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BASIC STATISTICS (STA1510) NOTES

STUDY UNIT 2 SUMMARY NOTES

Graphical descriptive techniques

Unit 2 has the following key terms:

1. **Values- are the possible measurements of the variable.**

2. **Variables- are the characteristics of interest of a population or a sample.**

3. **Data – are the observed values of a variable.**

   Data can be classified as nominal, ordinal and interval data

   (i) Nominal data- are categorical data where there are labels, codes and perform calculations, multiplication, divisions and subtraction.

   (ii) Ordinal data- is a ranked data.

   (iii) Interval data- are real numbers such as number of students, amount of water, price of an item and the income.

Frequency distribution- is a table that records every data and it displays the possible of each data.

A relative frequency distribution- is the frequency of each category divided by the sum of all frequencies.

Cumulative frequency- is used to determine the number of observations that lie above (or below) a particular value in a data set.

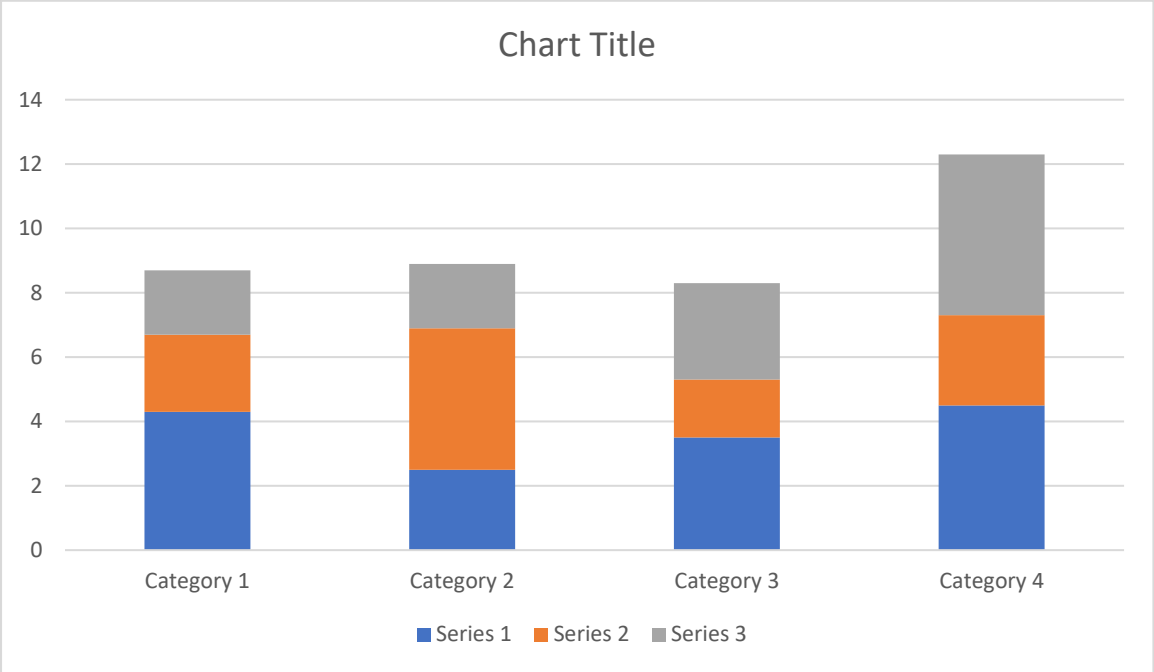
Example

Frequency	Relative frequency	Cumulative frequency
7	$\frac{7}{20}$ = 0.35	7
3	$\frac{3}{20}$ = 0.15	7+3= 10
5	$\frac{5}{20}$ = 0.25	10+5= 15
5	$\frac{5}{20}$ = 0.25	15+5= 20

