

Chapter 2 Display of Data

(1)

In this chapter we study the visualization of data "A picture is worth a 1000 words"

2.1 Qualitative data {categorical}

EX Credit Cards

Q: WHO has there own credit card or debit card?

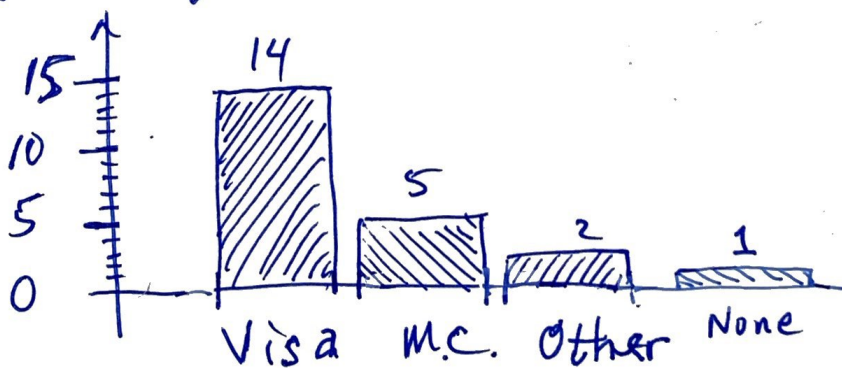
Yes: 24	No: 1
<u> </u>	<u> </u>
14	5
	<u> </u>
	2
	<u> </u>
	Other

• Bar chart {not to be confused with a Histogram}

Qualitative

Quantitative

frequency ← "count"



The technical term for bar chart is "Qualitative Frequency Distribution"

⊛

Relative Frequency Bar Charts.

②

$$RF = \frac{\text{Freq.}}{\text{Total}}$$

ex Credit cards $TOT = 14 + 5 + 2 = \underline{21}$

$$RF: \text{visa} = \frac{14}{21} = \frac{2}{3} = 0.667 \rightarrow 0.67$$

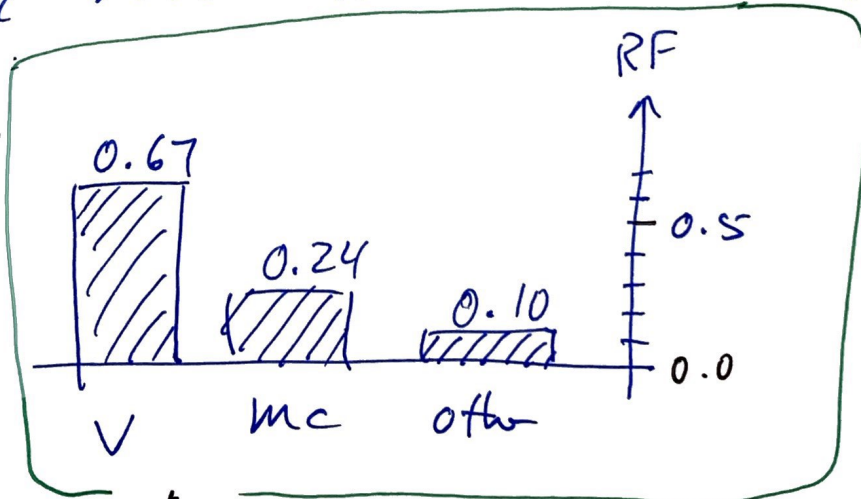
$$RF: \text{MC} = \frac{5}{21} = 0.238 \rightarrow 0.24$$

$$RF: \text{other} = \frac{2}{21} = 0.095 \rightarrow 0.10$$

Now, on our bar chart we can add another vertical axis on the R.H.S.

