Math 142:Wednesday, Aug 28th, Day 4 Notes

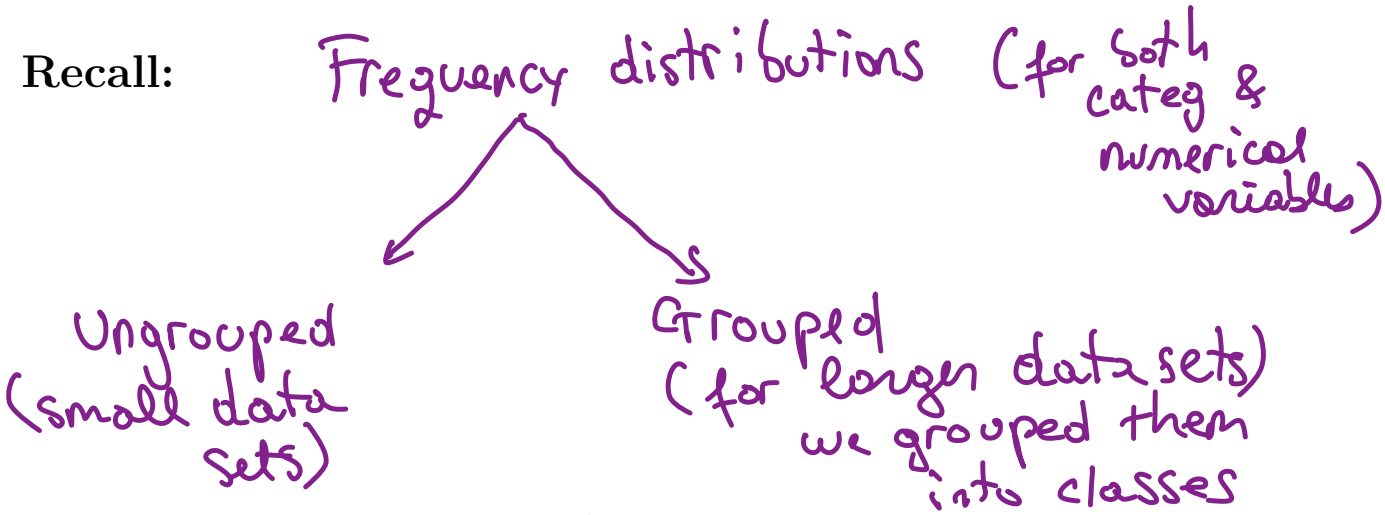
Agenda for Wednesday, Aug 28, 2024

Reminders

- ! Canvas Homeworks:

- ! Bring Laptop/device on Wednesday for Excel work
- ! Monday is off - Labor Day
- Office Hour **today 3:45-5pm** in C162
- **First Group Quiz** today at the end of class
- **Student Resource Fair** Thursday, August 29 from 11:30 a.m.-1:30 p.m. & 4:30-6 p.m. Student Commons/Student Street

Recall:



Page from previous day's notes:

Upper Limits – highest value of each class
69, 76, 83, 90, 97

⑦ **Class Width** – the difference between any two consecutive lower limits

ex: 70-63=7
91-84=7
or range/5 = 97-63/5 = 34/5 = 6.8 round up to 7

$$\text{class width} = \frac{\text{range}}{\#\text{ of classes}}$$ OR (you round up)

Class Midpoints – halfway point of the class

class 1 midpoint: $\frac{63+69}{2} = \frac{132}{2} = 66$

class 2 midpoint: $\frac{77+83}{2} = 80$

Class Boundaries – created numbers for the purpose of closing gaps between the limits.
- to find the class boundaries we subtract the upper limit of the first class from the lower limit of the second and divide the result by 2.
(70-69)/2 = 1/2 = 0.5

next class

Test scores	Boundaries	f
63 - 69	62.5 - 69.5	3
70 - 76	69.5 - 76.5	7
77 - 83	76.5 - 83.5	9
84 - 90	83.5 - 90.5	5
91 - 97	90.5 - 97.5	1

Guidelines for classes:

- There should be between 5 - 20 classes
- The classes must be mutually exclusive - no data value can be in more than one class
- The classes must be exhaustive – every data value must be in a class
- The classes must be continuous (no gaps)
- The classes must be equal width.

Section 2.1 Frequency Distributions - continued

Example 1. The weights (in pounds) of 30 newborn babies at Condell Hospital are listed below.

lowest

5.5	5.7	5.8	5.9	6.1	6.1	6.3	6.4	6.5	6.6
6.7	6.7	6.7	6.9	7.0	7.0	7.0	7.1	7.2	7.2
7.4	7.5	7.7	7.7	7.8	8.0	8.1	8.1	8.3	8.7

highest

Make a grouped frequency distribution using 7 classes.

