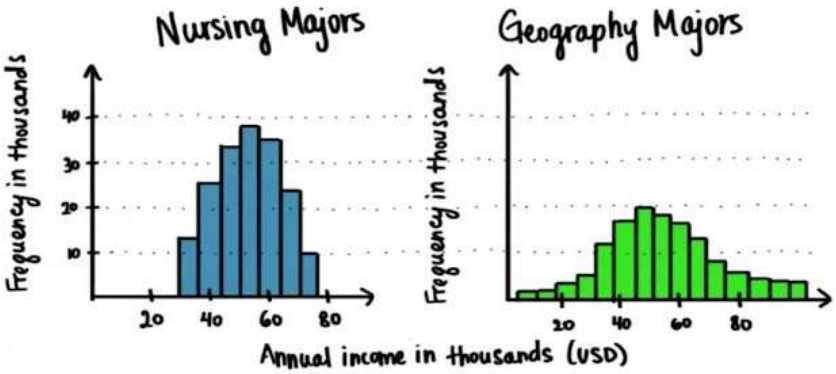
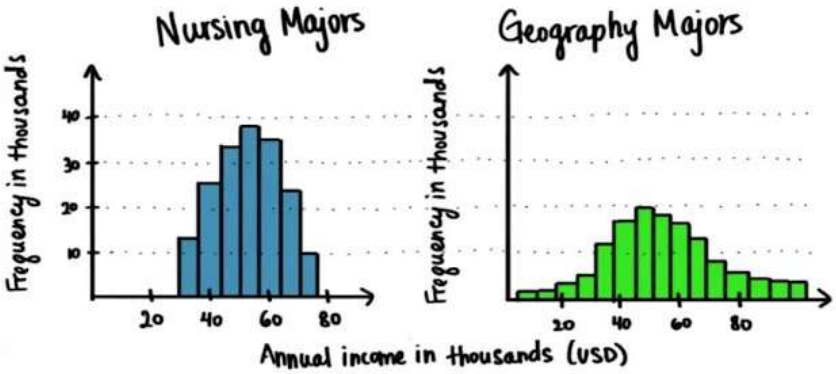
Q1



Approximately what income do most nursing majors make?

Approximately what income do most geography majors make?

Q2



How would you choose one number (or a small range of numbers) that accurately represents the typical salary of nursing or geography majors?

- O The value at which frequency is highest
- O The value where frequency is lowest
- O Value in the middle
- O Biggest value on x-axis
- O Average

