a comprehensive framework to analyze educational outcomes and gender-related variables across different socioeconomic strata. In developing an Entity-Relationship (ER) model for these indicators, we must first identify the key entities, their attributes, and the relationships that exist between them.

Categorization of Indicators:

Economy Indicators

1. Poverty headcount ratio at $2.15 a day (2017 PPP)
2. Income share held by lowest 20%
3. Gini index (World Bank estimate)
4. Poverty gap at $2.15 a day (2017 PPP)
5. Poverty headcount ratio at $1.90 a day (2011 PPP)
6. GDP growth (annual %)
7. GDP per capita (constant 2010 US$)
8. Gross national income (GNI) per capita (constant 2010 US$)

Gender Indicators

1. Gender Parity Index for primary and secondary school enrollment
2. Female labor force participation rate
3. Male labor force participation rate
4. Gender Development Index (GDI)
5. Gender Inequality Index (GII)
6. Women in parliament (% of total)

Education Indicators

1. Primary completion rate
2. Secondary completion rate
3. Tertiary enrollment rate
4. Literacy rate, adult
5. Net enrollment rate, primary
6. Gross intake ratio in first grade of primary education
7. School enrollment, primary (% gross)
8. School enrollment, secondary (% gross)
9. School enrollment, tertiary (% gross)
10. Adjusted net enrollment rate, primary
11. Expected years of schooling
12. Learning-adjusted years of schooling
13. Persistence to grade 5
14. Lower secondary completion rate
15. Gross graduation ratio, tertiary
16. Human Capital Index (HCI)

Entities and Attributes:

1. Country
   * Country\_ID (PK): A unique identifier for each country.
   * Name: The name of the country.
   * Region: The geographical region the country belongs to.
2. Economy\_Indicator
   * Indicator\_ID (PK): A unique identifier for each economy indicator.
   * Name: The name of the indicator.
   * Description: A brief description of the indicator.
   * Source: The source of the data.
3. Gender\_Indicator
   * Indicator\_ID (PK): A unique identifier for each gender indicator.
   * Name: The name of the indicator.
   * Description: A brief description of the indicator.
   * Source: The source of the data.
4. Education\_Indicator
   * Indicator\_ID (PK): A unique identifier for each education indicator.
   * Name: The name of the indicator.
   * Description: A brief description of the indicator.
   * Source: The source of the data.
5. Data\_Record
   * Country\_ID (FK): A foreign key referencing the Country\_ID in the Country entity.
   * Indicator\_ID (FK): A foreign key referencing the Indicator\_ID in the respective indicator entity based on Indicator\_Type.
   * Indicator\_Type: A field that specifies whether the indicator is Economy, Gender, or Education.
   * Year: The year the data was recorded.
   * Value: The value of the indicator for the given year, country, and indicator.

Relationships:

* Country and Economy\_Indicator are connected through Data\_Record.
* Country and Gender\_Indicator are connected through Data\_Record.
* Country and Education\_Indicator are connected through Data\_Record.
* In the Data\_Record entity, Country\_ID serves as a foreign key, creating relationships with the Country entity. Indicator\_ID serves as a foreign key, referencing the respective indicator entity based on the Indicator\_Type. Together, these foreign keys form a composite key. This composite key uniquely identifies each record in the Data\_Record table by combining the values of the foreign keys from Country and Indicator tables.

A diagram of a company

Description automatically generated

In this redesigned ER model, we have expanded the model to include three indicator entities: Economy\_Indicator, Gender\_Indicator, and Education\_Indicator. The Data\_Record entity includes a field Indicator\_Type to specify the type of indicator, and Indicator\_ID serves as a foreign key referencing the respective indicator entity. This design efficiently captures the relationships between countries and various indicators across different domains (economy, gender, and education) over time, allowing for comprehensive data analysis and querying.