that show relative frequency

{ BTW: $RF \times 100 = \%$ }

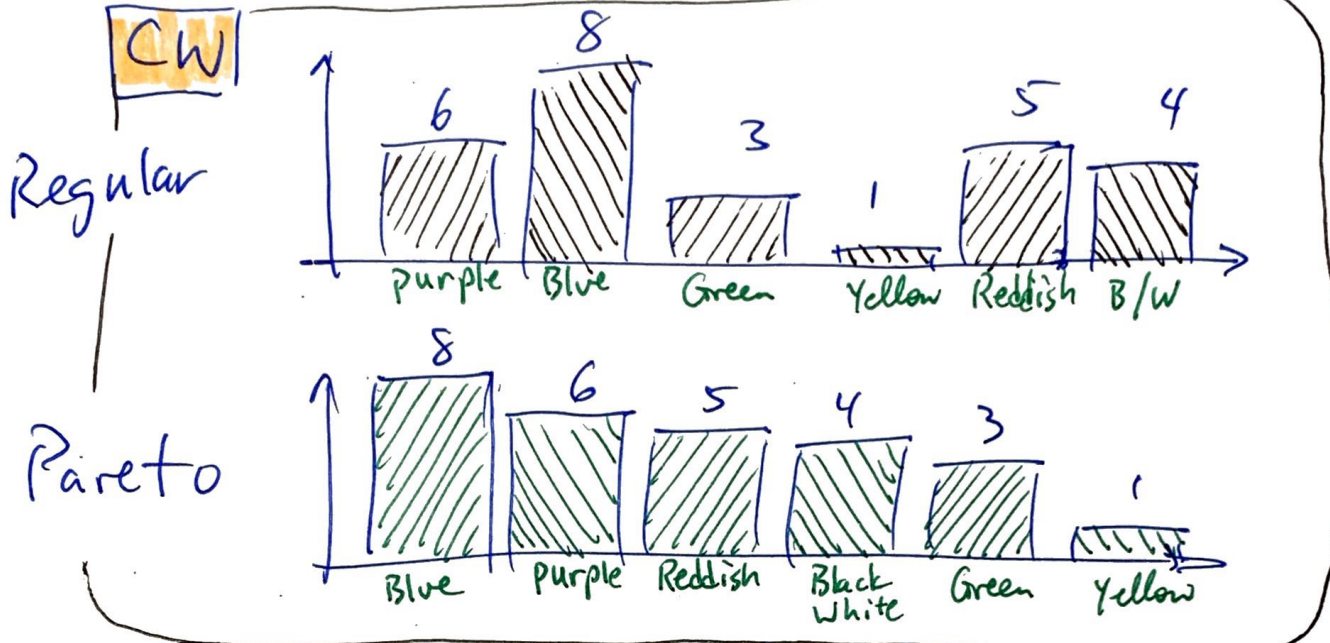


67% of ppl have Visa Cards

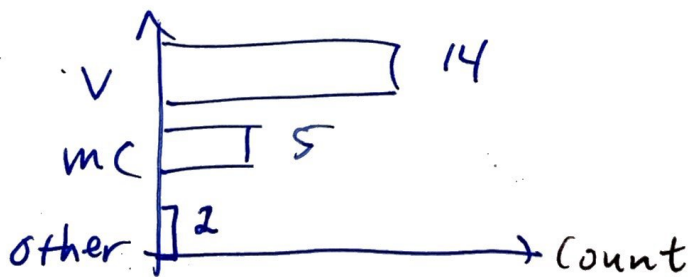
Population: Roy's Class

* Pareto Bar Chart: Here we order the bars from tallest to shortest

Favorite Color

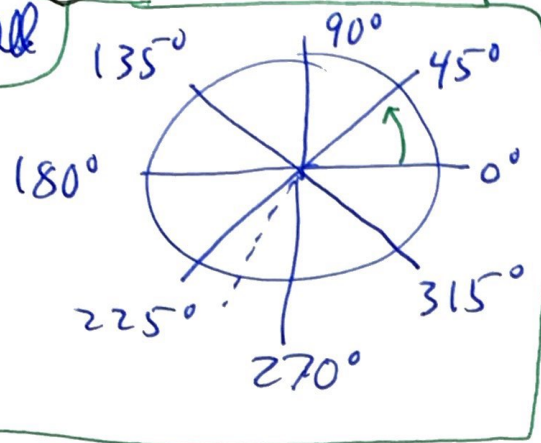


Horizontal Bar Graph



* Pie Charts

Recall



In a pie chart we size the angular displacement of each wedge (category) according to the count of the category.

Each wedge has an angular displacement of

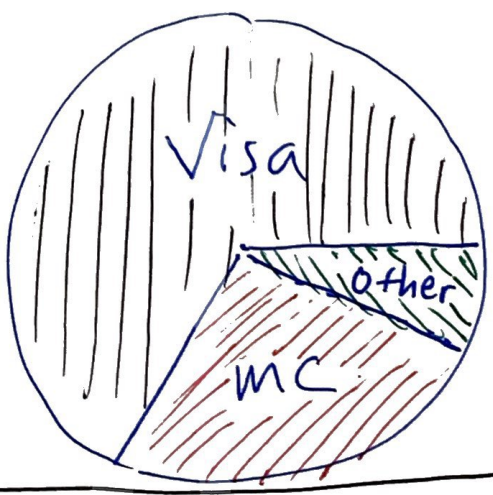
$$\theta = (360^\circ)(R.F.) = \frac{(360)(F)}{TOT}$$

EX

$$Visa = 360^\circ \left(\frac{14}{21} \right) = 240^\circ$$

$$MC = 360^\circ \left(\frac{5}{21} \right) = 86^\circ$$

$$Other = 360^\circ \left(\frac{2}{21} \right) = 34^\circ$$



(*)

Comparing two set of related data

(5)

monthly users (million)

Website	2015	2016
Facebook	1440	1650
Gmail	900	1000
Instagram	400	500
LinkedIn	364	443
Twitter	302	320