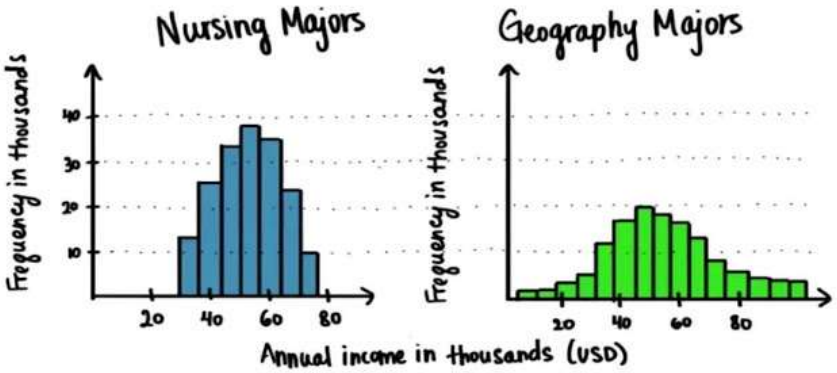
Q3

Quiz : Mode

2 5 5 9 8 3

What is the mode? ☐

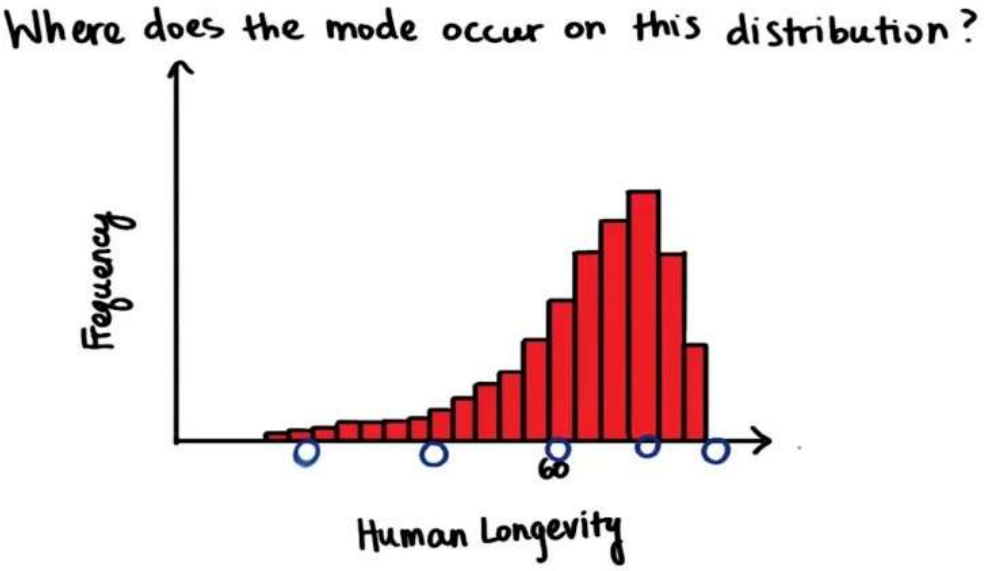
Q 4



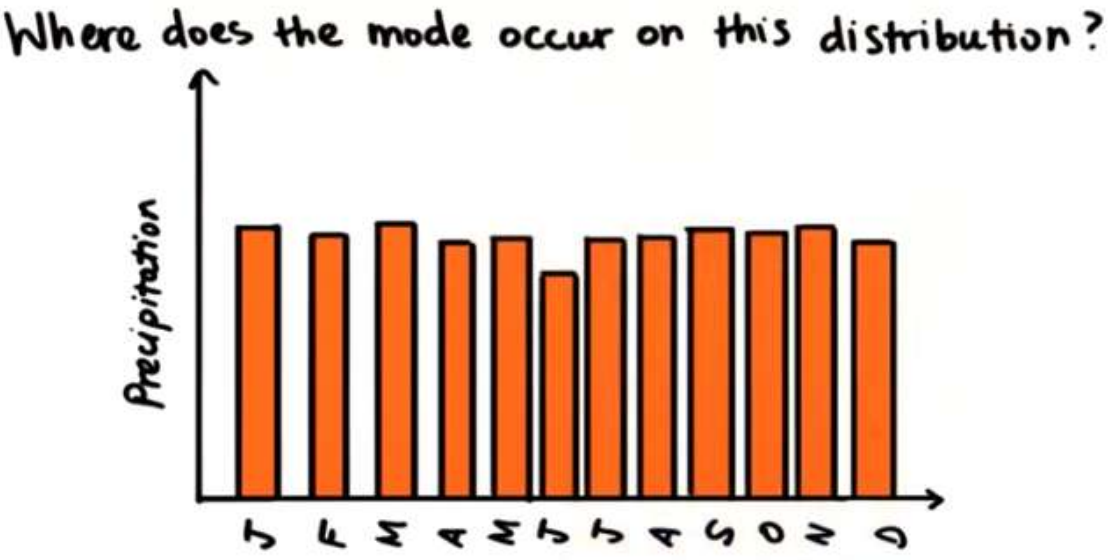
What is the mode?