Total= 20

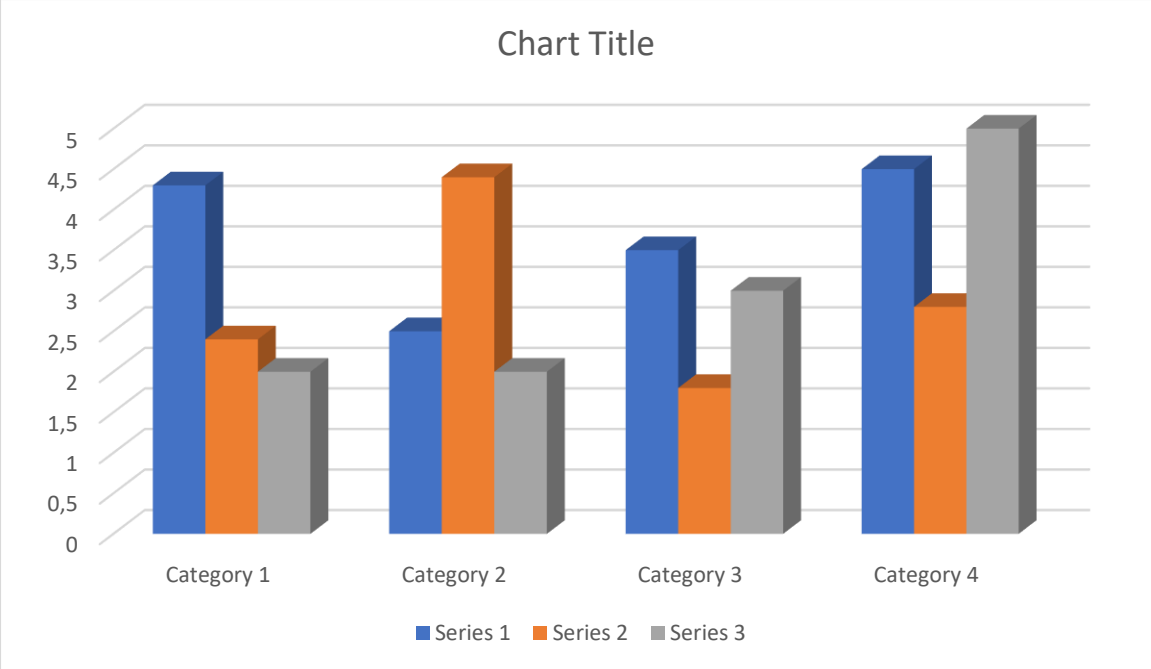
bar graph

- **Is a chart drawing using rectangular bar to display the possible categories of data along the frequencies.**



