

```
In [3]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt

In [4]: df=pd.read_csv("C:\\Users\\rupes\\OneDrive\\Documents\\Metadata_Country_API_SP.P

In [5]: df.head()
```

Out[5]:

	Country Code	Region	IncomeGroup	SpecialNotes	TableName	Unnamed: 5
0	ABW	Latin America & Caribbean	High income	NaN	Aruba	NaN
1	AFE	NaN	NaN	26 countries, stretching from the Red Sea in t...	Africa Eastern and Southern	NaN
2	AFG	South Asia	Low income	The reporting period for national accounts dat...	Afghanistan	NaN
3	AFW	NaN	NaN	22 countries, stretching from the westernmost ...	Africa Western and Central	NaN
4	AGO	Sub-Saharan Africa	Lower middle income	The World Bank systematically assesses the app...	Angola	NaN

```
In [6]: df.tail()
```

Out[6]:

	Country Code	Region	IncomeGroup	SpecialNotes	TableName	Unnamed: 5
260	XKX	Europe & Central Asia	Upper middle income	NaN	Kosovo	NaN
261	YEM	Middle East & North Africa	Low income	The World Bank systematically assesses the app...	Yemen, Rep.	NaN
262	ZAF	Sub-Saharan Africa	Upper middle income	Fiscal year end: March 31; reporting period fo...	South Africa	NaN
263	ZMB	Sub-Saharan Africa	Lower middle income	National accounts data were rebased to reflect...	Zambia	NaN
264	ZWE	Sub-Saharan Africa	Lower middle income	National Accounts data are reported in Zimbabw...	Zimbabwe	NaN

In [7]: `df.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 265 entries, 0 to 264
Data columns (total 6 columns):
#   Column          Non-Null Count  Dtype
---  -
0   Country Code    265 non-null   object
1   Region          217 non-null   object
2   IncomeGroup     216 non-null   object
3   SpecialNotes    126 non-null   object
4   TableName       265 non-null   object
5   Unnamed: 5      0 non-null     float64
dtypes: float64(1), object(5)
memory usage: 12.6+ KB
```

In [9]: `df.shape`

Out[9]: (265, 6)

In [10]: `df.isnull().sum()`

```
Out[10]: Country Code    0
Region          48
IncomeGroup     49
SpecialNotes    139
TableName        0
Unnamed: 5      265
dtype: int64
```

```
In [11]: duplicate_rows=df[df.duplicated()]
if duplicate_rows.empty:
    print("No duplicate rows found.")
```

```
else:
    print("Duplicate rows found.")
```

No duplicate rows found.

```
In [14]: df.isna()
```

Out[14]:

	Country Code	Region	IncomeGroup	SpecialNotes	TableName	Unnamed: 5
0	False	False	False	True	False	True
1	False	True	True	False	False	True
2	False	False	False	False	False	True
3	False	True	True	False	False	True
4	False	False	False	False	False	True
...
260	False	False	False	True	False	True
261	False	False	False	False	False	True
262	False	False	False	False	False	True
263	False	False	False	False	False	True
264	False	False	False	False	False	True

265 rows × 6 columns

```
In [15]: df.ffill()
```

Out[15]:

	Country Code	Region	IncomeGroup	SpecialNotes	TableName	Unnamed: 5
0	ABW	Latin America & Caribbean	High income	NaN	Aruba	NaN
1	AFE	Latin America & Caribbean	High income	26 countries, stretching from the Red Sea in t...	Africa Eastern and Southern	NaN
2	AFG	South Asia	Low income	The reporting period for national accounts dat...	Afghanistan	NaN
3	AFW	South Asia	Low income	22 countries, stretching from the westernmost ...	Africa Western and Central	NaN
4	AGO	Sub-Saharan Africa	Lower middle income	The World Bank systematically assesses the app...	Angola	NaN
...
260	XKX	Europe & Central Asia	Upper middle income	The reporting period for national accounts dat...	Kosovo	NaN
261	YEM	Middle East & North Africa	Low income	The World Bank systematically assesses the app...	Yemen, Rep.	NaN
262	ZAF	Sub-Saharan Africa	Upper middle income	Fiscal year end: March 31; reporting period fo...	South Africa	NaN
263	ZMB	Sub-Saharan Africa	Lower middle income	National accounts data were rebased to reflect...	Zambia	NaN
264	ZWE	Sub-Saharan Africa	Lower middle income	National Accounts data are reported in Zimbabw...	Zimbabwe	NaN

265 rows × 6 columns