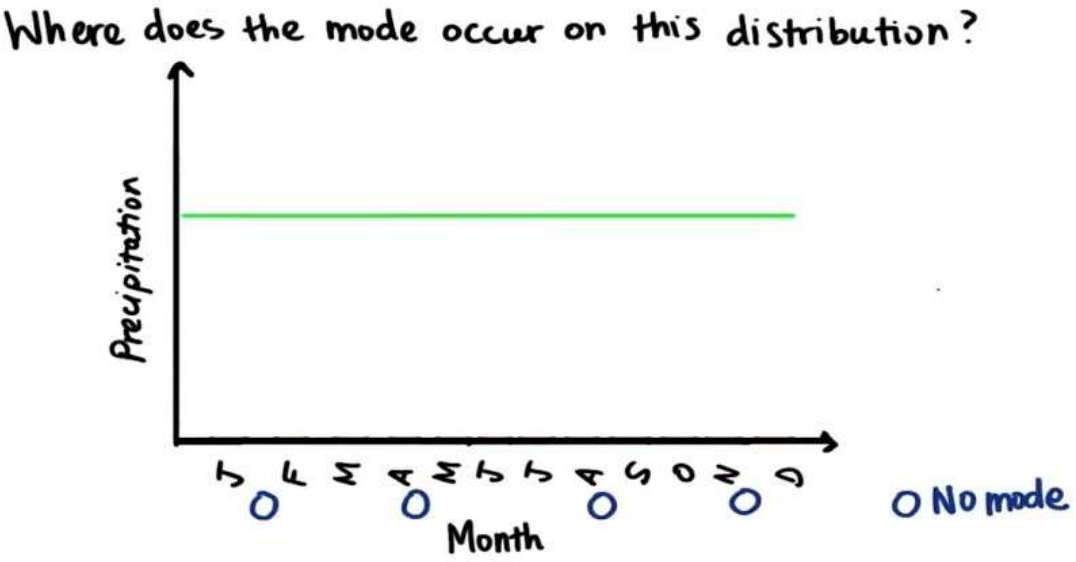
- O Single number that occurred with the highest frequency
- O Range that occurred with the highest frequency

