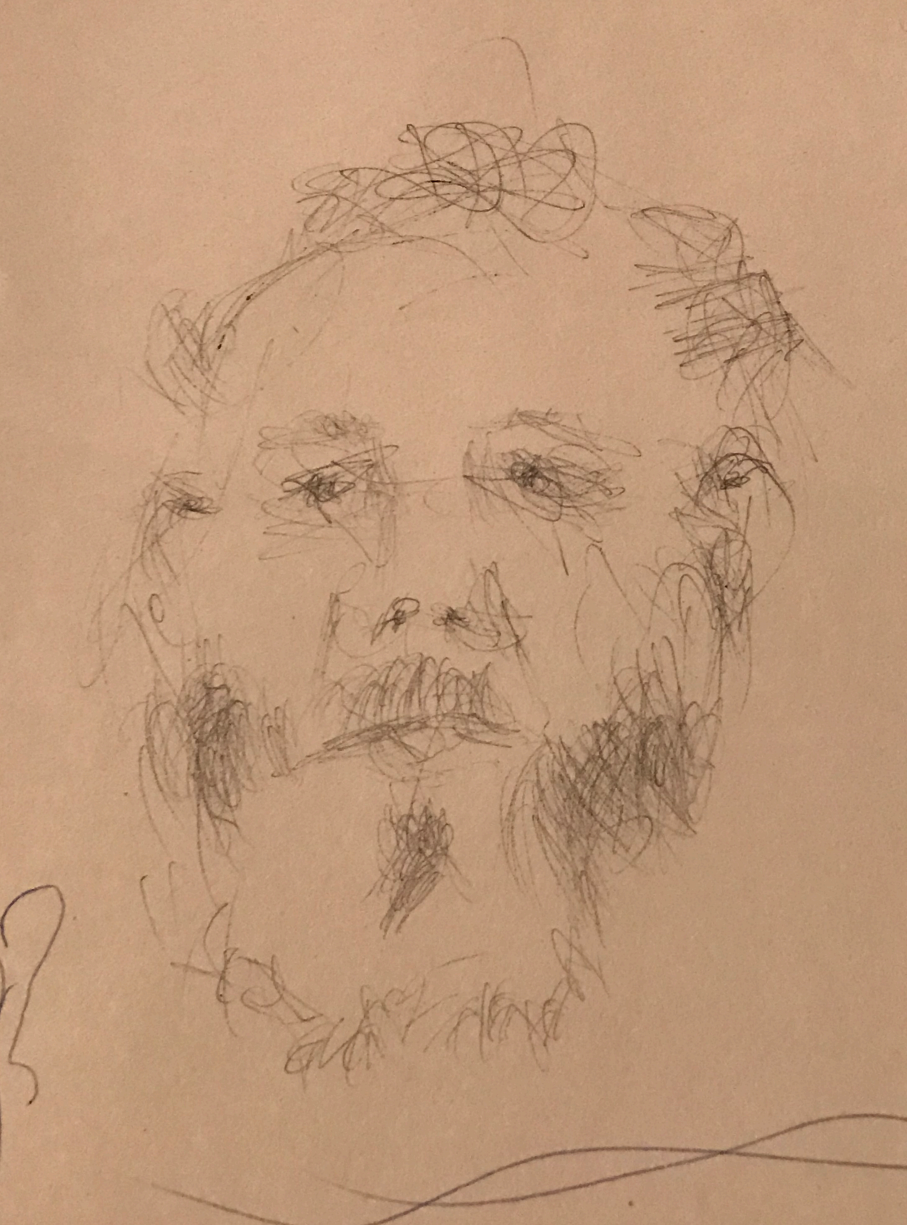


INF1A

binary data

Introducing bits of information

Our motto for this course: ***keep it simple***

informatics is the study of systems that

store, process, and communicate information

we will find that even simple systems can have complex behaviours

We must define our terms …

We start by asking, *What is **information**?*

We find the simplest answer we can imagine, and study that.

OED Oxford English Dictionary
The definitive record of the English language

information, *n.*

2.

a. Knowledge communicated concerning some particular fact, subject, or event;
that of which one is apprised or told; intelligence, news.

1387 J. Trevisa tr. R. Higden *Polychron.* (St. John's Cambr.) (1876) VI. 33

> Fyve bookes com doun from heven for **informacioun** of mankynde.

1793 J. Wilde *Addr. Soc. Friends of People* 126

> A work ... of very considerable **information** upon the constitutional history of that kingdom.

1852 S. Thomson *Dict. Domest. Med.* 285/1

> To use a simile, the brain may be likened to a great central telegraph office,
> to which the wires—nerves—convey the **information** from all parts of the body that supplies are wanted.