```
In [16]: df['Country Code'].unique()
```

```
Out[16]: array(['ABW', 'AFE', 'AFG', 'AFW', 'AGO', 'ALB', 'AND', 'ARB', 'ARE',
               'ARG', 'ARM', 'ASM', 'ATG', 'AUS', 'AUT', 'AZE', 'BDI', 'BEL',
               'BEN', 'BFA', 'BGD', 'BGR', 'BHR', 'BHS', 'BIH', 'BLR', 'BLZ',
               'BMU', 'BOL', 'BRA', 'BRB', 'BRN', 'BTN', 'BWA', 'CAF', 'CAN',
               'CEB', 'CHE', 'CHI', 'CHL', 'CHN', 'CIV', 'CMR', 'COD', 'COG',
               'COL', 'COM', 'CPV', 'CRI', 'CSS', 'CUB', 'CUW', 'CYM', 'CYP',
               'CZE', 'DEU', 'DJI', 'DMA', 'DNK', 'DOM', 'DZA', 'EAP', 'EAR',
               'EAS', 'ECA', 'ECS', 'ECU', 'EGY', 'EMU', 'ERI', 'ESP', 'EST',
               'ETH', 'EUU', 'FCS', 'FIN', 'FJI', 'FRA', 'FRO', 'FSM', 'GAB',
               'GBR', 'GEO', 'GHA', 'GIB', 'GIN', 'GMB', 'GNB', 'GNQ', 'GRC',
               'GRD', 'GRL', 'GTM', 'GUM', 'GUY', 'HIC', 'HKG', 'HND', 'HPC',
               'HRV', 'HTI', 'HUN', 'IBD', 'IBT', 'IDA', 'IDB', 'IDN', 'IDX',
               'IMN', 'IND', 'IRL', 'IRN', 'IRQ', 'ISL', 'ISR', 'ITA', 'JAM',
               'JOR', 'JPN', 'KAZ', 'KEN', 'KGZ', 'KHM', 'KIR', 'KNA', 'KOR',
               'KWT', 'LAC', 'LAO', 'LBN', 'LBR', 'LBY', 'LCA', 'LCN', 'LDC',
               'LIC', 'LIE', 'LKA', 'LMC', 'LMY', 'LSO', 'LTE', 'LTU', 'LUX',
               'LVA', 'MAC', 'MAF', 'MAR', 'MCO', 'MDA', 'MDG', 'MDV', 'MEA',
               'MEX', 'MHL', 'MIC', 'MKD', 'MLI', 'MLT', 'MMR', 'MNA', 'MNE',
               'MNG', 'MNP', 'MOZ', 'MRT', 'MUS', 'MWI', 'MYS', 'NAC', 'NAM',
               'NCL', 'NER', 'NGA', 'NIC', 'NLD', 'NOR', 'NPL', 'NRU', 'NZL',
               'OED', 'OMN', 'OSS', 'PAK', 'PAN', 'PER', 'PHL', 'PLW', 'PNG',
               'POL', 'PRE', 'PRI', 'PRK', 'PRT', 'PRY', 'PSE', 'PSS', 'PST',
               'PYF', 'QAT', 'ROU', 'RUS', 'RWA', 'SAS', 'SAU', 'SDN', 'SEN',
               'SGP', 'SLB', 'SLE', 'SLV', 'SMR', 'SOM', 'SRB', 'SSA', 'SSD',
               'SSF', 'SST', 'STP', 'SUR', 'SVK', 'SVN', 'SWE', 'SWZ', 'SXM',
               'SYC', 'SYR', 'TCA', 'TCD', 'TEA', 'TEC', 'TGO', 'THA', 'TJK',
               'TKM', 'TLA', 'TLS', 'TMN', 'TON', 'TSA', 'TSS', 'TTO', 'TUN',
               'TUR', 'TUV', 'TZA', 'UGA', 'UKR', 'UMC', 'URY', 'USA', 'UZB',
               'VCT', 'VEN', 'VGB', 'VIR', 'VNM', 'VUT', 'WLD', 'WSM', 'XKX',
               'YEM', 'ZAF', 'ZMB', 'ZWE'], dtype=object)
```

```
In [17]: df['Region'].unique()
```

```
Out[17]: array(['Latin America & Caribbean', nan, 'South Asia',
               'Sub-Saharan Africa', 'Europe & Central Asia',
               'Middle East & North Africa', 'East Asia & Pacific',
               'North America'], dtype=object)
```

```
In [18]: df['IncomeGroup'].unique()
```

```
Out[18]: array(['High income', nan, 'Low income', 'Lower middle income',
               'Upper middle income'], dtype=object)
```