Q 5


Where does the mode occur on this distribution?
Frequency
60
Human Longevity

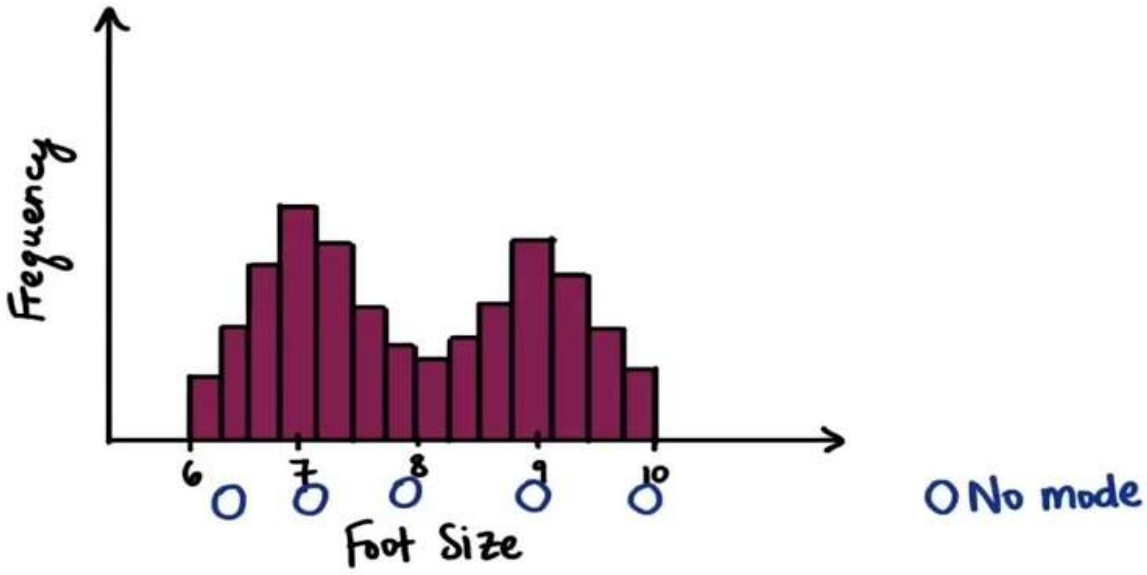
Q 6


Where does the mode occur on this distribution?
Precipitation

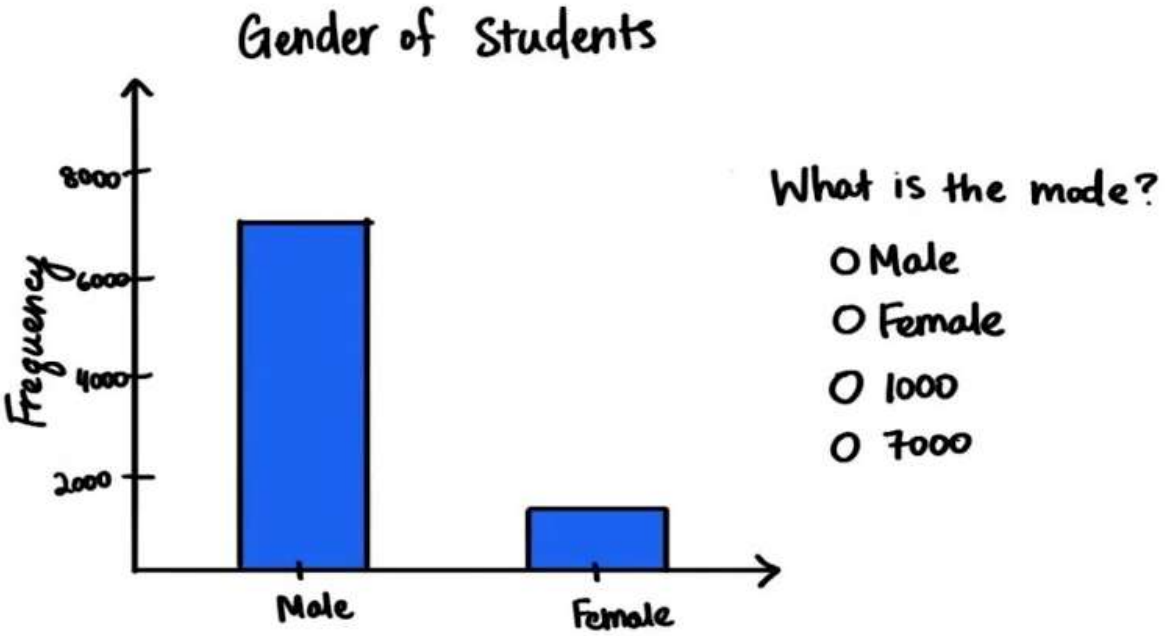

Where does the mode occur on this distribution?
Precipitation
Month
No mode

MULTI MODAL DISTRIBUTION

Q7

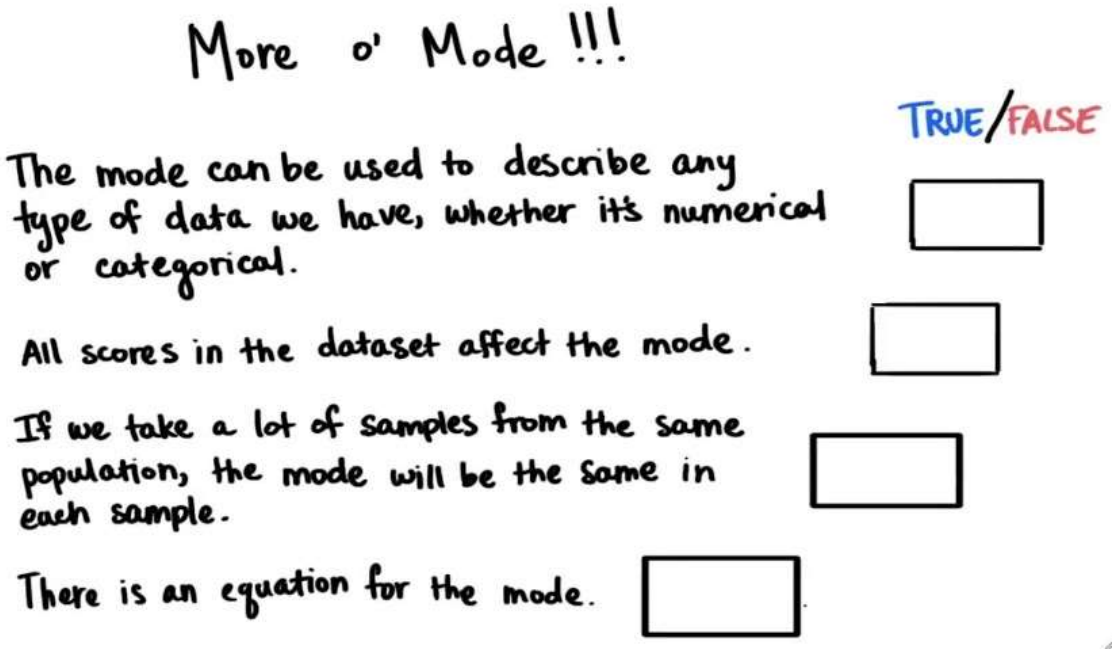


Q8



TRUE or FALSE

Q9


More o' Mode !!!
TRUE/FALSE
The mode can be used to describe any type of data we have, whether it's numerical or categorical.
All scores in the dataset affect the mode.
If we take a lot of samples from the same population, the mode will be the same in each sample.
There is an equation for the mode.

Mean

Q10

Nursing	Geography
$58,350	$48,670
$63,120	$57,320
$44,640	$38,150
$56,380	$41,290
$72,250	$53,160

$\bar{X}_{geo} =$ ☐

$\bar{X}_{nursing} = \frac{58,350 + 63,120 + 44,640 + 56,380 + 72,250}{5} = \$58948$

(mean/average)

PROPERTIES OF MEAN

Q11

What are properties of the mean?

$\bar{X} = \frac{\Sigma X}{n}$

$\mu = \frac{\Sigma X}{N}$

- ☐ All scores in the distribution affect the mean.
- ☐ The mean can be described with a formula.
- ☐ Many samples from the same population will have similar means.
- ☐ The mean of a sample can be used to make inferences about the population it came from.
- ☐ The mean will change if we add an extreme value to the dataset.

Q12

Nursing	Geography
$58,350	$48,670
$63,120	$57,320
$44,640	$38,150
$56,380	$41,290
$72,250	$53,160
	$500,000

$\bar{x}_{geo} =$ ☐

Q 13

Nursing	Geography
$58,350	$48,670
$63,120	$57,320
$44,640	$38,150
$56,380	$41,290
$72,250	$53,160
	$500,000

$\bar{x}_{geo} =$ $123,098

- This average accurately represents the salary of geography majors.
- This average is misleading.