Research Questions:

* What is the trend in women's labor force participation over the past decade and its impact on economic growth? (Dataset: Gender Statistics, World Development Indicators)
* How does women's education level affect household income in developing countries? (Dataset: Education Statistics, Gender Statistics)
* What factors contribute to gender disparities in poverty rates in different regions? (Dataset: Gender Statistics, Poverty and Inequality Indicators)
* How does the proportion of women in parliament relate to economic growth? (Dataset: Gender Statistics, World Development Indicators)
* What is the relationship between women's secondary school enrollment and GDP growth? (Dataset: Education Statistics, World Development Indicators)
* How does the Gender Development Index (GDI) affect economic growth in various countries? (Dataset: Gender Statistics, World Development Indicators)
* How does women's tertiary education impact poverty headcount ratio at $2.15 a day (2017 PPP)? (Dataset: Education Statistics, Poverty and Inequality Indicators)
* What is the relationship between female literacy rate and poverty gap at $2.15 a day (2017 PPP)? (Dataset: Education Statistics, Poverty and Inequality Indicators)
* How does gender inequality in education affect GDP per capita? (Dataset: Gender Statistics, Education Statistics, World Development Indicators)
* What factors influence the gender parity in school enrollment and its impact on poverty reduction? (Dataset: Gender Statistics, Education Statistics, Poverty and Inequality Indicators)
* How does women's access to education influence economic growth in different regions? (Dataset: Education Statistics, Gender Statistics, World Development Indicators)
* How has the literacy rate for women changed over the past 20 years and its impact on economic development? (Dataset: Education Statistics, Gender Statistics, World Development Indicators)
* What is the trend in female tertiary enrollment rate and its relationship to GDP growth? (Dataset: Education Statistics, World Development Indicators)
* How does the Gender Inequality Index (GII) affect the poverty headcount ratio at $2.15 a day (2017 PPP)? (Dataset: Gender Statistics, World Development Indicators)
* What is the impact of women's primary school enrollment on household income inequality? (Dataset: Education Statistics, Poverty and Inequality Indicators)
* How does women's access to higher education influence GDP per capita? (Dataset: Education Statistics, World Development Indicators)
* What factors contribute to the gender gap in tertiary education and its impact on economic growth? (Dataset: Gender Statistics, Education Statistics, World Development Indicators)
* How does the literacy rate for women affect the Gini index in different regions? (Dataset: Education Statistics, Poverty and Inequality Indicators)
* What is the relationship between women's secondary school completion rate and income inequality? (Dataset: Education Statistics, Poverty and Inequality Indicators)
* How does female labor force participation rate impact GDP growth over the past decade? (Dataset: Gender Statistics, World Development Indicators)
* How has the gender parity in primary school enrollment influenced poverty reduction over the last 20 years? (Dataset: Gender Statistics, Education Statistics, Poverty and Inequality Indicators)
* What factors influence the gender disparity in literacy rates and its impact on economic growth? (Dataset: Gender Statistics, Education Statistics, World Development Indicators)
* How does the Gender Development Index (GDI) correlate with poverty headcount ratio at $2.15 a day (2017 PPP)? (Dataset: Gender Statistics, World Development Indicators)
* What is the impact of women's education level on the Gini index in developing countries? (Dataset: Education Statistics, Poverty and Inequality Indicators)
* How does primary completion rate affect literacy rate, adult? (Dataset: Education Statistics, World Development Indicators)
* What is the relationship between secondary completion rate and gross intake ratio in first grade of primary education? (Dataset: Education Statistics)
* How has the tertiary enrollment rate changed over the past decade? (Dataset: Education Statistics)
* What factors influence the net enrollment rate, primary, in different regions? (Dataset: Education Statistics, World Development Indicators)
* How does gross intake ratio in first grade of primary education impact persistence to grade 5? (Dataset: Education Statistics)
* How has school enrollment, primary (% gross), varied across different countries? (Dataset: Education Statistics, World Development Indicators)
* What is the trend in school enrollment, secondary (% gross), over the last 20 years? (Dataset: Education Statistics)
* How does school enrollment, tertiary (% gross), correlate with GDP per capita? (Dataset: Education Statistics, World Development Indicators)