```
In [19]: df['SpecialNotes'].unique()
```

```
Out[19]: array([nan,
```

'26 countries, stretching from the Red Sea in the North to the Cape of Good Hope in the South (<https://www.worldbank.org/en/region/afr/eastern-and-south-central-africa>)',

'The reporting period for national accounts data is designated as either calendar year basis (CY) or fiscal year basis (FY). For this country, it is fiscal year-based (fiscal year-end: March 20). Also, an estimate (PA.NUS.ATLS) of the exchange rate covers the same period and thus differs from the official exchange rate (CY).

In addition, the World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1960-2006. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'22 countries, stretching from the westernmost point of Africa, across the equator, and partly along the Atlantic Ocean till the Republic of Congo in the South (<https://www.worldbank.org/en/region/afr/western-and-central-africa>)',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1994-2022. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'Arab World aggregate. Arab World is composed of members of the League of Arab States.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1971-2018. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'The reporting period for national accounts data is designated as either calendar year basis (CY) or fiscal year basis (FY). For this country, it is fiscal year-based (fiscal year-end: June 30). Also, an estimate (PA.NUS.ATLS) of the exchange rate covers the same period and thus differs from the official exchange rate (CY).',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate was adopted by the EU Council on January 1, 1999: 1 euro = 13.7603 Austrian schilling. Please note that historical data before 1999 are not actual euros and are not comparable or suitable for aggregation across countries.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level.

For this country, this applies to the period 1983-2022. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate was adopted by the EU Council on January 1, 1999: 1 euro = 40.3399 Belgian franc. Please note that historical data before 1999 are not actual euros and are not comparable or suitable for aggregation across countries.',

'Data before 2015 were adjusted to reflect the new denomination effective from July 1, 2016 (BYN), a decrease of 10,000 times (1 BYN = 10,000 BYR)',

'Fiscal year end: March 31; reporting period for national accounts data: CY.',

'Central Europe and the Baltics aggregate.',

'On 1 July 1997 China resumed its exercise of sovereignty over Hong Kong, and on 20 December 1999, China resumed its exercise of sovereignty over Macao. Unless otherwise noted, data for China do not include data for Hong Kong SAR, China; Macao SAR, China; or Taiwan, China. The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1978-1993. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1999-2004. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate entered into force on January 1, 2008: 1 euro = 0.585274 Cyprus pounds. Please note that historical data are not actual euros and are not comparable or suitable for aggregation across countries.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate was adopted by the EU Council on January 1, 1999: 1 euro = 1.95583 Deutsche Mark. Please note that historical data before 1999 are not actual euros and are not comparable or suitable for aggregation across countries.',

'Early-dividend countries are mostly lower-middle-income countries further along the fertility transition. Fertility rates have fallen below four births per woman and the working-age share of the population is likely rising considerably.',

'East Asia and Pacific regional aggregate (includes all income levels).',

'Europe and Central Asia regional aggregate (includes all income levels).',

'The reporting period for national accounts data is designated as either calendar year basis (CY) or fiscal year basis (FY). For this country, it is fiscal year-based (fiscal year-end: June 30) for the years 1980 and after. The data from 1973 to 1979 refer to the calendar year data. Also, an estimate (PA.NUS.

ATLS) of the exchange rate covers the same period and thus differs from the official exchange rate (CY). \n\nIn addition, the World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1965-2021. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.\n\nThe national accounts data for Egypt has been updated to reflect local constant prices in the year 2022, moving from the previous reference of 2017.',

'Euro area aggregate.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1992-1997. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate was adopted by the EU Council on January 1, 1999: 1 euro = 166.386 Spanish peseta. Please note that historical data before 1999 are not actual euros and are not comparable or suitable for aggregation across countries.',

'The following irrevocable euro conversion rate entered into force on January 1, 2011: 1 euro = 15.6466 Estonian kroon. Please note that historical data are not actual euros and are not comparable or suitable for aggregation across countries.',

'The reporting period for national accounts data is designated as either calendar year basis (CY) or fiscal year basis (FY). For this country, it is fiscal year-based (fiscal year-end: July 7). Also, an estimate (PA.NUS.ATLS) of the exchange rate covers the same period and thus differs from the official exchange rate (CY).',

'European Union aggregate.',

'Fragile and conflict-affected situations aggregate. Countries are distinguished based on the nature and severity of issues they face. The classification uses the following categories: - Countries with high levels of institutional and social fragility, identified based on publicly available indicators that measure the quality of policy and institutions and manifestations of fragility. - Countries affected by violent conflict, identified based on a threshold number of conflict-related deaths relative to the population. This category includes two sub-categories based on the intensity of violence: countries in high-intensity conflict and countries in medium-intensity conflict. For more information, please visit <https://www.worldbank.org/en/topic/fragilityconflictviolence/brief/harmonized-list-of-fragile-situations>.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate was adopted by the EU Council on January 1, 1999: 1 euro = 5.94573 Finnish markka. Please note that historical data before 1999 are not actual euros and are not comparable or suitable for aggregation across countries.',

'The following irrevocable euro conversion rate was adopted by the EU Council on January 1, 1999: 1 euro = 6.55957 French franc. Please note that historical data before 1999 are not actual euros and are not comparable or suitable for aggregation across countries.',

'Fiscal year ends on September 30; reporting period for national account

s data: FY. The source for national accounts data is the Pacific and Virgin Islands Training Initiative.',