1927 F. M. Thrasher *Gang* iv. xx. 416

> The 'grapevine system', whereby **information** travels very rapidly through the length and breadth of the underworld.

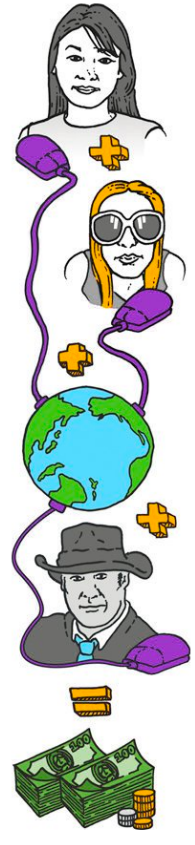
1993 Q. Tarantino & R. Avary *Pulp Fiction* (film script, last draft) 67

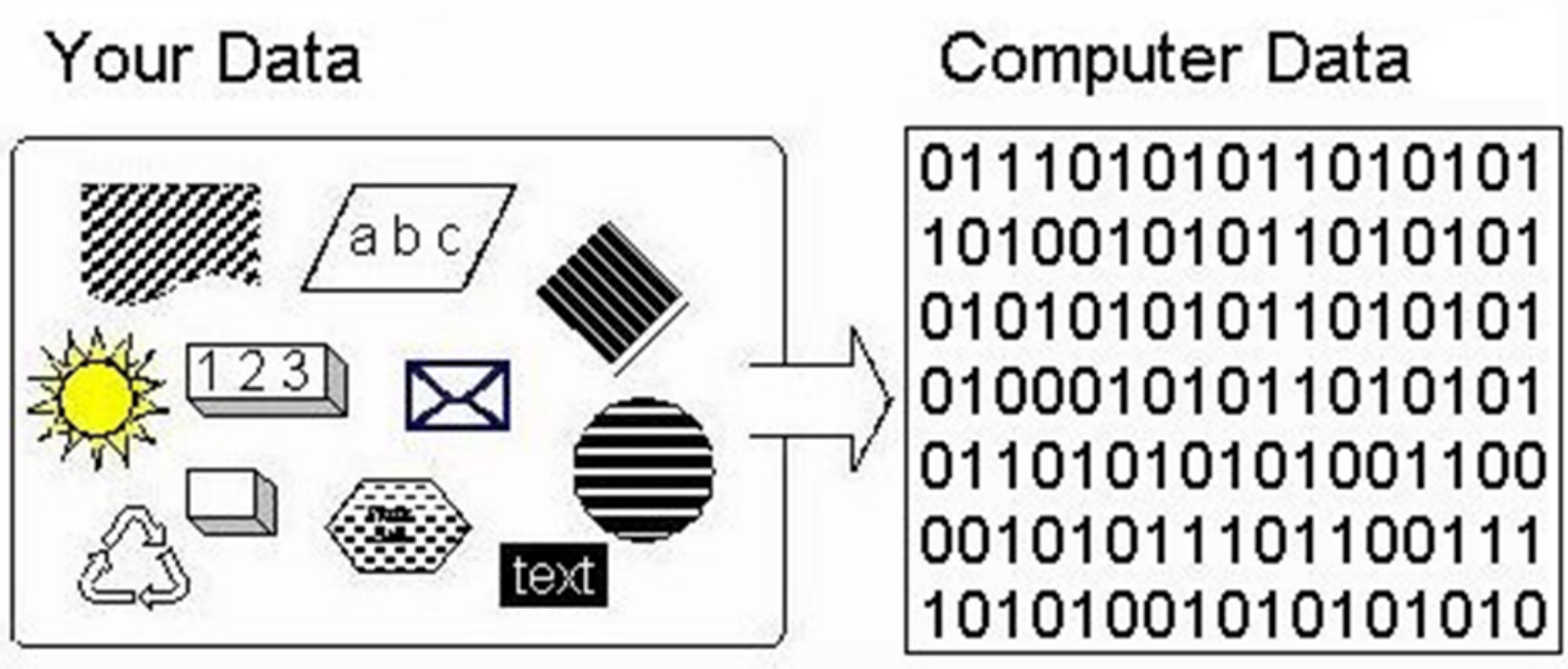
> *Vincent*. I'm gonna take a piss.
> *Mia*. That was a little bit more **information** than I needed to know, but go right ahead.