* What are the factors affecting the adjusted net enrollment rate, primary, in developing countries? (Dataset: Education Statistics, World Development Indicators)
* How does expected years of schooling vary between genders? (Dataset: Education Statistics, Gender Statistics)
* What is the relationship between learning-adjusted years of schooling and literacy rate, adult? (Dataset: Education Statistics)
* How has persistence to grade 5 improved over the past decade in low-income countries? (Dataset: Education Statistics)
* What is the impact of lower secondary completion rate on tertiary enrollment rate? (Dataset: Education Statistics, World Development Indicators)
* How does gross graduation ratio, tertiary, vary across different regions? (Dataset: Education Statistics, World Development Indicators)
* How does the Human Capital Index (HCI) relate to the primary completion rate? (Dataset: World Development Indicators)
* How does the Gender Parity Index for primary and secondary school enrollment compare across different countries? (Dataset: Gender Statistics, Education Statistics)
* What is the impact of female labor force participation rate on GDP growth? (Dataset: Gender Statistics, World Development Indicators)
* How does male labor force participation rate affect poverty headcount ratio at $2.15 a day (2017 PPP)? (Dataset: Gender Statistics, World Development Indicators)
* What is the trend in Gender Development Index (GDI) over the past 20 years? (Dataset: Gender Statistics, World Development Indicators)
* How does the Gender Inequality Index (GII) vary across different regions? (Dataset: Gender Statistics, World Development Indicators)
* What is the relationship between women in parliament (% of total) and Gender Inequality Index (GII)? (Dataset: Gender Statistics)
* How does the poverty headcount ratio at $2.15 a day (2017 PPP) relate to GDP growth? (Dataset: World Development Indicators, Poverty and Inequality Indicators)
* What factors influence the income share held by the lowest 20% in different countries? (Dataset: World Development Indicators, Poverty and Inequality Indicators)
* How has the Gini index (World Bank estimate) changed over the past two decades? (Dataset: World Development Indicators, Poverty and Inequality Indicators)
* What is the relationship between the poverty gap at $2.15 a day (2017 PPP) and GDP per capita? (Dataset: World Development Indicators, Poverty and Inequality Indicators)
* How does the poverty headcount ratio at $1.90 a day (2011 PPP) vary across different regions? (Dataset: World Development Indicators, Poverty and Inequality Indicators)
* How does GDP growth (annual %) influence poverty headcount ratio at $2.15 a day (2017 PPP)? (Dataset: World Development Indicators, Economic Policy Indicators)
* What factors contribute to GDP per capita (constant 2010 US$) growth in developing countries? (Dataset: World Development Indicators, Economic Policy Indicators)
* How does gross national income (GNI) per capita (constant 2010 US$) relate to primary completion rate? (Dataset: World Development Indicators, Education Statistics)
* What is the trend in GDP growth (annual %) over the last 30 years? (Dataset: World Development Indicators, Economic Policy Indicators)
* How does female labor force participation rate affect secondary completion rate in different countries? (Dataset: Gender Statistics, Education Statistics)
* What is the impact of literacy rate, adult, on poverty headcount ratio at $2.15 a day (2017 PPP)? (Dataset: Education Statistics, World Development Indicators, Poverty and Inequality Indicators)
* How does the Gender Development Index (GDI) correlate with gross intake ratio in first grade of primary education? (Dataset: Gender Statistics, Education Statistics)
* What is the relationship between Gini index (World Bank estimate) and expected years of schooling? (Dataset: World Development Indicators, Education Statistics)
* How does the poverty gap at $2.15 a day (2017 PPP) influence female labor force participation rate? (Dataset: World Development Indicators, Gender Statistics)
* How does net enrollment rate, primary, impact GDP per capita in different regions? (Dataset: Education Statistics, World Development Indicators)
* What factors affect gender parity in school enrollment and labor force participation? (Dataset: Gender Statistics, Education Statistics)
* How has secondary school enrollment influenced economic growth over the past decade? (Dataset: Education Statistics, Economic Policy Indicators)
* How does primary completion rate affect income inequality in different countries? (Dataset: Education Statistics, Poverty and Inequality Indicators)
* What is the trend in lower secondary completion rate across developing countries? (Dataset: Education Statistics)
* How does the Human Capital Index (HCI) relate to poverty headcount ratio at $2.15 a day (2017 PPP)? (Dataset: World Development Indicators)
