



CS 100

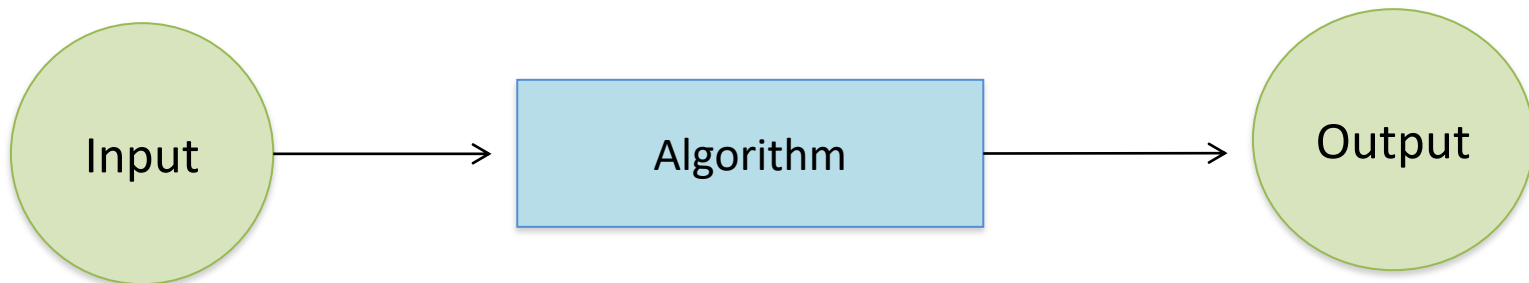
Scientific Computing

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What is computer science (CS)?

E. Dijkstra: “The term *computer science* is like referring to surgery as *knife science*.”

- **Computer science** is the study of algorithms and how to solve problems.
- An **algorithm** is a step by step procedure for performing some task (example: sorting a set of integers) in a finite amount of time



Where is computer science? Everywhere!

- Information sharing: google, word processors, presentations, image editing
- Social media
- Video games
- Mobile applications (GPS, calls, texting, pictures, etc.)
- Car
- Household appliances (fridge, washer/dryer, TV, home assistant)
- Wrist watch / smart watch
- Traffic light control
- Databases
 - Banking
 - Academic
 - Employment
- Health & Medical devices
 - Pacemakers
 - MRI machines
 - CAT scans
 - Glucose monitoring

How we'll study computer science

- Write many small to medium sized programs
- Programs solve a variety of (mainly scientific) problems
 - Plotting functions and data
 - Approximating Pi
 - Encryption
 - Statistics
 - Create simulations to model complex behavior
 - Image manipulation
 - Game development
 - And many others!
- Tools
 - **Language:** Python
 - **IDE** (Integrated Development Environment): Thonny

Administrative info

- Thonny
- Course Website & Moodle
- Syllabus
- Piazza
- Teams