'Includes self-governed areas only, which mostly exclude Abkhazia and South Ossetia, but small areas in Abkhazia and South Ossetia are included before 2008 or 2009 because of the changes in self-governed areas.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATL S) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1974-1987. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'The DEC conversion is not reported when national accounts data are unavailable.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate was adopted by the EU Council on January 1, 1999: 1 euro = 340.75 Greek drachma. Please note that historical data before 1999 are not actual euros and are not comparable or suitable for aggregation across countries.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATL S) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1985-2003. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'High income group aggregate. High-income economies are those in which 2022 GNI per capita was more than \$13,845.',

'On 1 July 1997 China resumed its exercise of sovereignty over Hong Kong. Unless otherwise noted, data for China do not include data for Hong Kong SAR, China; Macao SAR, China; or Taiwan, China. Agriculture value added includes mining and quarrying.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATL S) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1988-1989. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'The Heavily Indebted Poor Countries (HIPC) refer to countries that participated in the HIPC Initiative, launched in 1996 by the IMF and World Bank to reduce external debt burdens of the most heavily indebted poor countries at that time to sustainable levels. To date, the majority of the countries completed the program, receiving 76 billion in debt-service relief over time. For more details, visit <https://www.imf.org/en/About/Factsheets/Sheets/2016/08/01/16/11/Debt-Relief-Under-the-Heavily-Indebted-Poor-Countries-Initiative>. \nData are aggregates for HIPC.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate entered into force on January 1, 2023: 1 euro = 7.53450 Croatian kuna. Please note that historical data are not actual euros and are not comparable or suitable for aggregation.

on across countries.',

'The reporting period for national accounts data is designated as either calendar year basis (CY) or fiscal year basis (FY). For this country, it is fiscal year-based (fiscal year-end: September 30). Also, an estimate (PA.NUS.ATLS) of the exchange rate covers the same period and thus differs from the official exchange rate (CY).',

'IBRD only group aggregate.',

'IDA and IBRD total group aggregate (includes IDA only, IDA blend, and IBRD only).',

'IDA total group aggregate (includes IDA only and IDA blend).',

'IDA blend group aggregate.',

'Fiscal year end: March 31; reporting period for national accounts data: CY. Data for Indonesia include Timor-Leste through 1999 unless otherwise noted.',

'IDA only group aggregate.',

'Classification for years after 2012 was adjusted and figures were re-estimated by the World Bank, based on the detailed data published by the Cabinet Office, and are not consistent with data for 2011 and before.',

'The reporting period for national accounts data is designated as either calendar year basis (CY) or fiscal year basis (FY). For this country, it is fiscal year-based (fiscal year-end: March 31). Also, an estimate (PA.NUS.ATLS) of the exchange rate covers the same period and thus differs from the official exchange rate (CY).',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate was adopted by the EU Council on January 1, 1999: 1 euro = 0.787564 Irish pound. Please note that historical data before 1999 are not actual euros and are not comparable or suitable for aggregation across countries.',

'The reporting period for national accounts data is designated as either calendar year basis (CY) or fiscal year basis (FY). For this country, it is fiscal year-based (fiscal year-end: March 20). \n\nThe World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to 1972-2022. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate was adopted by the EU Council on January 1, 1999: 1 euro = 1936.27 Italian lira. Please note that historical data before 1999 are not actual euros and are not comparable or suitable for aggregation across countries.',

'Fiscal year end: June 30; reporting period for national accounts data: CY.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1963-2004. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying st

statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATL S) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1960-2020. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATL S) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1984-2022. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'National accounts data are provided in the US dollar.',

'Low income group aggregate. Low-income economies are those in which 2022 GNI per capita was \$1,135 or less.',

'Lower middle income group aggregate. Lower-middle-income economies are those in which 2022 GNI per capita was between \$1,136 and \$4,465.',

'Low and middle-income group aggregate. Low and middle-income economies are those in which 2022 GNI per capita was less than \$13,845.',

'Late-dividend countries are mostly upper middle-income countries. Fertility rates are typically above replacement levels of 2.1 births per woman but continue to decline with shrinking working-age shares and rapid aging.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate entered into force on January 1, 2015: 1 euro = 3.45280 Lithuanian litas. Please note that historical data are not actual euros and are not comparable or suitable for aggregation across countries.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate was adopted by the EU Council on January 1, 1999: 1 euro = 40.3399 Luxembourg franc. Please note that historical data before 1999 are not actual euros and are not comparable or suitable for aggregation across countries.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate entered into force on January 1, 2014: 1 euro = 0.702804 Latvian lats. Please note that historical data are not actual euros and are not comparable or suitable for aggregation across countries. Based on data from EUROSTAT, the new reference year is 2010.',

'On 20 December 1999 China resumed its exercise of sovereignty over Macao. Unless otherwise noted, data for China do not include data for Hong Kong SAR, China; Macao SAR, China; or Taiwan, China.',

"Excluding Transnistria. For 1950-94, World Bank estimates using UN World Population Prospects' growth rates of whole Moldova.",

'Middle East and North Africa regional aggregate (includes all income levels).',

'Fiscal year ends on September 30; reporting period for national accounts data: FY.',

'Middle income group aggregate. Middle-income economies are those in which 2022 GNI per capita was between \$1,136 and \$13,845.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate entered into force on January 1, 2008: 1 euro = 0.4293 Maltese lira. Please note that historical data are not actual euros and are not comparable or suitable for aggregation across countries. National accounts data source from 1995 to 2015 is Eurostat; prior to 1995 is UN.',

'The reporting period for national accounts data is designated as either calendar year basis (CY) or fiscal year basis (FY). For this country, it is fiscal year-based (fiscal year-end: September 30). Also, an estimate (PA.NUS.ATLS) of the exchange rate covers the same period and thus differs from the official exchange rate (CY). \t \n\nIn addition, the World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1960-2014. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.'