* What is the relationship between literacy rate, adult, and Gini index (World Bank estimate)? (Dataset: Education Statistics, Poverty and Inequality Indicators)
* How does school enrollment, primary (% gross), vary by gender in different regions? (Dataset: Education Statistics, Gender Statistics)
* What factors influence the gross graduation ratio, tertiary, across countries? (Dataset: Education Statistics)
* How has the Gender Inequality Index (GII) changed over the last 20 years? (Dataset: Gender Statistics, World Development Indicators)
* How does tertiary enrollment rate impact GDP growth in various regions? (Dataset: Education Statistics, World Development Indicators)
* What is the trend in expected years of schooling for different gender groups? (Dataset: Education Statistics, Gender Statistics)
* How does the poverty headcount ratio at $1.90 a day (2011 PPP) affect economic development? (Dataset: World Development Indicators, Poverty and Inequality Indicators)
* What is the relationship between female labor force participation rate and literacy rate, adult? (Dataset: Gender Statistics, Education Statistics)
* How does the poverty gap at $2.15 a day (2017 PPP) vary by region? (Dataset: World Development Indicators)
* What factors contribute to changes in the Gender Development Index (GDI) over time? (Dataset: Gender Statistics, World Development Indicators)
* How does the secondary completion rate relate to income inequality? (Dataset: Education Statistics, Poverty and Inequality Indicators)
* What is the impact of primary school enrollment on GDP per capita? (Dataset: Education Statistics, World Development Indicators)
* How has persistence to grade 5 changed in the past two decades? (Dataset: Education Statistics)
* What is the relationship between Gender Parity Index and tertiary enrollment rate? (Dataset: Gender Statistics, Education Statistics)
* How does the Gini index (World Bank estimate) affect GDP growth? (Dataset: World Development Indicators)
* What is the trend in school enrollment, secondary (% gross), for different genders? (Dataset: Education Statistics, Gender Statistics)
* How does gross intake ratio in first grade of primary education vary across different regions? (Dataset: Education Statistics)
* What factors influence the lower secondary completion rate in developing countries? (Dataset: Education Statistics)
* How does the Human Capital Index (HCI) affect tertiary enrollment rate? (Dataset: World Development Indicators, Education Statistics)
* How does the literacy rate, adult, impact economic growth? (Dataset: Education Statistics, World Development Indicators)
* What is the relationship between net enrollment rate, primary, and poverty headcount ratio at $2.15 a day (2017 PPP)? (Dataset: Education Statistics, World Development Indicators)
* How does school enrollment, tertiary (% gross), affect the Gender Development Index (GDI)? (Dataset: Education Statistics, Gender Statistics)
* What factors influence the Gender Inequality Index (GII) across different countries? (Dataset: Gender Statistics)
* How does the poverty gap at $2.15 a day (2017 PPP) impact tertiary enrollment rate? (Dataset: World Development Indicators, Education Statistics)
* What is the trend in female labor force participation rate over the past two decades? (Dataset: Gender Statistics)
* How does school enrollment, secondary (% gross), impact GDP growth? (Dataset: Education Statistics, World Development Indicators)
* What is the relationship between gender parity index and secondary completion rate? (Dataset: Gender Statistics, Education Statistics)
* How does the Gini index (World Bank estimate) affect female labor force participation rate? (Dataset: World Development Indicators,
* Sure, here are 31 additional research questions, including those that focus on the relationship between women's education and poverty, economic situation, and growth:
* How does women's secondary completion rate impact poverty reduction in different regions? (Dataset: Education Statistics, Poverty and Inequality Indicators)
* What is the relationship between female tertiary enrollment rate and GDP growth? (Dataset: Education Statistics, World Development Indicators)
* How does female literacy rate affect economic development in various countries? (Dataset: Gender Statistics, Education Statistics, World Development Indicators)
* What factors influence the net enrollment rate for girls in primary education across different regions? (Dataset: Education Statistics, Gender Statistics)
* How does the Gender Parity Index for tertiary education relate to GDP per capita? (Dataset: Gender Statistics, Education Statistics, World Development Indicators)
* What is the impact of women's primary completion rate on income inequality? (Dataset: Education Statistics, Poverty and Inequality Indicators)
* How does female labor force participation rate affect poverty headcount ratio at $2.15 a day (2017 PPP)? (Dataset: Gender Statistics, World Development Indicators, Poverty and Inequality Indicators)