

2.9: Descriptive Statistics (Worksheet)

Work in groups on these problems. You should try to answer the questions without referring to your notes. If you get stuck, try asking another group for help.

Student Learning Outcomes

- The student will organize and construct visual displays of qualitative and quantitative data.
- The student will calculate univariate descriptive statistics.
- The student will analyze graphs and numeric summaries to interpret what the data implies.

The Data

The table contains data from a [2014 African Financial Survey](#) on a random sample of 18 African countries. The four columns provide the following information:

1. **Country**
2. **Region** - which region of the continent the country is in: North, East, South, West, Central
3. **Inflation Rate** - the inflation rate of the country in 2014, reported as a %
4. **No. of Bank Branches** - the number of bank branches in 2014 located in the country

African Financial Survey Data

Country	Region	Inflation Rate	No. Bank Branches
Algeria	North Africa	4.24	1438
Cameroon	Central Africa	2.45	185
Cote d'Ivoire	West Africa	2.86	600
Equatorial Guinea	Central Africa	5.83	15
Ethiopia	East Africa	7.89	2208
Gabon	Central Africa	2.67	58
Ghana	West Africa	9.89	967
Lesotho	Southern Africa	4.94	46
Madagascar	Southern Africa	7.2	233
Mali	West Africa	2.07	516
Mauritius	Southern Africa	3.61	223
Namibia	Southern Africa	5.78	111
Rwanda	East Africa	4.44	161
Seychelles	East Africa	4.17	30
South Africa	Southern Africa	5.68	3697
Swaziland	Southern Africa	5.95	49
Togo	West Africa	2.27	200
Zimbabwe	Southern Africa	3.97	742

Organize the Data

For each of the three variables - Region, Inflation Rate, No. Bank Branches - complete each of the following steps.

1. Identify the variable type: qualitative, quantitative - discrete, quantitative - continuous.

2. Construct a frequency distribution table.
3. Visualize the frequency distribution with either a bar graph, pie chart, or histogram. Be sure to select the most appropriate visual display for the variable type.
4. Describe the shape of the distribution.
5. Are there any potential outliers? List the value(s) that could be outliers. Use a formula to check the end values to determine if they are potential outliers.

Analyze the Data

1. Determine the appropriate measure of center for the variable **Region**. Can a measure of variation be computed for this variable
2. For the variable **Inflation Rate**, determine each of the following.
 - measures of center: mean, median, mode
 - measures of variation: range, variance, sd
 - 5-number summary
 - outliers
 - Comment on which measure of center and which measure of variation is most appropriate.
3. Repeat the steps in #2. for the variable **No. Bank Branches**.

Interpret the Data

Write a few sentences to indicate what information is included in the sample. Consider commenting on which region is most represented in the data, what the typical inflation rate is, and what the typical number of bank branches is based on this sample. Add any other insights you noticed in analyzing the data.

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