STATISTICS

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The collective information about a system's past state is called **data**.

It assigns **probabilities** to each possible future state of system based on data.

It also assigns probabilities to the **possibility of wrong prediction**.

EXAMPLE – BIASED COIN?

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H for 'heads', *T* for 'tails'.

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  - We got 7 heads out of 10 tosses, so the probability for the next toss being heads is $7/10$.
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- Is this coin is **biased towards** 'heads'/'tails' with *allowed probability of error* α?
  - **No**, for $\alpha = 0.05$.
  - **Yes**, for $\alpha = 0.2$.

Contents

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WHAT DO WE MEAN BY DATA?

DATA
Two sets (called *inputs* and *outputs*) describing the studied system.