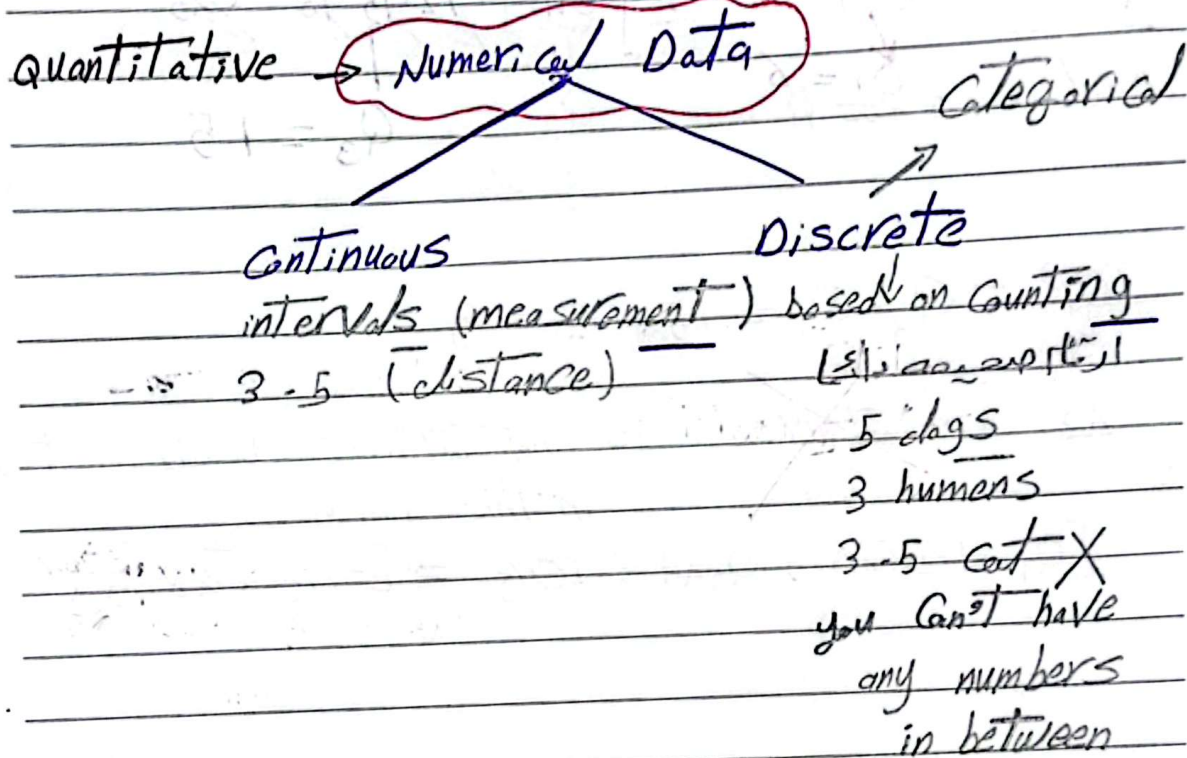


quantitative and qualitative → two different types of Data



qualitative → is basically descriptive Data based on observation

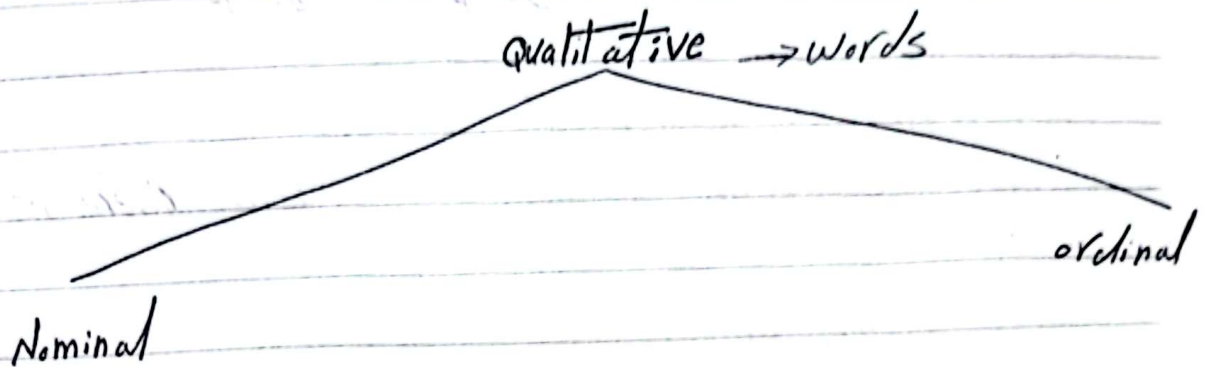
(words) not numbers

5 senses (color) low (high) bad (good)

