Sales Data Analysis for Retail Store

This application analyzes sales data for various product categories.

Sales Data

	product_id	product_name	category	units_sold	sale_date
0	1	Product 1	Home	25	2023-01-01 00:00:00
1	2	Product 2	Sports	15	2023-01-02 00:00:00
2	3	Product 3	Electronics	17	2023-01-03 00:00:00
3	4	Product 4	Home	19	2023-01-04 00:00:00
4	5	Product 5	Home	21	2023-01-05 00:00:00
5	6	Product 6	Sports	17	2023-01-06 00:00:00
6	7	Product 7	Electronics	19	2023-01-07 00:00:00
7	8	Product 8	Electronics	16	2023-01-08 00:00:00
8	9	Product 9	Home	21	2023-01-09 00:00:00
9	10	Product 10	Clothing	21	2023-01-10 00:00:00

Descriptive Statistics

	units_sold
count	20
mean	18.8
std	3.3023
min	13
25%	17
50%	18.5
75%	21
max	25

Mean Units Sold: 18.8

Median Units Sold: 18.5

Mode Units Sold: 17

Category Statistics

	Category	Total Units Sold	Average Units Sold	Std Dev of Units Sold
0	Clothing	21	21	None
1	Electronics	73	18.25	2.2174
2	Home	181	20.1111	3.7231
3	Sports	101	16.8333	2.7142

Confidence Interval for Mean Units Sold

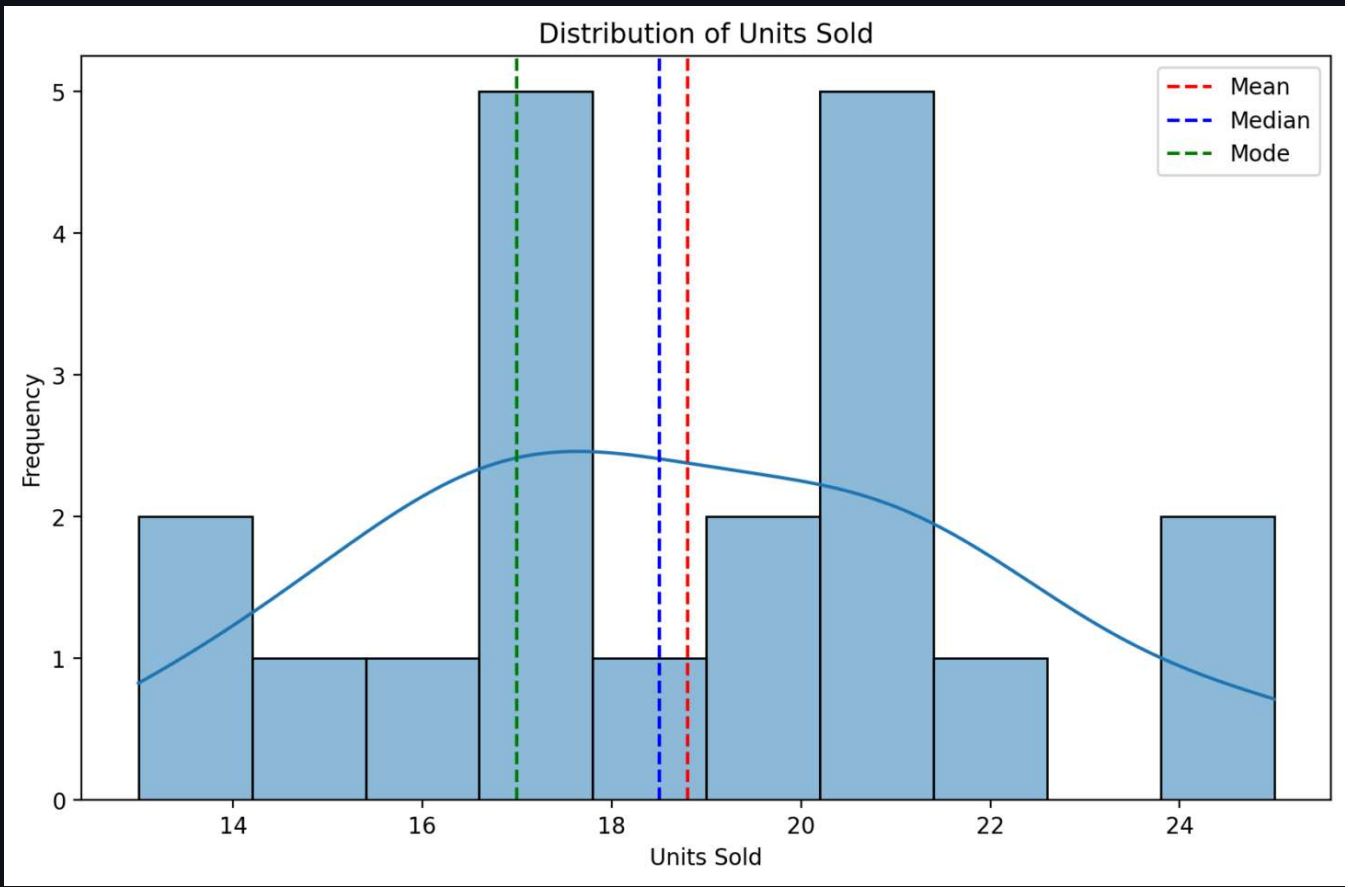
```
(np.float64(17.254470507823573), np.float64(20.34552949217643))
```

