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#Libraries
import numpy as np
# numpy is aliased as np
import pandas as pd
# pandas is aliased as pd
import matplotlib.pyplot as plt
# pyplot is aliased as plt
import seaborn as sns
# seaborn is aliased as sns

#dataset
df = pd.read_csv("F:\world bank.csv")
df

#first 5 rows
df.head()

#last 5 rows
df.tail()

#dimensions of data
df.shape

#showing rows
df.columns

#check for data types
df.dtypes

#info. of data
df.info()

#descriptive statistics
df.describe()

##Data Preprocessing & Cleaning

#check duplicate values
df.duplicated().sum()

#check non-null values
df.isna().sum().any()
df = df.fillna(method="ffill")
df.head()

df.isna().sum().any()

#checking unique values of columns
df["Country Name"].unique()
df["Country Code"].unique()
df["Indicator Name"].unique()
df["Indicator Code"].unique()

#as we can clearly see that Indicator Name & Indicator Code has only single value. so, we will drop
df.drop(["Indicator Name","Indicator Code","Country Code"], axis = 1, inplace = True)

df.columns
```

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##Data Visualization

#Plotting Hstogram from 1960 to 2022

Cols = ['1960','1961','1962','1963','1964','1965','1966','1967','1968','1969','1970','1971','1972',


for i in Cols:
        fig = plt.figure(figsize=(5,5))
        plt.hist(df[i],color='blue',bins=10)
        plt.xlabel(i)
        plt.show()

#plotting Bar plot from 1960 to 2022
years = df.columns[1:]

##add the values of each year for all countries
Total = df[years].sum()

plt.figure(figsize=(30,30))
plt.barh(years,Total,color='yellow')
plt.xlabel("Total of the country")
plt.ylabel("Year",size=20)
plt.title("Total count per year",size=20)
plt.show()

##Plotting histogram for indicators of top 10 countries by base year 1960
country_by_1960 = df.sort_values(by='1960').head(10)
country_by_1960

country_by_1960_t = country_by_1960.set_index("Country Name").T
for country_name,data_values in country_by_1960_t.iterrows():
    fig = plt.figure(figsize=(10,5))
    sns.barplot(x=data_values.index,y=data_values.values)
    plt.xlabel("Countries")
    plt.ylabel("Data Values")
    plt.title(f"{country_name} - Data Values from 1960 to 2022")
    plt.xticks(rotation=90)
    plt.show()

##Plotting histogram for indicators of top 10 countries by base year 2022
country_by_2022 = df.sort_values(by='2022').head(10)
country_by_2022

country_by_2022_t = country_by_2022.set_index("Country Name").T
for country_name,data_values in country_by_2022_t.iterrows():
    fig = plt.figure(figsize=(10,5))
    sns.barplot(x=data_values.index,y=data_values.values)
    plt.xlabel("Year")
    plt.ylabel("Data Value")
    plt.title(f"{country_name} - Data Values from 1960 to 2022")
    plt.xticks(rotation=90)
    plt.show()

###Conclusion : In this task, we have employed the World Development Indicator Dataset, which compr
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