'Montenegro declared independence from Serbia and Montenegro on June 3, 2006. Where available, data for each country are shown separately. However, for Serbia, some indicators continue to include data for Montenegro through 2005.'

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1991-2004. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.'

'National account data were adjusted to reflect the new banknote (1 new ouguiya = 10 old ouguiya).'

'North America regional aggregate. There are no economies in North America classified as low or middle income.'

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to 1970-2020. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.'

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1988-2006. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.'

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate was adopted by the EU Council on January 1, 1999: 1 euro = 2.20371 Netherlands guilder. Please note that historical data before 1999 are not actual euros and are not comparable or suitable for aggregation across countries.'

'The reporting period for national accounts data is designated as either calendar year basis (CY) or fiscal year basis (FY). For this country, it is fiscal year-based (fiscal year-end: July 14). Also, an estimate (PA.NUS.ATLS) of the exchange rate covers the same period and thus differs from the official exchange

ange rate (CY).',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1988-2009. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'Pre-dividend countries are mostly low-income countries, lagging in key human development indicators and with current fertility levels above four birth s per woman. They face very rapid population growth.',

'Fiscal year end: June 30; reporting period for national accounts data: FY.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate was adopted by the EU Council on January 1, 1999: 1 euro = 200.482 Portuguese escudo. Please note that historical data before 1999 are not actual euros and are not comparable or suitable for aggregation across countries.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1982-1988. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'Pacific island small states aggregate.',

'Post-dividend countries are mostly high-income countries where fertility has transitioned below replacement levels.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1987-1992. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 2018-2020. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more

accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 1977-2017. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'Montenegro declared independence from Serbia and Montenegro on June 3, 2006. Where available, data for each country are shown separately. However, for Serbia, some indicators, such as those series for which data appear only for Serbia and not Montenegro--e.g., aid, environment, external debt, balance of payments, various social indicators excluding population--continue to include data for Montenegro through 2005. Moreover, data from 1999 onward for Serbia for most indicators exclude data for Kosovo, 1999 being the year when Kosovo became a territory under international administration pursuant to UN Security Council Resolution 1244 (1999); any exceptions are noted. Kosovo became a World Bank member on June 29, 2009; available data are shown separately for Kosovo. In 2011, the Statistical Office of Serbia improved the methodology of national accounts data for 2003 onward. Specifically, the classification of sectors was revised.',

'Sub-Saharan Africa regional aggregate (includes all income levels).',

'Small states (members of the Small States Forum) aggregate.',

'National account data were adjusted to reflect the new banknote (1 new Dobra STN = 1000 old Dobra STD)',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATL S) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to 1989-2022. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate entered into force on January 1, 2009: 1 euro = 30.126 Slovak koruna. Please note that historical data are not actual euros and are not comparable or suitable for aggregation across countries.',

'A simple multiplier is used to convert the national currencies of EMU members to euros. The following irrevocable euro conversion rate entered into force on January 1, 2007: 1 euro = 239.64 Slovenian tolar. Please note that historical data are not actual euros and are not comparable or suitable for aggregation across countries.',

'Fiscal year end: March 31; reporting period for national accounts data: CY. Authorities revised national accounts from 1999 to 2015.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATL S) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 2011-2022. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'East Asia & Pacific (IDA & IBRD countries) aggregate.',

'Europe & Central Asia (IDA & IBRD countries) aggregate.',

'Fiscal year end: September 30; reporting period for national accounts data: CY.',

'Latin America & the Caribbean (IDA & IBRD countries) aggregate.',

'Middle East & North Africa (IDA & IBRD countries) aggregate.',

'South Asia (IDA & IBRD countries) aggregate.',

'Sub-Saharan Africa (IDA & IBRD countries) aggregate.',

'The reporting period for national accounts data is designated as either calendar year basis (CY) or fiscal year basis (FY). For this country, it is fiscal year-based (fiscal year-end: June 30). Also, an estimate (PA.NUS.ATLS) of the exchange rate covers the same period and thus differs from the official exchange rate (CY). \t\n\nIn addition, the World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to 1960-2009. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'Upper middle income group aggregate. Upper-middle-income economies are those in which 2022 GNI per capita was between \$4,466 and \$13,845.',

'The World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to 1990-2019. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.',

'National accounts data were rebased to reflect the January 1, 2013, introduction of the new Zambian kwacha at a rate of 1,000 old kwacha = 1 new kwacha.',

'National Accounts data are reported in Zimbabwean Dollar (ZWL). Before 2017, one ZWL is set to be equal to one USD.\n\nThe World Bank systematically assesses the appropriateness of official exchange rates as conversion factors. In this country, multiple or dual exchange rate activity exists and must be accounted for appropriately in underlying statistics. An alternative estimate ("alternative conversion factor" - PA.NUS.ATLS) is thus calculated as a weighted average of the different exchange rates in use in the country. Doing so better reflects economic reality and leads to more accurate cross-country comparisons and country classifications by income level. For this country, this applies to the period 2017-2022. Alternative conversion factors are used in the Atlas methodology and elsewhere in World Development Indicators as single-year conversion factors.'],

dtype=object)