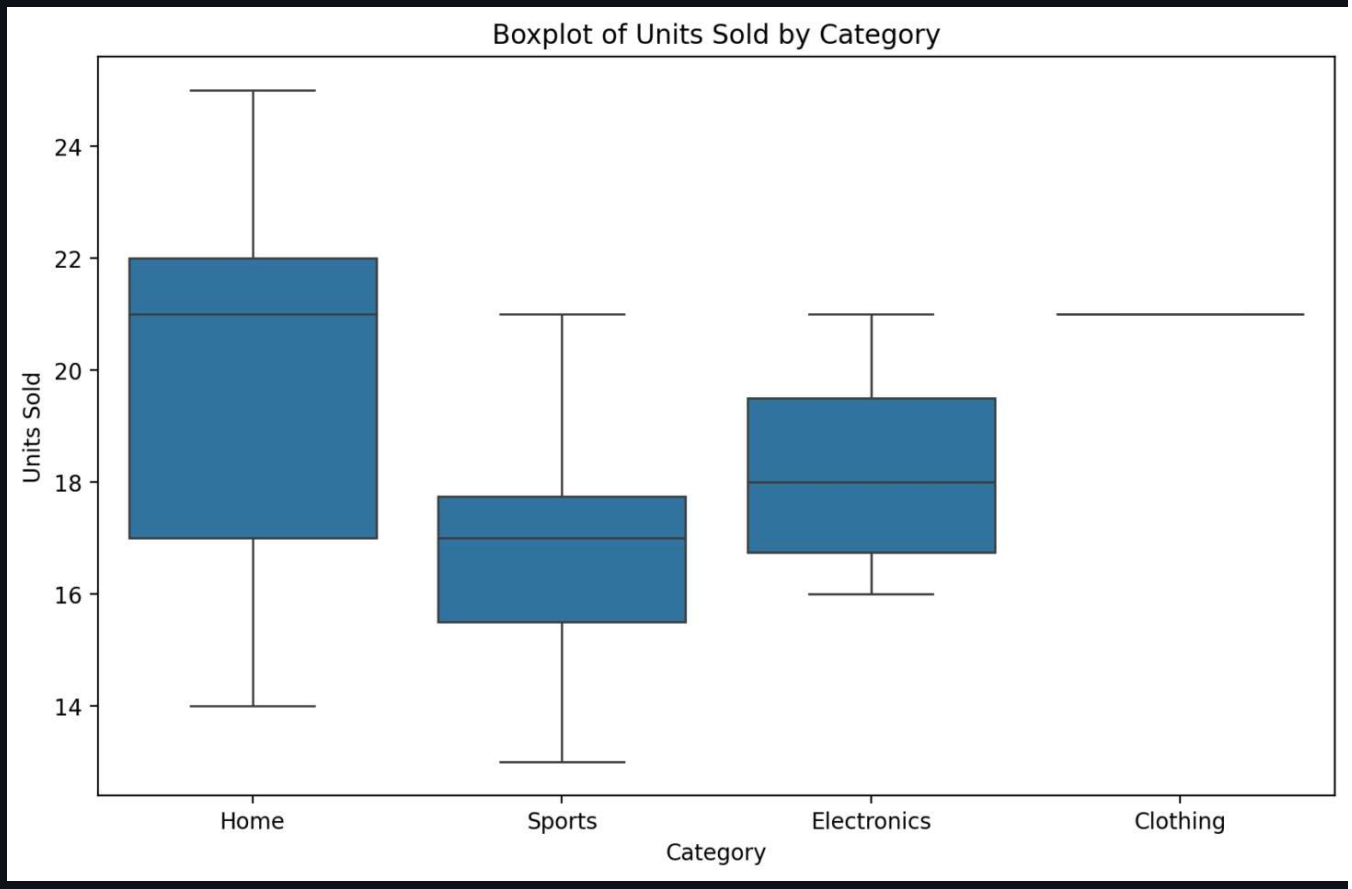
Hypothesis Testing (t-test)