Q14

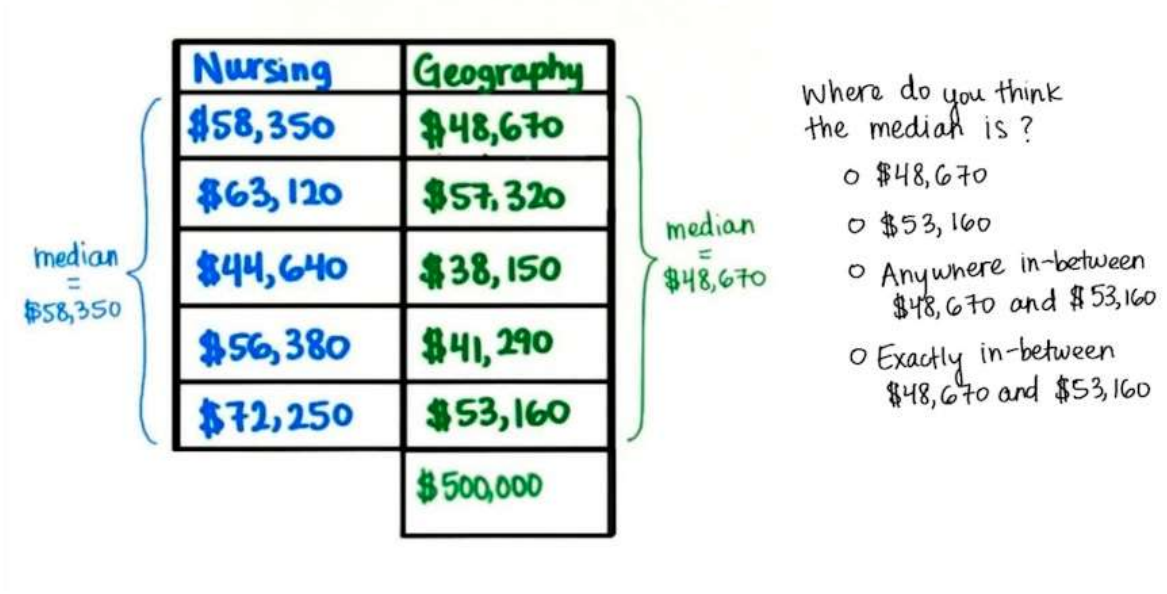
Nursing	Geography
$58,350	$48,670
$63,120	$57,320
$44,640	$38,150
$56,380	$41,290
$72,250	$53,160

What do we have to do to make the median a useful statistic ?

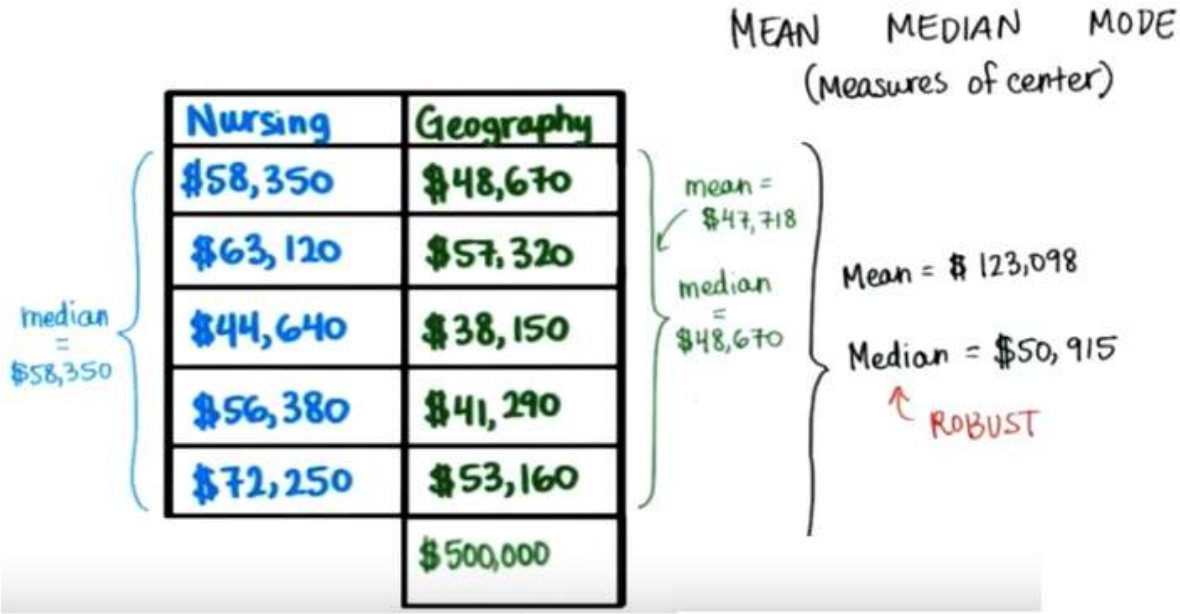
- O Calculate the average
- O Put the data in order
- O Eliminate outliers
- O Elimate data values that repeat

Que :- Find the median for both ??