```
In [20]: df['TableName'].unique()
```

```

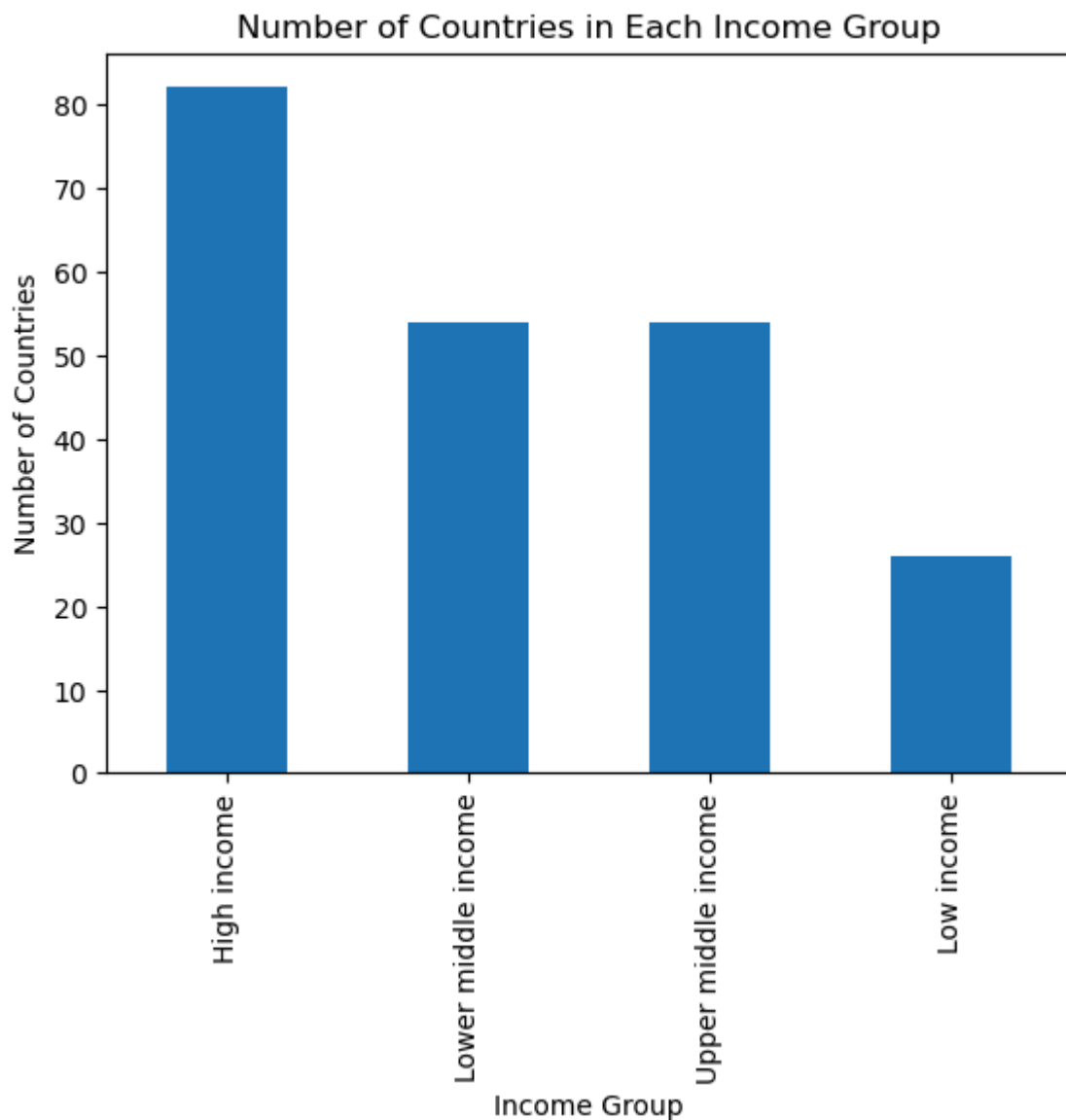
Out[20]: array(['Aruba', 'Africa Eastern and Southern', 'Afghanistan',
'Africa Western and Central', 'Angola', 'Albania', 'Andorra',
'Arab World', 'United Arab Emirates', 'Argentina', 'Armenia',
'American Samoa', 'Antigua and Barbuda', 'Australia', 'Austria',
'Azerbaijan', 'Burundi', 'Belgium', 'Benin', 'Burkina Faso',
'Bangladesh', 'Bulgaria', 'Bahrain', 'Bahamas, The',
'Bosnia and Herzegovina', 'Belarus', 'Belize', 'Bermuda',
'Bolivia', 'Brazil', 'Barbados', 'Brunei Darussalam', 'Bhutan',
'Botswana', 'Central African Republic', 'Canada',
'Central Europe and the Baltics', 'Switzerland', 'Channel Islands',
'Chile', 'China', 'Côte d'Ivoire', 'Cameroon', 'Congo, Dem. Rep.',
'Congo, Rep.', 'Colombia', 'Comoros', 'Cabo Verde', 'Costa Rica',
'Caribbean small states', 'Cuba', 'Curaçao', 'Cayman Islands',
'Cyprus', 'Czechia', 'Germany', 'Djibouti', 'Dominica', 'Denmark',
'Dominican Republic', 'Algeria',
'East Asia & Pacific (excluding high income)',
'Early-demographic dividend', 'East Asia & Pacific',
'Europe & Central Asia (excluding high income)',
'Europe & Central Asia', 'Ecuador', 'Egypt, Arab Rep.',
'Euro area', 'Eritrea', 'Spain', 'Estonia', 'Ethiopia',
'European Union', 'Fragile and conflict affected situations',
'Finland', 'Fiji', 'France', 'Faroe Islands',
'Micronesia, Fed. Sts.', 'Gabon', 'United Kingdom', 'Georgia',
'Ghana', 'Gibraltar', 'Guinea', 'Gambia, The', 'Guinea-Bissau',
'Equatorial Guinea', 'Greece', 'Grenada', 'Greenland', 'Guatemala',
'Guam', 'Guyana', 'High income', 'Hong Kong SAR, China',
'Honduras', 'Heavily indebted poor countries (HIPC)', 'Croatia',
'Haiti', 'Hungary', 'IBRD only', 'IDA & IBRD total', 'IDA total',
'IDA blend', 'Indonesia', 'IDA only', 'Isle of Man', 'India',
'Ireland', 'Iran, Islamic Rep.', 'Iraq', 'Iceland', 'Israel',
'Italy', 'Jamaica', 'Jordan', 'Japan', 'Kazakhstan', 'Kenya',
'Kyrgyz Republic', 'Cambodia', 'Kiribati', 'St. Kitts and Nevis',
'Korea, Rep.', 'Kuwait',
'Latin America & Caribbean (excluding high income)', 'Lao PDR',
'Lebanon', 'Liberia', 'Libya', 'St. Lucia',
'Latin America & Caribbean',
'Least developed countries: UN classification', 'Low income',
'Liechtenstein', 'Sri Lanka', 'Lower middle income',
'Low & middle income', 'Lesotho', 'Late-demographic dividend',
'Lithuania', 'Luxembourg', 'Latvia', 'Macao SAR, China',
'St. Martin (French part)', 'Morocco', 'Monaco', 'Moldova',
'Madagascar', 'Maldives', 'Middle East & North Africa', 'Mexico',
'Marshall Islands', 'Middle income', 'North Macedonia', 'Mali',
'Malta', 'Myanmar',
'Middle East & North Africa (excluding high income)', 'Montenegro',
'Mongolia', 'Northern Mariana Islands', 'Mozambique', 'Mauritania',
'Mauritius', 'Malawi', 'Malaysia', 'North America', 'Namibia',
'New Caledonia', 'Niger', 'Nigeria', 'Nicaragua', 'Netherlands',
'Norway', 'Nepal', 'Nauru', 'New Zealand', 'OECD members', 'Oman',
'Other small states', 'Pakistan', 'Panama', 'Peru', 'Philippines',
'Palau', 'Papua New Guinea', 'Poland', 'Pre-demographic dividend',
'Puerto Rico', 'Korea, Dem. People's Rep.', 'Portugal', 'Paraguay',
'West Bank and Gaza', 'Pacific island small states',
'Post-demographic dividend', 'French Polynesia', 'Qatar',
'Romania', 'Russian Federation', 'Rwanda', 'South Asia',
'Saudi Arabia', 'Sudan', 'Senegal', 'Singapore', 'Solomon Islands',
'Sierra Leone', 'El Salvador', 'San Marino', 'Somalia', 'Serbia',
'Sub-Saharan Africa (excluding high income)', 'South Sudan',
'Sub-Saharan Africa', 'Small states', 'São Tomé and Príncipe',
'Suriname', 'Slovak Republic', 'Slovenia', 'Sweden', 'Eswatini',

