

# Collecting & Organizing One-variable Data

One-variable data sets give measures of one attribute. They can be represented with:

<p>Tally charts</p> <table border="1"> <caption>Favorite Color</caption> <thead> <tr> <th>Color</th> <th>Tally</th> </tr> </thead> <tbody> <tr><td>red</td><td>    </td></tr> <tr><td>orange</td><td>   </td></tr> <tr><td>yellow</td><td>  </td></tr> <tr><td>green</td><td>   </td></tr> <tr><td>blue</td><td>    </td></tr> <tr><td>indigo</td><td>  </td></tr> <tr><td>violet</td><td> </td></tr> </tbody> </table>	Color	Tally	red		orange		yellow		green		blue		indigo		violet		<p>histograms</p>								
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<p>Bar graphs (have spaces)</p>	<p>picto graphs</p>																								

TYPE OF DATA	DEFINITION	EXAMPLE																																				
Categorical Data	Data that is usually recorded as a <u>label</u> and not a <u>number</u> . When recorded as a number, it is important to know what the number <i>represents</i> not its numerical value.	<p>Categorical data</p> <table border="1"> <thead> <tr> <th>Color</th> <th>Number of toys</th> </tr> </thead> <tbody> <tr><td>Brown</td><td>2</td></tr> <tr><td>Yellow</td><td>5</td></tr> <tr><td>Red</td><td>4</td></tr> <tr><td>Blue</td><td>3</td></tr> <tr><td>Green</td><td>6</td></tr> </tbody> </table>	Color	Number of toys	Brown	2	Yellow	5	Red	4	Blue	3	Green	6																								
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Discrete Data	This is numerical data, where values <u>can not</u> exist between recorded values, so decimals are <u>not allowed</u> . There is a fixed number of possible values.	<table border="1"> <thead> <tr> <th># of times</th> <th>Tally</th> <th>Frequency (<math>f_i</math>)</th> </tr> </thead> <tbody> <tr><td>0</td><td>    </td><td>5</td></tr> <tr><td>1</td><td>      </td><td>6</td></tr> <tr><td>2</td><td>       </td><td>11</td></tr> <tr><td>3</td><td>        </td><td>7</td></tr> <tr><td>4</td><td>    </td><td>5</td></tr> <tr><td>5</td><td>   </td><td>3</td></tr> <tr><td>6</td><td> </td><td>1</td></tr> <tr><td>7</td><td></td><td>0</td></tr> <tr><td>8</td><td> </td><td>1</td></tr> <tr><td>9</td><td> </td><td>1</td></tr> <tr><td colspan="2"></td><td><hr/>n = 40</td></tr> </tbody> </table>	# of times	Tally	Frequency ( $f_i$ )	0		5	1		6	2		11	3		7	4		5	5		3	6		1	7		0	8		1	9		1			<hr/> n = 40
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**MBF 3C1**

Name: \_\_\_\_\_

**Example 1**

For each state the data type.

- a. Number of mugs of coffee drank in a day.
- b. Type of pet at home (eg. dog, cat, bird, reptile, etc.)
- c. Number of pets at home.
- d. Amount of coffee in mL drank in a day.

discrete  
categorical  
discrete  
continuous

For *categorical and discrete data*, **classes** are used to sort the data in a frequency table.

**Example 2**

Organize the following data about favourite types of movies into a frequency table.

sci fi      romance      comedy      action      romance      drama  
romance      sci fi      action      romance      comedy      sci fi  
romance      action      sci fi      comedy      romance      action  
action      comedy

CLASS	TALLY	FREQUENCY
Action		5
Comedy		4
Drama		1
Romance		6
Sci Fi		4
<b>Total</b>		<b>20</b>

**MBF 3C1**

Name: \_\_\_\_\_

For *continuous data*, **class intervals** are used to sort the data in a frequency table. When making frequency tables with class intervals,

- make sure intervals don't overlap by using decimals if necessary
- have a reasonable number of intervals, not too few nor too many
  1. find the range (highest value – lowest value)
  2. find interval length (divide range by 5 and 20 (the min and max interval length))

**Example 3**

Use a frequency table to organize the pulses of 30 people.

~~66~~ ~~79~~ ~~53~~ ~~81~~ ~~84~~ ~~76~~ ~~76~~ ~~67~~ ~~64~~ ~~83~~  
~~92~~ ~~56~~ ~~67~~ ~~77~~ ~~91~~ ~~81~~ ~~71~~ ~~86~~ ~~73~~ ~~87~~  
~~71~~ ~~67~~ ~~71~~ ~~81~~ ~~86~~ ~~62~~ ~~77~~ ~~91~~ ~~72~~ ~~68~~

$$\begin{aligned} \text{range} &= 92 - 53 \\ &= 39 \end{aligned}$$

$$39 \div 5 = 7.8 \text{ and } 39 \div 20 = 1.9, \text{ so let the interval be } 5$$

INTERVAL	TALLY	FREQUENCY
50-54		1
55-59		1
60-64		3
65-69		5
70-74		5
75-79		5
80-84		4
85-89		3
90-94		3
<b>Total</b>		<b>30</b>