
CS 105: Introduction to Computer Science

— Prof. Thao Nguyen —

Spring 2025

Materials adapted from Dave Wonnacott

Logistics: Final Project

- Teams of 2-3 (finalize by **March 21**)
- Custom project (proposal due March 21 over email)
- Presentations on the last week of class
 - Skipping the presentation will result in a 25% reduction in the final project score
 - Attendance will be taken

Dictionaries

An important data structure in Python and most other languages

- *A collection*, like a tuple or list
- *Mutable* and *variable-size*, with consistent element types like a list
- Indexed by *key* rather than by *index*, inherently unordered

Good for the idioms

- find/change this element
- look at all elements

Demo: phone book, as `List[Tuple[str, int]]`, or `Dict[str, int]` (like [python.org docs](https://python.org/docs))
can use `[]`, `len`, and `"in"`

Exceptions

Parameter values (or other things) can interfere with normal execution

e.g., what if we pass a negative number to `math.sqrt()`?

what if we try to open a file but it's not there?

what if we try to read an integer but the user types "hello"?

Modern languages often provide *exception handling* features for this

- Code discovering the problem *raises* (or *throws*) an exception
- Code that called upon it can *catch* the exception

Official Python documentation [here](#); list of exceptions [here](#)

Handling and Producing Exceptions in Python

Demo/example: how the precondition function indicates a problem

Demo/example: reading an integer but the user types "hello"