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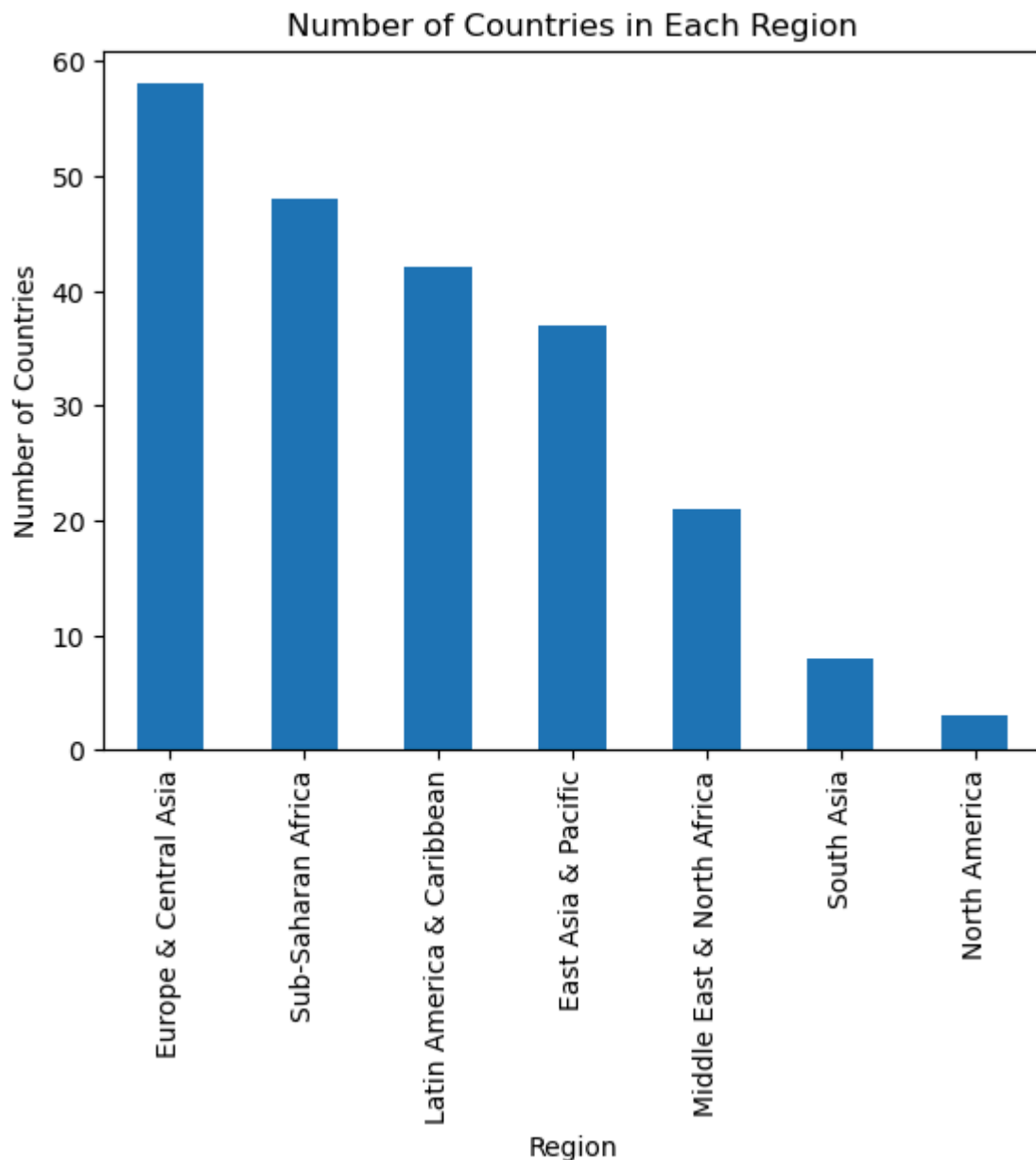
```
'Sint Maarten (Dutch part)', 'Seychelles', 'Syrian Arab Republic',
'Turks and Caicos Islands', 'Chad',
'East Asia & Pacific (IDA & IBRD)',
'Europe & Central Asia (IDA & IBRD)', 'Togo', 'Thailand',
'Tajikistan', 'Turkmenistan',
'Latin America & Caribbean (IDA & IBRD)', 'Timor-Leste',
'Middle East & North Africa (IDA & IBRD)', 'Tonga',
'South Asia (IDA & IBRD)', 'Sub-Saharan Africa (IDA & IBRD)',
'Trinidad and Tobago', 'Tunisia', 'Türkiye', 'Tuvalu', 'Tanzania',
'Uganda', 'Ukraine', 'Upper middle income', 'Uruguay',
'United States', 'Uzbekistan', 'St. Vincent and the Grenadines',
'Venezuela, RB', 'British Virgin Islands', 'Virgin Islands (U.S.)',
'Viet Nam', 'Vanuatu', 'World', 'Samoa', 'Kosovo', 'Yemen, Rep.',
'South Africa', 'Zambia', 'Zimbabwe'], dtype=object)
```

```
In [21]: income_groups = df['IncomeGroup'].value_counts()
income_groups.plot(kind='bar')
plt.title('Number of Countries in Each Income Group')
plt.xlabel('Income Group')
plt.ylabel('Number of Countries')
plt.show()
```