7 dogs (Discrete quantitative Data)
↓ numbers

Black → not numbers (qualitative Data)

Scales of measurements



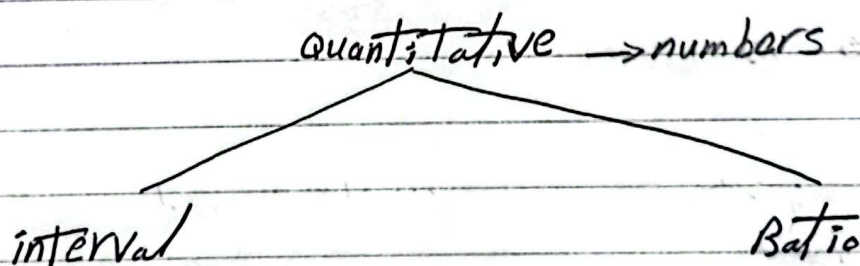
Nominal → (Categorical) it doesn't have numbers
(Names, colors, labels)

1-Red 2-Blue 3-green

the order of colors
it doesn't matter

Can not be used in
calculation

ordinal → is used to in Ranking (ordered is matter)
1st 2nd 3rd Differences can't be measured



interval \rightarrow temp 30°F 60°F 90°F
 $\underbrace{\hspace{1.5cm}}_{30^{\circ}\text{F}} \quad \underbrace{\hspace{1.5cm}}_{60^{\circ}\text{F}}$

- differences can be measured.
- ratio can't be measured.
- No 'true 0' starting point ex. in temp there is 20°F
- order is matter

Ratio \rightarrow

- does contain a true zero starting

Grades

$70 < 30 < 56 < 82 < 90$

$30 < 56 < 70 < 82 < 90$ - order is matter

- difference can be measured

$$82 - 30 = 52 \checkmark$$

$$90 - 30 = 60 \checkmark$$

$$\frac{90}{30} = 3 \checkmark$$

- ratio is meaningful

[Hypothesis testing and the Null Hypothesis]

* the hypothesis that there is no difference between things is called the Null Hypothesis

in the hypothesis we need preliminary data in order to make a statement that we can test in follow up experiments

Null Hypothesis not need to preliminary data because the only value that represents no difference is 0

* الفرضية الصفرية يعني مفروض تغيير كبير من اوليات

* الحاشية من عمل تجربة جديدة بنشوف الاول الفرضية الصفرية لو من تغيير بسيط جداً قد نشكك فيها لانه التغيير يكون من اوليات بسبب عوامل ثانية اكنه لو التغيير كبير وواضح ساعدنا برقعة الفرضية الصفرية وساعتها تتغير alternative hypotheses

alternative hypothesis

السؤال البحثي ؟؟ لازم يكون واضح جداً وعابرة العتبات العلمية مثلاً

Drug A or Drug B
 novel
 بحاجة جديدة
 specific Answer
 question
 Relevant to medical Knowledge

hypothesis testing

ازایافته انکار و رد کردن (فرضیه)

Research question ??

پیدا کردن جوابیه در مورد سوال پرسیده است و فرضیه های صحیح و نادرست

1- Define the Null and alternative hypotheses

2- --

3- Compute test statistics

4- Compute p-values

5- Check to reject Null hypothesis by comparing the p-value to the level α

6- Draw the Conclusion

Null hypothesis \rightarrow there is no difference

بیان عدم تفاوت و نادرست بودن

لا انا عشتی تا اول من میانه همه و غیر است و رد صحیح و نادرست

Null
Null

alternative

در فکر و فتنه ها

بگویند 68 صحیح

Conclusion

و این معیار است به نتیجه صحیح
* بعد از این تست استاتیک

fail to reject

Null hypothesis

reject the Null hypothesis

Null

اندر تفاوت و association

کسر صد

اندر قبولی Null نتیجه

p-value

الأمل

Object

Date

Decision is depend on Null hypothesis.

alternative hypotheses \rightarrow Two tailed
 \rightarrow one tailed

two tailed alternative hypothesis \rightarrow انما رة انه مختلف بس
معرفة الاختلاف فالتوجه بالقب

one tailed \rightarrow الاختلاف ببيت من اتجاه واحد فقط