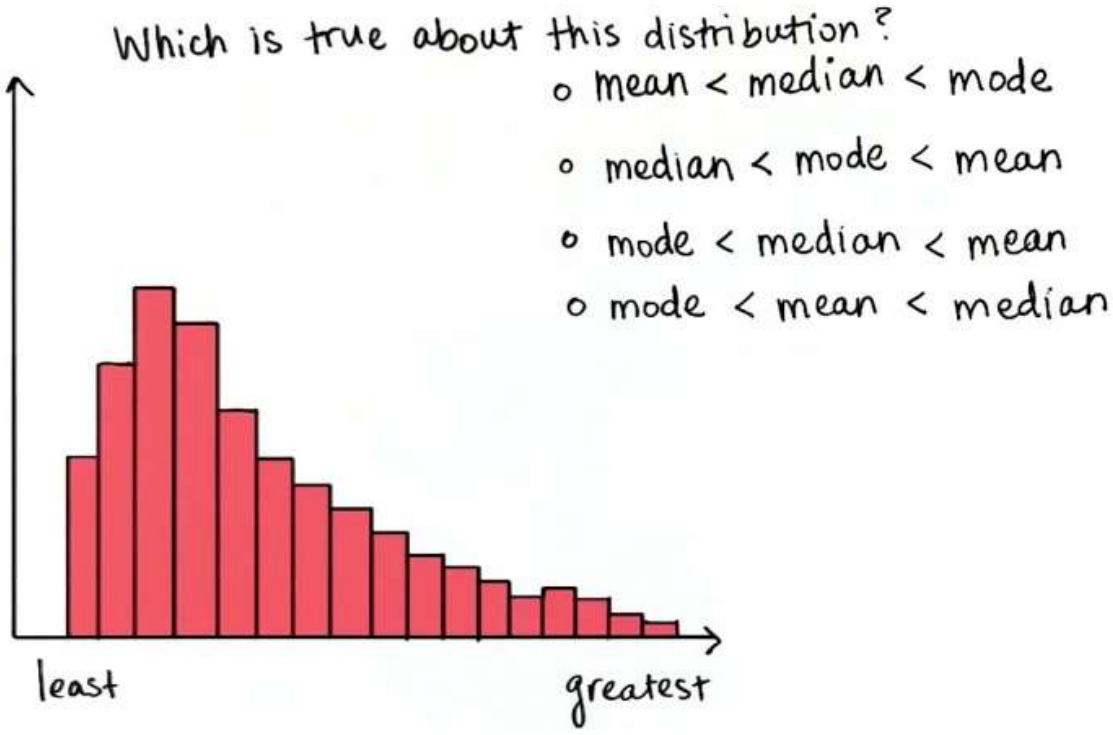
Q15


Nursing
Geography
$58,350
$48,670
$63,120
$57,320
$44,640
$38,150
$56,380
$41,290
$72,250
$53,160
$500,000
median = $58,350
median = $48,670
Where do you think the median is?
$48,670
$53,160
Anywhere in-between $48,670 and $53,160
Exactly in-between $48,670 and $53,160