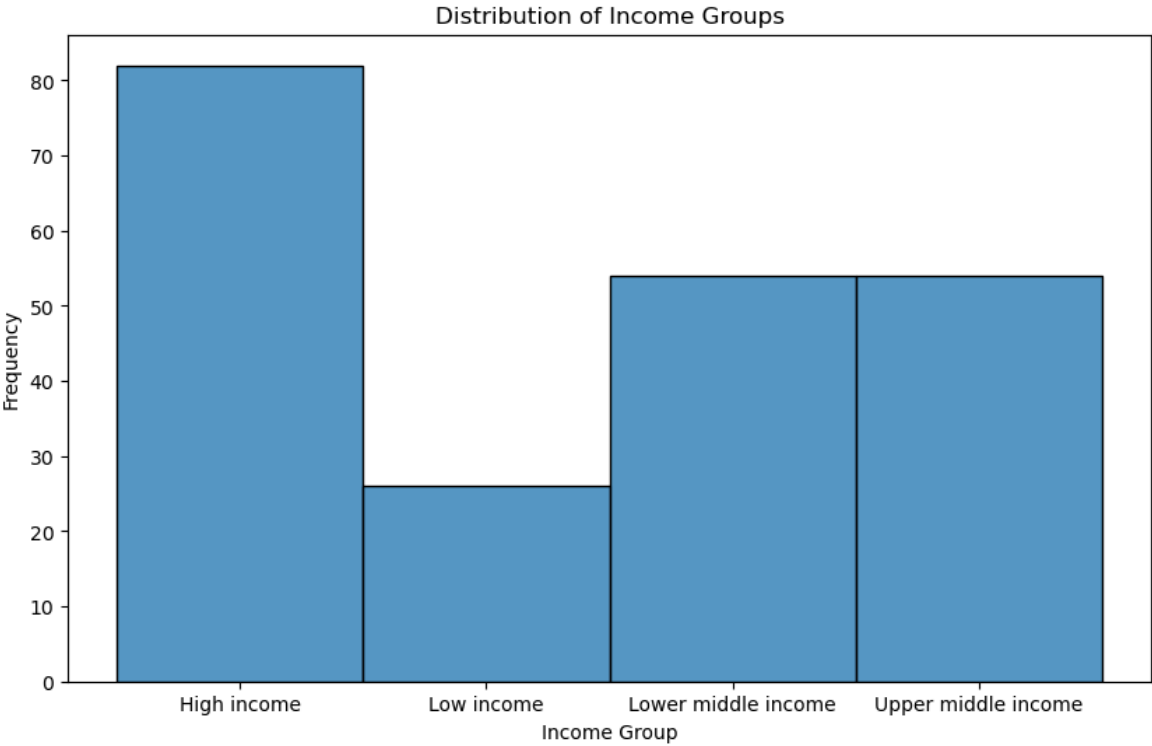
```
In [22]: regions = df['Region'].value_counts()
regions.plot(kind='bar')
plt.title('Number of Countries in Each Region')
```

```
plt.xlabel('Region')
plt.ylabel('Number of Countries')
plt.show()
```



```
In [23]: import matplotlib.pyplot as plt
import seaborn as sns
plt.figure(figsize=(10,6))
sns.histplot(data=df, x='IncomeGroup', kde=False)
plt.title('Distribution of Income Groups')
plt.xlabel('Income Group')
plt.ylabel('Frequency')
plt.show()
```

C:\Users\rupes\anaconda3\Lib\site-packages\seaborn_oldcore.py:1119: FutureWarning: use_inf_as_na option is deprecated and will be removed in a future version. Convert inf values to NaN before operating instead.
with pd.option_context('mode.use_inf_as_na', True):



In []: