-- Create TEMP TABLE out of GDP table to make it long instead of wide

CREATE TEMP TABLE GDP\_Long AS

SELECT

g.string\_field\_0 AS Country,

year\_struct.Year,

year\_struct.Value AS GDP\_Value

FROM `anly-site-06250-d2.finalproject.GDP` g,

UNNEST([

STRUCT(1962 AS Year, g.double\_field\_4 AS Value),

STRUCT(1963 AS Year, g.double\_field\_5 AS Value),

STRUCT(1964 AS Year, g.double\_field\_6 AS Value),

STRUCT(1965 AS Year, g.double\_field\_7 AS Value),

STRUCT(1966 AS Year, g.double\_field\_8 AS Value),

STRUCT(1967 AS Year, g.double\_field\_9 AS Value),

STRUCT(1968 AS Year, g.double\_field\_10 AS Value),

STRUCT(1969 AS Year, g.double\_field\_11 AS Value),

STRUCT(1970 AS Year, g.double\_field\_12 AS Value),

STRUCT(1971 AS Year, g.double\_field\_13 AS Value),

STRUCT(1972 AS Year, g.double\_field\_14 AS Value),

STRUCT(1973 AS Year, g.double\_field\_15 AS Value),

STRUCT(1974 AS Year, g.double\_field\_16 AS Value),

STRUCT(1975 AS Year, g.double\_field\_17 AS Value),

STRUCT(1976 AS Year, g.double\_field\_18 AS Value),

STRUCT(1977 AS Year, g.double\_field\_19 AS Value),

STRUCT(1978 AS Year, g.double\_field\_20 AS Value),

STRUCT(1979 AS Year, g.double\_field\_21 AS Value),

STRUCT(1980 AS Year, g.double\_field\_22 AS Value),

STRUCT(1981 AS Year, g.double\_field\_23 AS Value),

STRUCT(1982 AS Year, g.double\_field\_24 AS Value),

STRUCT(1983 AS Year, g.double\_field\_25 AS Value),

STRUCT(1984 AS Year, g.double\_field\_26 AS Value),

STRUCT(1985 AS Year, g.double\_field\_27 AS Value),

STRUCT(1986 AS Year, g.double\_field\_28 AS Value),

STRUCT(1987 AS Year, g.double\_field\_29 AS Value),

STRUCT(1988 AS Year, g.double\_field\_30 AS Value),

STRUCT(1989 AS Year, g.double\_field\_31 AS Value),

STRUCT(1990 AS Year, g.double\_field\_32 AS Value),

STRUCT(1991 AS Year, g.double\_field\_33 AS Value),

STRUCT(1992 AS Year, g.double\_field\_34 AS Value),

STRUCT(1993 AS Year, g.double\_field\_35 AS Value),

STRUCT(1994 AS Year, g.double\_field\_36 AS Value),

STRUCT(1995 AS Year, g.double\_field\_37 AS Value),

STRUCT(1996 AS Year, g.double\_field\_38 AS Value),

STRUCT(1997 AS Year, g.double\_field\_39 AS Value),

STRUCT(1998 AS Year, g.double\_field\_40 AS Value),

STRUCT(1999 AS Year, g.double\_field\_41 AS Value),

STRUCT(2000 AS Year, g.double\_field\_42 AS Value),

STRUCT(2001 AS Year, g.double\_field\_43 AS Value),

STRUCT(2002 AS Year, g.double\_field\_44 AS Value),

STRUCT(2003 AS Year, g.double\_field\_45 AS Value),

STRUCT(2004 AS Year, g.double\_field\_46 AS Value),

STRUCT(2005 AS Year, g.double\_field\_47 AS Value),

STRUCT(2006 AS Year, g.double\_field\_48 AS Value),

STRUCT(2007 AS Year, g.double\_field\_49 AS Value),

STRUCT(2008 AS Year, g.double\_field\_50 AS Value),

STRUCT(2009 AS Year, g.double\_field\_51 AS Value),

STRUCT(2010 AS Year, g.double\_field\_52 AS Value),

STRUCT(2011 AS Year, g.double\_field\_53 AS Value),

STRUCT(2012 AS Year, g.double\_field\_54 AS Value),

STRUCT(2013 AS Year, g.double\_field\_55 AS Value),

STRUCT(2014 AS Year, g.double\_field\_56 AS Value),

STRUCT(2015 AS Year, g.double\_field\_57 AS Value),

STRUCT(2016 AS Year, g.double\_field\_58 AS Value),

STRUCT(2017 AS Year, g.double\_field\_59 AS Value),

STRUCT(2018 AS Year, g.double\_field\_60 AS Value),

STRUCT(2019 AS Year, g.double\_field\_61 AS Value),

STRUCT(2020 AS Year, g.double\_field\_62 AS Value),

STRUCT(2021 AS Year, g.double\_field\_63 AS Value)

]) AS year\_struct

;

-- Create TEMP TABLE combining GDP and CO2 tables

CREATE TEMP TABLE Country\_Info AS

SELECT

g.Country,

g.Year,

g.GDP\_Value,

m.Total AS CO2\_Total,

m.`Per Capita` AS CO2\_PerCapita

FROM `GDP\_Long` g

INNER JOIN `anly-site-06250-d2.finalproject.MtC02` m

On m.Country = g.Country

AND m.Year = g.Year

ORDER BY Country, Year

;

SELECT \*

FROM Country\_Info

LIMIT 1000;

--Top 10 Countries GDP

SELECT

  Country,

  SUM(GDP\_Value) AS Total\_GDP

FROM Country\_Info

GROUP BY Country

ORDER BY Total\_GDP DESC

LIMIT 10;

--Top 10 countries with C02

SELECT

  Country,

  SUM(CO2\_Total) AS CO2\_Total

FROM Country\_Info

GROUP BY Country

ORDER BY CO2\_Total DESC

LIMIT 10;

-- Correlation between GDP and CO2

SELECT

  CORR(GDP\_Value, CO2\_Total) AS GDP\_CO2\_Correlation

FROM Country\_Info

WHERE GDP\_Value>1 AND CO2\_Total >1;

-- Decoupling

  CREATE TEMP TABLE GDP\_CO2\_DECOUPLE AS(

  SELECT

    Country,

    Year,

    GDP\_Value,

    LAG(GDP\_Value) OVER (PARTITION BY Country ORDER BY Year) AS Prev\_GDP\_Value,

    CO2\_Total,

    LAG(CO2\_Total)OVER (PARTITION BY Country ORDER BY Year) AS Prev\_CO2

  FROM Country\_Info);

  SELECT

  Country,

  Year,

  GDP\_Value,

  Prev\_GDP\_Value,

  CO2\_Total,

  Prev\_CO2

  FROM GDP\_CO2\_DECOUPLE

  WHERE GDP\_Value > Prev\_GDP\_Value AND CO2\_Total < Prev\_CO2;

--Returns each country only once.

  SELECT

  DISTINCT Country

  FROM GDP\_CO2\_DECOUPLE

  WHERE GDP\_Value > Prev\_GDP\_Value AND CO2\_Total < Prev\_CO2;