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import pandas as pd
import numpy as np
from scipy.stats import skew, kurtosis

# Load dataset
df = pd.read_csv("/content/22070521106_CA1_EDA.csv")

# Display first 5 rows to understand data
print("Preview of Data:")
print(df.head())

# Perform descriptive analysis on numeric columns
numeric_df = df.select_dtypes(include=[np.number])

print("\n--- Descriptive Statistics ---")
print(numeric_df.describe())

# Calculate additional statistics: variance, skewness, kurtosis
stats = pd.DataFrame(index=numeric_df.columns)

stats['Mean'] = numeric_df.mean()
stats['Median'] = numeric_df.median()
stats['Standard Deviation'] = numeric_df.std()
stats['Variance'] = numeric_df.var()
stats['Skewness'] = numeric_df.apply(lambda x: skew(x, nan_policy='omit'))
stats['Kurtosis'] = numeric_df.apply(lambda x: kurtosis(x, nan_policy='omit'))

print("\n--- Detailed Statistics ---")
print(stats)

# Save results to CSV for reporting
stats.to_csv("descriptive_statistics_results.csv")
print("\nDescriptive statistics saved as 'descriptive_statistics_results.csv'")

```



Preview of Data:

	id	year	state_name	state_code	\
0	0	2022	Andaman and Nicobar Islands	35	
1	1	2022	Andaman and Nicobar Islands	35	
2	2	2022	Andaman and Nicobar Islands	35	
3	3	2022	Andaman and Nicobar Islands	35	
4	4	2022	Andaman and Nicobar Islands	35	

	district_name	district_code	region	population_group	\
0	North and Middle Andaman	632	Eastern Region	Rural	
1	South Andamans	602	Eastern Region	Rural	
2	South Andamans	602	Eastern Region	Semi-urban	
3	South Andamans	602	Eastern Region	Urban	
4	North and Middle Andaman	632	Eastern Region	Rural	

	no_of_offices	no_of_accounts	deposit_amount	
0	10	108	729	
1	13	106	775	
2	10	64	463	
3	36	301	4620	
4	0	0	0	

--- Descriptive Statistics ---

	id	year	state_code	district_code	no_of_offices	\
count	14037.000000	14037.000000	14037.000000	14037.000000	14037.000000	
mean	7062.753224	2020.504310	18.226473	355.351500	43.268718	
std	4088.358741	1.117906	9.973987	205.731486	105.355999	
min	0.000000	2019.000000	1.000000	1.000000	0.000000	
25%	3524.000000	2020.000000	9.000000	169.000000	0.000000	
50%	7053.000000	2021.000000	19.000000	365.000000	0.000000	
75%	10601.000000	2022.000000	27.000000	528.000000	54.000000	
max	14159.000000	2022.000000	38.000000	734.000000	2807.000000	

	no_of_accounts	deposit_amount
count	14037.000000	1.403700e+04
mean	599.058844	4.189880e+03
std	1577.467136	3.394547e+04
min	0.000000	0.000000e+00
25%	0.000000	0.000000e+00
50%	0.000000	0.000000e+00
75%	781.000000	2.386000e+03
max	52981.000000	1.400625e+06

--- Detailed Statistics ---

	Mean	Median	Standard Deviation	Variance	\
id	7062.753224	7053.0	4088.358741	1.671468e+07	

year	2020.504310	2021.0	1.117906	1.249714e+00
state_code	18.226473	19.0	9.973987	9.948041e+01
district_code	355.351500	365.0	205.731486	4.232544e+04
no_of_offices	43.268718	0.0	105.355999	1.109989e+04
no_of_accounts	599.058844	0.0	1577.467136	2.488403e+06
deposit_amount	4189.879960	0.0	33945.471091	1.152295e+09

	Skewness	Kurtosis
id	0.005865	-1.199598
year	-0.005594	-1.359589
state_code	0.070203	-1.140760
district_code	-0.004964	-1.198624