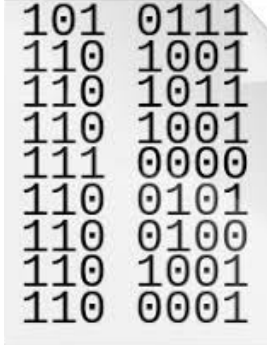
About ACX

ACX is a marketplace
where authors, literary agents, publishers, … can connect with narrators, engineers, recording studios, …

Examples of the *information* we collect and analyze include the Internet protocol (IP) address used to connect your computer to the Internet; login; e-mail address; password; computer and connection information such as browser type, version, and time zone setting, browser plug-in types and versions, operating system, and platform; the full Uniform Resource Locator (URL) clickstream to, through, and from our Web site, including date and time; cookie number; products and services you viewed or searched for; and the phone number you used to call our 800 number. We may also use browser data such as cookies, Flash cookies (also known as Flash Local Shared Objects), or similar data on certain parts of our Web site for fraud prevention and other purposes. During some visits we may use software tools such as JavaScript to measure and collect session information, including page response times, download errors, length of visits to certain pages, page interaction information (such as scrolling, clicks, and mouse-overs), and methods used to browse away from the page.




Your Data
Computer Data
a b c
1 2 3
text
0111010101101010 1
0100101011010101
0101010101101010 1
0100010101101010 1
0110101010100110 0
0010101110110011 1
1010100101010101 0


101 0111
110 1001
110 1011
110 1001
111 0000
110 0101
110 0100
110 1001
110 0001


WHO
WHAT
WHERE
WHEN
WHY
HOW
QUESTIONS
ANSWERS

Keep It Simple … (KISS)

The KISS principle states that most systems work best if they are kept simple rather than made complicated; therefore simplicity should be a key goal in design and unnecessary complexity should be avoided.

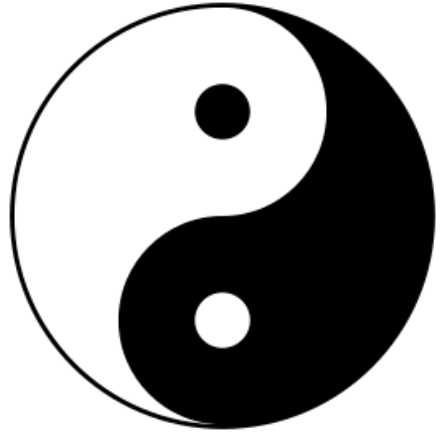
This works in theory as well as in practice.

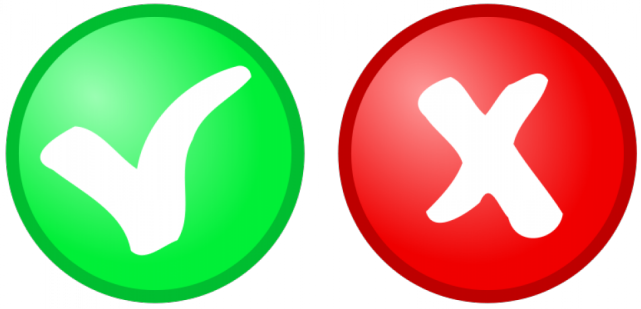
- Each observation/sensor/question always gives an answer

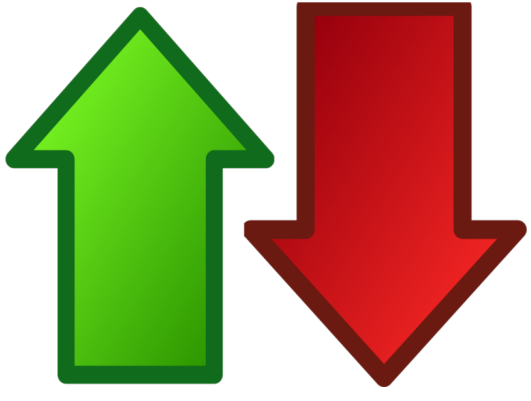
- For each observation/sensor/question there are only **finitely many possible answers**

- In the *simplest case* for each observation/sensor/question there are only **two possible answers**

- Binary data
  0/1 no/yes off/on false/true low/hi ying/yang …

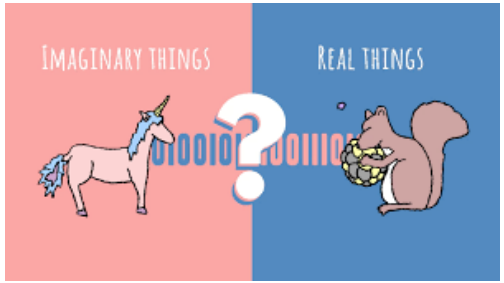






⊤ 1

⊥ 0



Our general setting

- A finite **set** of things
  (which may be imaginary)