ATTRIBUTE TYPES

SYRACUSE UNIVERSITY
School of Information Studies

ATTRIBUTE

An attribute is a property or characteristic of an object.

The value of an attribute can be different for different data examples.

DATA EXAMPLE: PERSON	ATTRIBUTE 1: HIGHEST DEGREE	ATTRIBUTE 2: AGE	ATTRIBUTE 3: BLOOD TYPE
Jane	Middle School	25	A
John	High School	30	B
Amy	College	34	O
Larry	Grad School	31	AB

ATTRIBUTE TYPES

Textbook Table 2.2

Four main types of attributes:

- Nominal
- Ordinal
- Interval
- Ratio

NOMINAL ATTRIBUTES

Definition: The values of a nominal attribute are just "names."

NAME	HIGHEST DEGREE	AGE	BLOOD TYPE
Jane	Middle School	25	A
John	High School	30	B
Amy	College	34	O
Larry	Grad School	31	AB

ORDINAL ATTRIBUTE

An ordinal attribute describes data objects in a qualitative, ordered way.

NAME	HIGHEST DEGREE	AGE	BLOOD TYPE
Jane	Middle School	25	A
John	High School	30	B
Amy	College	34	O
Larry	Grad School	31	AB

NUMERIC

Numbers that describe a measurable quantity

"How many"

"How much"

NAME	HIGHEST DEGREE	AGE	BLOOD TYPE
Jane	Middle School	25	A
John	High School	30	B
Amy	College	34	O
Larry	Grad School	31	AB

SIGNIFICANT DIGITS

Use a scale to measure people's weight.

Assume the scale is accurate to 0.1 lb.

If a person weighs three times and gets 150.0, 150.4, and 150.6, is the average weight 150.3333?

No, because the scale is accurate only to 0.1 lbs.

http://www.chem.sc.edu/faculty/morgan/resources/sigfigs/

SIGNIFICANT DIGITS IN R

```
> a = c(150.0,150.4,150.6)
> mean(a)
[1] 150.3333
> signif(mean(x), digits = 4)
[1] 150.3
```

INTERVAL VS. RATIO

Is there an arbitrary zero?

Yes: Ratio

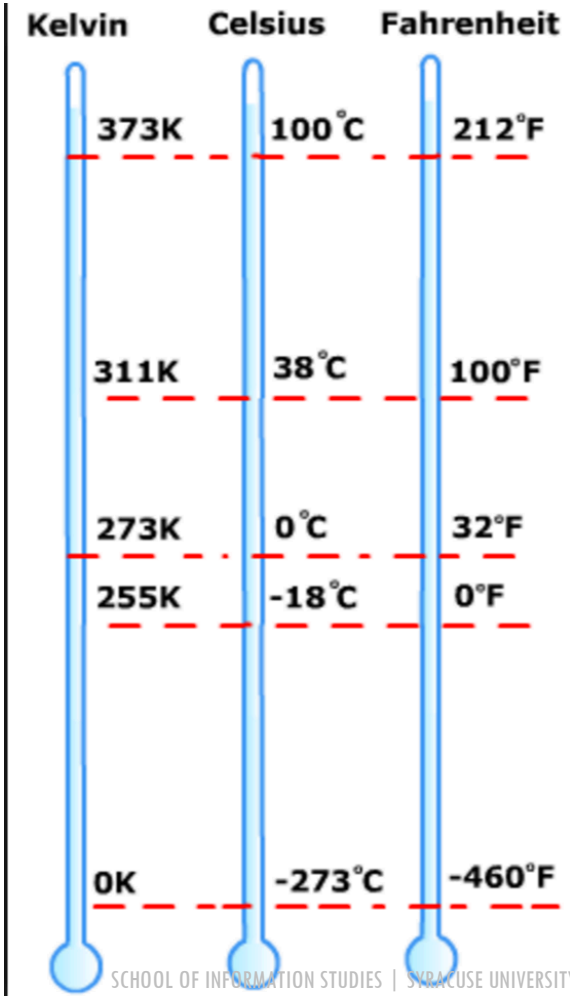
E.g., Kelvin scale of temperature, in which “0” means the lowest possible temperature. At this temperature, all atoms stop moving.

No: Interval

E.g., Celsius or Fahrenheit scale of temperature, in which “0” is **not** the lowest temperature.

RATIO VS. INTERVAL

A temperature of 200 degrees Kelvin is twice as warm as 100 degrees Kelvin.



A temperature of 200 degrees Fahrenheit is **not** twice as warm as 100 degrees Fahrenheit.