Summary

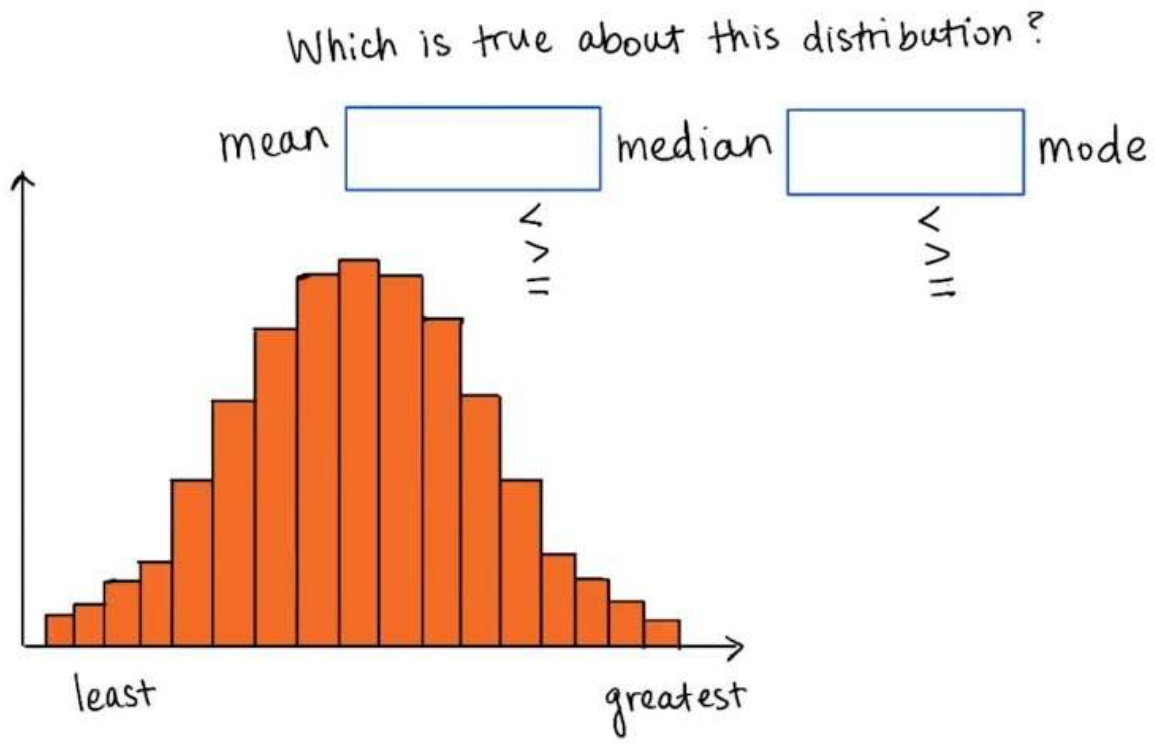

MEAN MEDIAN MODE
(Measures of center)
Nursing
Geography
$58,350
$48,670
$63,120
$57,320
$44,640
$38,150
$56,380
$41,290
$72,250
$53,160
$500,000
median = $58,350
mean = $47,718
median = $48,670
Mean = $ 123,098
Median = $50,915
ROBUST

Q16


Which is true about this distribution?
o mean < median < mode
o median < mode < mean
o mode < median < mean
o mode < mean < median
least
greatest

Q17

Dimensionless Technologies Private Limited
Visit us at: www.dimensionless.in
- info@dimensionless.in
- 9923170071, 8108094992



Calculating Average using spreadsheet

https://docs.google.com/spreadsheets/d/12PmgHyPClJ_0r9rD6AeUpHUqNKvMC2i8K6bVZ82XziU/edit?usp=sharing

What's the Average??

Now find the median for the same data??

Finding formula for a median

Q18

Rank	Value (x_i - i^{th} value)
1	x_1
2	x_2
3	x_3
⋮	⋮
13	x_{13}
14	x_{14} (median)
15	x_{15}
⋮	⋮
27	x_{27}

Describe the median value in symbols for any dataset with n values.

Which formula(s) describe the median after sorting the data?

n even	n odd
☐ $x_{\frac{n}{2}}$	☐ $x_{\frac{n}{2}}$
☐ $x_{\frac{n-1}{2}}$	☐ $x_{\frac{n+1}{2}}$
☐ $\frac{x_{\frac{n}{2}} + x_{\frac{n}{2}+1}}{2}$	☐ $x_{\frac{n-1}{2}}$
☐ $x_{\frac{n}{2}+1}$	☐ $x_{\frac{n}{2}+1}$

PROS and CONS of Measures of Centre

Q19

Measures of Center

	Has a simple equation	Will always change if any data value changes	Not affected by change in bin size	Not affected severely by outliers	Easy to find on a histogram
Mean					
Median					
Mode					