Entity	Specific object
Attribute	Property of an entity
Data	Measurement of an attribute

Data defines an entity
Computer can manage all types of data

CLASSIFICATION OF SCALES OF MEASUREMENT

Qualitative	**Nominal**	Binary Ternary Others
	Ordinal	Alphabetical Numerical Literal
Quantitative	**Interval**	Discrete Continuous
	Ratio	

- **Nominal** = Distinctiveness
- **Ordinal** = Distinctiveness + Order
- **Interval** = Ordinal + Additive
- **Ratio** = Interval + Multiplicative

PROPERTIES OF DATA

#	Property	Operation	Type
1.	Distinctiveness	= and ≠	Categorical (Qualitative)
2.	Order	< , ≤ , > , ≥	
3.	Addition	+ and -	Numerical (Quantitative)
4.	Multiplication	* and /	

	NOMINAL	**ORDINAL**	**INTERVAL**	**RATIO**
Input	Value among a set of mutually exclusive codes that have no logical order	Each value can be compared literally or using relational operators	Continuous measurements of a roughly linear scale	Simply an interval with a clear definition of "zero"
Naming	Consistent naming convention			
Stats	**Mode** summary statistics	**Mode**, **Median** summary statistics		
N/A Operations	• Arithmetic (+ - * /) • Logical (ax + b / c)			
A Operations	• Accessing • Recoding	• Relational (< <= >= >)	• Relational • Arithmetic (+ - * /) • Logical (ax + b / c)	• Arithmetic (+ - * /) • Logical (ax + b / c)
Visualization	• Line Charts • Bar Charts • Pie Charts		• Histogram • Frequency polygon	
Extras	• Can combine variables to generate a new one • Creates a "category" of a set of data • **Binary Scale** = only two possible values (Symmetric, Asymmetric)	• Also called ordered nominal • Can be ranked - percentile measures • Calculations based on order are permitted • Numerical can be transformed into ordinal with loss of info	• Measured on a **numeric** scale • Has a **zero poin**t on origin but does not imply a true absence of the measured characteristic • Can be transformed to nominal/ordinal with loss of info	• All ratio is interval but not vice-versa • Difference between data value and ratio data pair is meaningful • May be linear or non-linear • Interval and ratio can be stored in same data type
Examples	• Gender (M, F) • Blood type (A, B, AB, O) • Switch (On, Off)	• Size (S, M, L, XL) • Age (kid, teen, adolescent, adult, senior)	• Weight • Height • Temperature	• Temperature in Kelvin Earthquake intensity Population