

EM550 Statistical Analysis for Engineers - Resit Assignment

Question 1: Total Purchase Statistics

The statistics for Total Purchases among the customers are as follows:

Statistic	Value
Minimum	\$106
1st Quartile (25%)	\$545
Median (50%)	\$970
Mean (Average)	\$1203.15
3rd Quartile (75%)	\$1545.50
Maximum	\$4930

Commentary: The spread from the minimum to the maximum in total purchases shows substantial variation among customers, indicating a diverse customer base with differing purchasing power or preferences.

Question 2: Gender and Marital Status Breakdown

Gender	Percentage
Male	50.1%
Female	49.9%

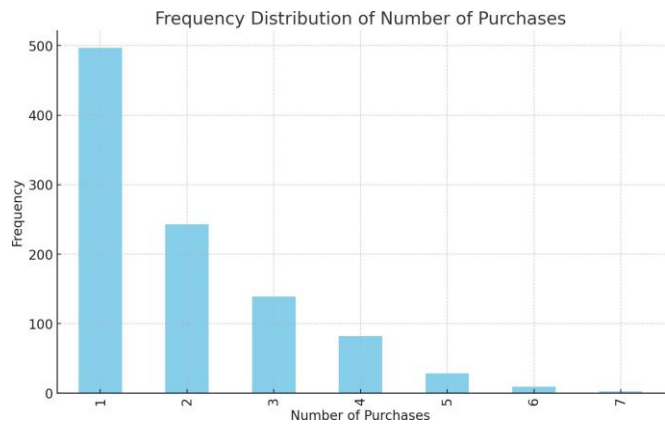
Marital Status	Percentage
Single	55.4%
Married	44.6%

Gender	Marital Status	Percentage
Female	Married	51.57%
Female	Single	48.56%
Male	Married	48.43%
Male	Single	51.44%

Commentary: The gender distribution is nearly balanced, reflecting a broad consumer base. The marital status shows a slight skew towards singles. The breakdowns seem reasonable and reflect a diverse demographic profile.

Question 3: Number of Purchases Frequency Distribution

The majority of customers made only one purchase last year. The frequency distribution of Number of Purchases is as follows:

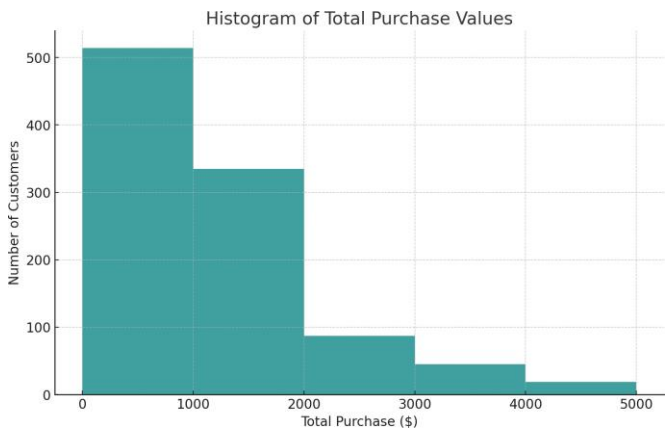


Number of Purchases	Number of Customers
1 Purchase	497
2 Purchases	243
3 Purchases	139
4 Purchases	82
5 Purchases	28
6 Purchases	9
7 Purchases	2

This decreasing trend suggests that while many customers may visit or purchase once, a smaller core group of customers makes multiple purchases.

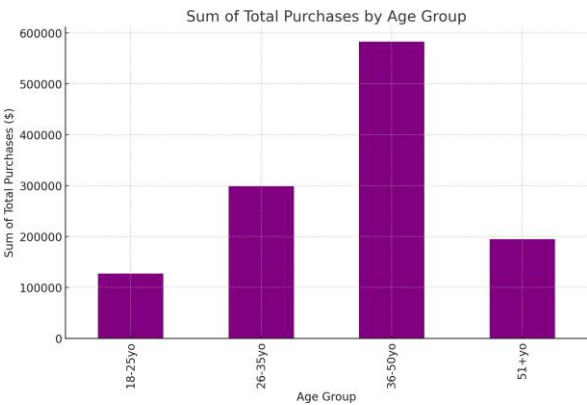
Question 4: Histogram of Total Purchases

Most customers' total purchases are below \$2000, with a significant drop-off for higher spending levels. This suggests that higher spending levels are less common among this customer base.



Question 5: Total Purchases by Age Group

The total purchases by age group show that the 36-50 year age group has the highest total spending, followed by the 26-35 year age group. The breakdown is as follows:

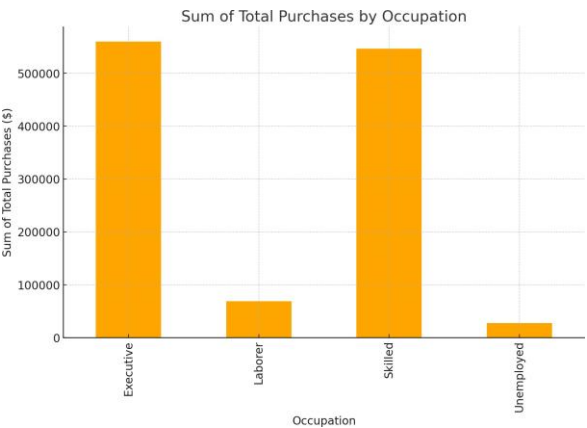


Age Group	Income
18-25 yo	\$126,797
26-35 yo	\$298,424
36-50 yo	\$583,163
51+ yo	\$194,769

These figures suggest a peak in spending in midlife, possibly due to higher disposable income or greater financial stability.

Question 6: Total Purchases by Occupation

The sum of total purchases by occupation shows that Executives and Skilled workers are the primary contributors to purchasing. The breakdown is as follows:



Occupation	Income
Executive	\$559,945
Skilled	\$546,917
Laborer	\$68,587
Unemployed	\$27,704

This reflects potentially higher income levels associated with the Executive and Skilled categories, and lower spending from Laborers and the Unemployed.