

### **3.3 – Data Displays: Categorical versus Quantitative**

## Data Display # 1 – Categorical

– **categorical variable (in a display)** → data that can be displayed using \_\_\_\_\_ or \_\_\_\_\_

**Ex:** 1.) blonde, brunette , red , black , etc. → category = \_\_\_\_\_

2.) red , yellow , green , purple , etc. → category = \_\_\_\_\_

3.) collie, shepherd , terrier , labrador , etc. → category = \_\_\_\_\_

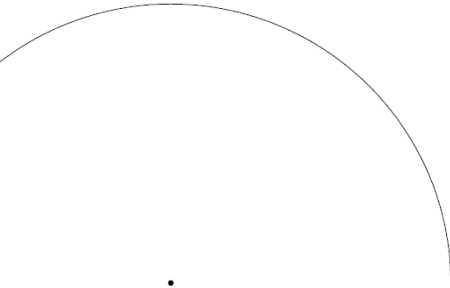
- **pie chart** – a type of categorical data display which uses a \_\_\_\_\_ where each “slice” represents a portion of the whole (percents %)
- **bar graph** – a type of categorical data display which uses \_\_\_\_\_ that’s represented by rectangles of equal width (note: between each “bar” – there are gaps)

**Example 1:** Express the following data as a pie chart and a bar chart.


Carly did a survey with her friends about their favorite type of movies:

Class Survey: Favorite Type of Movie				
<i>Comedy</i>	<i>Action</i>	<i>Romance</i>	<i>Drama</i>	<i>SciFi</i>
4	5	6	1	4

Data Display # 1 – Categorical: Pie Chart						Data Display # 1 – Categorical: Bar Graph									
Comd	Act	Rom	Dram	SciFi	Total										
					Total # =										
					Total % =										
					Total Deg =										



Title: \_\_\_\_\_



## Data Display # 2 – Quantitative

– **quantitative variable (in a display)** → data that can be displayed using \_\_\_\_\_

**Ex:** 1.) 1.2 million , 4.3 million , 2.5 million ,etc. → category = \_\_\_\_\_

2.) 8 lb , 9 lb , 12 lb , 27 lb , etc. → category = \_\_\_\_\_

3.) 36 inches , 23 inches , 48 inches , etc. → category = \_\_\_\_\_


▪ **stem-and-leaf plot** – a type of quantitative data display that is organized from \_\_\_\_\_ and separated into 2 columns (mainly useful for organizing long list of numbers)

▪ **box-and-whisker plot** – a type of quantitative data display that is organized in \_\_\_\_\_ and shows the “spread” (min/max, median, range (and outliers)) of a set of data

**Example 2:** Express the following data as a stem-and-leaf plot and a box-and-whisker plot.

The class scores on a 50-item test are shown in the table below.

71	95	84	98	88	74
90	89	86	42	99	86
91	73	66	87	89	80

Data Display # 2 – Quantitative: Stem-Leaf Plot	Data Display # 2 – Quantitative: Box-Whisker Plot				
<table border="1"> <thead> <tr> <th>Steam</th><th>Leaf</th></tr> </thead> <tbody> <tr> <td> </td><td> </td></tr> </tbody> </table> <p>Find the following:</p> <p>a.) mean: _____ b.) median = _____</p> <p>c.) mode: _____ d.) range = _____</p> <p>e.) variance: _____</p> <p>f.) standard deviation: _____</p>	Steam	Leaf			<p><b>minimum (min)</b> → the lowest # that is not an outlier</p> <p><b>maximum (max)</b> → the highest # that is not an outlier</p> <p><b>lower quartile (LQ / Q1)</b> → median of lower half of data</p> <p><b>upper quartile (UQ / Q3)</b> → median of upper half of data</p> <p><b>interquartile range (IQR)</b> → range of the middle half of data and contains 50% of data set: <math>IQR = UQ - LQ</math></p> <p><b>outlier</b> → an element of a set of data that's at least 1.5 IQR less than the LQ or 1.5 IQR greater than the UQ</p>  <p>Min = _____ LQ = _____</p> <p>Max = _____ UQ = _____</p> <p>Median = _____ IQR = _____</p> <p>Any outliers? _____</p>
Steam	Leaf				