Recap

There are four types of data:

- Nominal
- Ordinal
- Interval
- Ratio

Discrete			Discrete or Continuous	
Nominal	Ordinal		Interval	Ratio

This is classification data with no ordering.

There is little one can do with this type of data except count the values in a particular classification.

Nominal data is a type of QUALITATIVE DATA.

What is your gender?
- ⦿ M – Male
- ○ F – Female

What is your hair color?
- ⦿ 1 – Brown
- ○ 2 – Black
- ○ 3 – Blonde
- ○ 4 – Gray
- ○ 5 – Other

Where do you live?
- ⦿ A – North of the equator
- ○ B – South of the equator
- ○ C – Neither: In the international space station

Discrete			Discrete or Continuous	
Nominal	Ordinal		Interval	Ratio

This is classification data with ordering.

The differences between the values mean nothing. This is important because we could have used different names for the answers. e.g.
A (Strongly agree)
to
F (Strongly disagree)

Ordinal data is a type of QUALITATIVE DATA.

How do you feel today?
- ⦿ 1 – Very Unhappy
- ○ 2 – Unhappy
- ○ 3 – OK
- ○ 4 – Happy
- ○ 5 – Very Happy

How satisfied are you with our service?
- ⦿ 1 – Very Unsatisfied
- ○ 2 – Somewhat Unsatisfied
- ○ 3 – Neutral
- ○ 4 – Somewhat Satisfied
- ○ 5 – Very Satisfied

Slide 1

Discrete		Discrete or Continuous	
Nominal	Ordinal	Interval	Ratio

This is ordered data where differences mean something but ratios do not - the "interval" between

Therefore, for example, you cannot say that someone's birthday is twice as large as someone elses.

This is because there is no natural zero position.

Interval data is a type of QUANTITATIVE data.

Slide 2

Discrete		Discrete or Continuous	
Nominal	Ordinal	Interval	Ratio

Ordered data is where ratios mean Something.

You can say, for example, someone is twice as old as someone else.

Look for a meaningful 0

Ratio data is a type of QUANTITATIVE data.

Slide 3

	Nominal	Ordinal	Interval	Ratio
"Counts" aka frequency distribution, Mode	✔	✔	✔	✔
Median		✔	✔	✔
The order of values is known		✔	✔	✔
Can quantify the difference between each value			✔	✔
Can add or subtract values			✔	✔
Can multiply and divide the values				✔
Has true zero (a meaningful zero)				✔

Exercise

For each, write down some examples, the type and what measure(s) of central tendency you could use

1. the number of questions asked by a customer during a sales call
2. the religious group that one affiliates with
3. the time it takes to complete some homework
4. the score on a 35-item scale of ambivalence
5. the rank of a person's salary within the company
6. rank order based on IQ score
7. the square footage of your house or flat
8. the size of your brain expressed as a volume
9. the number of frustrated comments made during an organisational behaviour lecture
10. the time it takes to buy red-bull and baked beans in Asda

Exercise

For each, write down some examples, the type and what measure(s) of central tendency (mean, median, mode) you could use

1. the number of pounds lost during a six-week diet
2. Your heart rate before the test
3. the percent of errors made on your homework
4. the number of false alarms reported to the fire brigade
5. the types of grammatical errors made in a writing sample
6. one's ice cream preference
7. how quickly a person gives up on an impossible task that looks like it should be possible
8. the age at which one went on his or her first date
9. the number of children in your family
10. whether one has a pet

Exercise

Write down in english how you calculate a mean, median and mode

Write down in english how you calculate a mean, median and mode from a frequency distribution table

Spreadsheet

Data set									
1	35		*Mean*	31.95	*Median*	35	*Mode*	35
10	35							35
17	38							35
19	38		*Variance*	166.348	*St.Dev*	12.898		35
19	39							35
20	39							35
35	45							35
35	45							35
35	49							35
35	50							35

Exercises

Which numerical measure may be used with any data?

1 mark

If two data sets have the same mean does this imply that they contain the same data?

Fully explain your answer and provide an illustrative example.

3 marks

Table 1 presents a summary of the ages of students on a particular undergraduate degree at the University.

Table 1

Student Age	Number of Students
18	40
19	28
20	17
21	5
22	10
23	6
24	4

Generate the following statistics for the student age data in Table 1.

  i. the mean   **1 mark**

 ii. the median   **1 mark**

iii. the mode   **1 mark**

iv. the variance   **3 marks**

If five students aged 18, 18, 19, 19 and 22 respectively leave the degree, how would this affect the mean and median values? Your answer does not need to include the new values of these statistics.

2 marks