Class Limits	frequency
5.5 – 5.9	4
6 – 6.4	4
6.5 – 6.9	6
7 – 7.4	7
7.5 – 7.9	4
8 – 8.4	4
8.5 – 8.9	1

+0.5

$$\text{class width} = \frac{\text{range}}{\#\text{ of classes}} = \frac{8.7 - 5.5}{7}$$

$$= 0.457 = 0.5$$

For boundaries:

$$\frac{6 - 5.9}{2} = \frac{0.1}{2} = 0.05$$

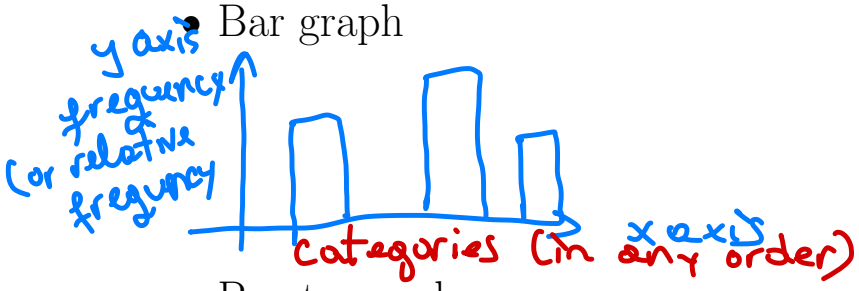
Extended frequency distribution

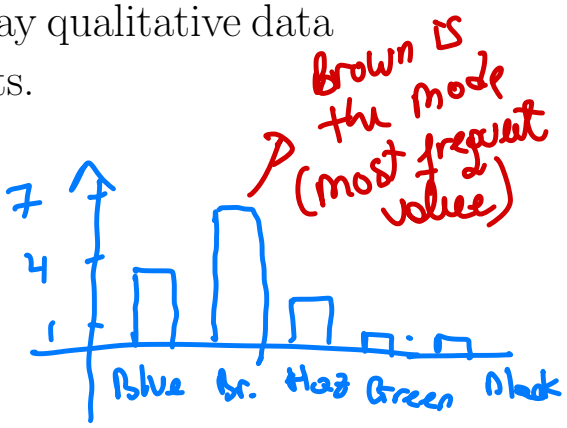
Class Boundaries	f	Midpoint	Relative f	Cumulative f
5.45 – 5.95				
5.95 – 6.45				
6.45 – 6.95				
6.95 – 7.45				
7.45 – 7.95				
7.95 – 8.45				
8.45 – 8.95				

Section 2.2 Graphs for Qualitative Data

Three common graphs that are used to display qualitative data are pie charts, bar graphs, and Pareto charts.

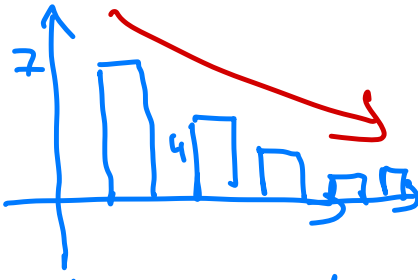
- Bar graph



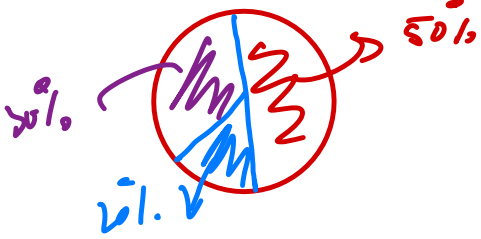


- Pareto graph

special bar graph where the categories are placed in descending order



- Pie chart



is a circle graph where each slice represents a category and a percentage

Percentages must add up to 100%

Example 2. CLC 2022 Great Colleges to Work for survey results

Job Category	frequency	Relative Frequency
Adjunct Faculty	40	40/549 = 7%.
Admin/Professional	76	14%.
Classified	116	21%.
Full-time Faculty	118	22%.
Specialist	160	29%.
Unspecified	39	7%.

n = 549

pie chart, bar, Pareto . .

Example 3. Which graph should be used for the following data?

Characteristic/Category	Percent
Full-Time Students	40.9%
Students who intend to transfer to a 4-year educational institution	48.6%
Students under age 25	61%
Total	150.5%

Pareto or Bar but not a piechart because total does not add up to 100%.