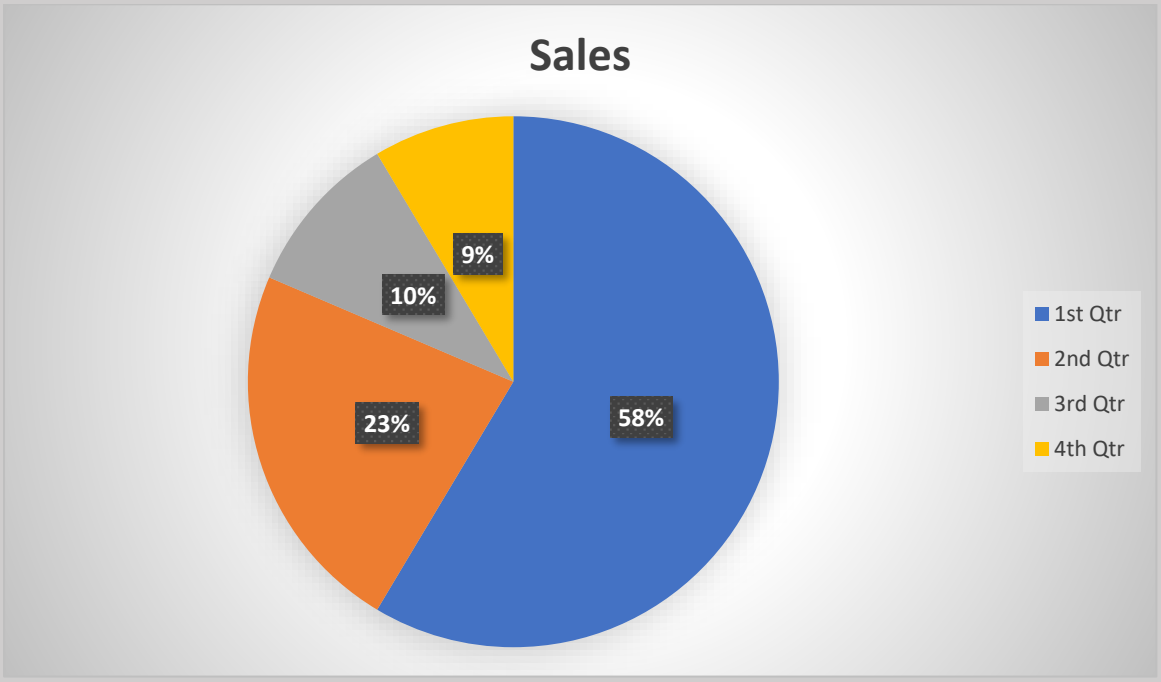
Comparative bar graph

a graph that is used to compare two or more data sets, where they are grouped together in each category with spaces.



Pie chart

- **Chart that emphasises the proportion of occurrence of each category.**



Proportion frequency

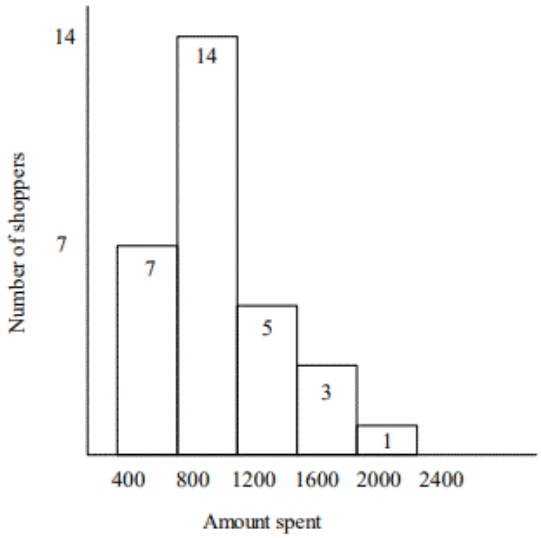
- **Is the number of times a value (ratio) of the data occurs in the set of all outcomes.**

Relative frequency= proportion

Proportion= $\frac{number\ of\ values\ in\ each\ class}{total\ number\ of\ class}$

QUESTION 3

Consider the histogram of the numeric distribution for the amount spend on groceries by The Shoppers.



What proportion of the shoppers spent between R1200 and R1600?

1. 13.3%
2. 16.7%
3. 86.7%
4. 100%
5. 20%

Total number of shoppers/ total number of class= 7+ 14+ 5+ 3+ 1

= 30

Proportion= $\frac{5}{30} \times 100$

= 16.67%

Frequency distribution for interval data

Range

- **is the difference between largest value and smallest value**

range= largest value- smallest value

Number of class interval

Class interval= 1+ 3,3log (n)

Class width

It is obtained by subtracting the smallest observation from the smallest largest and dividing the difference by the number of classes.

$$\frac{range}{k}$$

Graphs for interval data

The stem and leaf display portrays individual data in a numerical value, summarise data in a table.

Example

21 37 53 28 47

30 32 26 34 40

45 24 34 24 35

38 35 28 45 43

31 41 59 45 30

Stem and leaf display

Stem	*leaf*
2	**1 4 4 6 8 8**
3	**0 0 1 2 4 4 5 5 7 8**
4	**0 1 3 5 5 5 7**
5	**3 9**