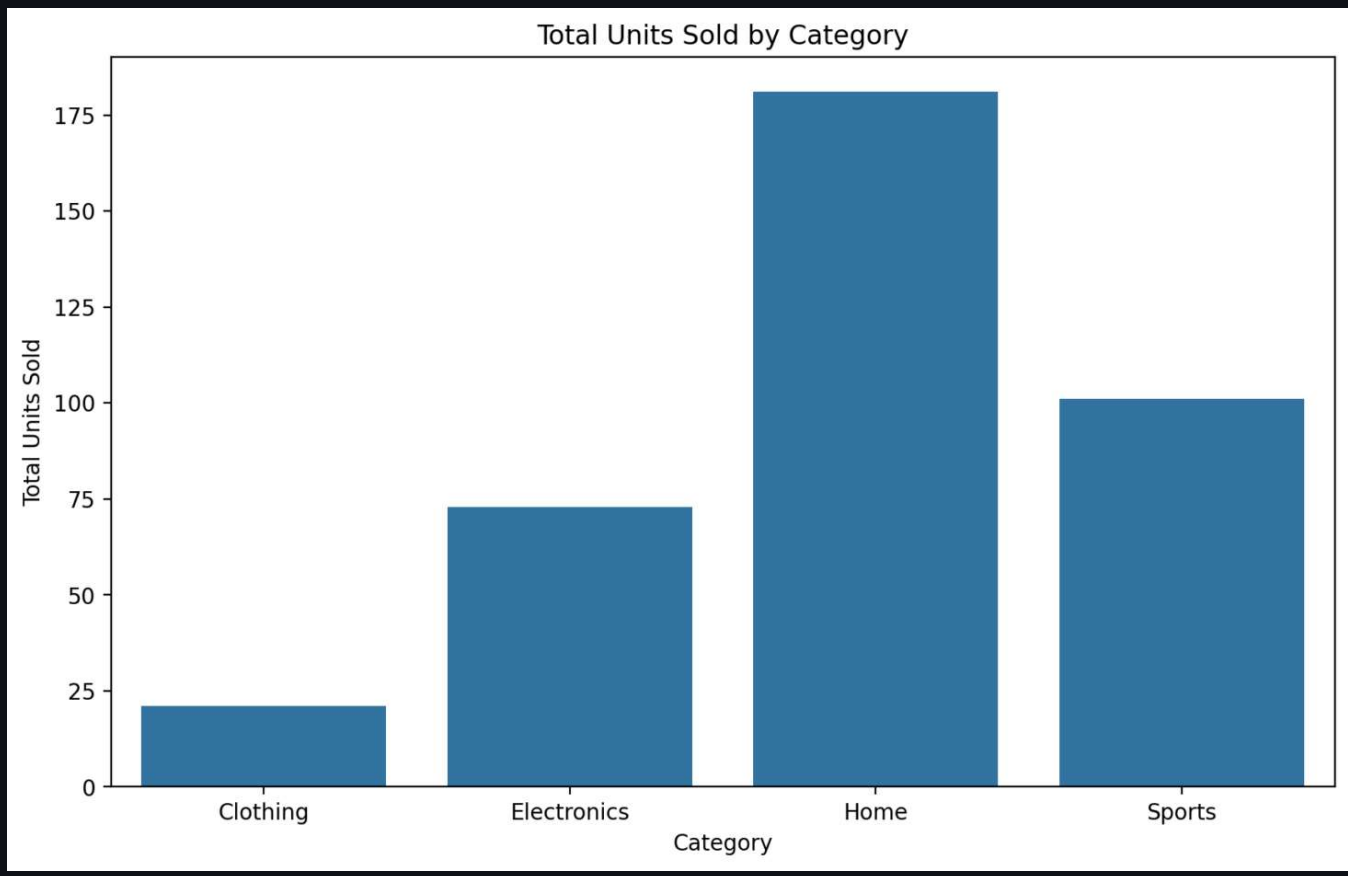
T-statistic: -1.6250928099424466, P-value: 0.12061572226781002

Fail to reject the null hypothesis: The mean units sold is not significantly different from 20.

Visualizations




Boxplot of Units Sold by Category
Units Sold
24
22
20
18
16
14
Home
Sports
Electronics
Clothing
Category


Total Units Sold by Category
Total Units Sold
175
150
125
100
75
50
25
0
Clothing
Electronics
Home
Sports
Category