

# 6.00 Introduction to Computer Science and Programming

- Goal:
  - Become skillful at making a computer do what **you** want it to do
  - Learn computational modes of thinking
  - Master the art of computational problem solving

# What does a computer do?

- Fundamentally a computer:
  - Performs calculations
  - Remembers the results
- What calculations?
  - Built in primitives
  - Creating our own methods of calculating

# Is that all it does?

- A billion calculations per second



- 100s of gigabytes of storage

# Are simple calculations enough?

- Searching the World Wide Web
- Playing chess
- Good algorithm design also needed to accomplish a task!

# ... so are there limits?

- Despite its speed and storage, a computer does have limitations
  - Some problems still too complex
    - Accurate weather prediction at a local scale
    - Cracking encryption schemes
  - Some problems are fundamentally impossible to compute
    - Predicting whether a piece of code will always halt with an answer for any input