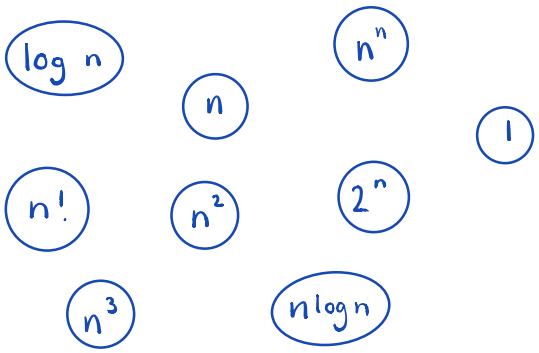
Agenda: ~Actual 61Beauty starts . . .

- Runtime Activity
- ADT Overview + Problems/worksheet
  - → Sets
  - → Maps
  - → Lists

Order the following runtimes from fastest to slowest: (bigocheatsheet.com) ← useful!



Try plugging values: n = 10

$10! = 1 \times 10^{10}$

$10^{10} = 3628800$

exponentials always dominate polynomials

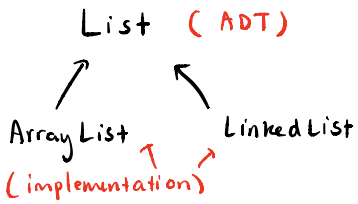
$2^{10} = 1024$

$10^2 = 100$

Solution: 1, logn, n, nlogn, n^2, n^3, 2^n, n!, n^n

Abstract Data Types

- defined by its operations, not by implementation



- not Abstract Classes ✗
- How these ADTs work = purpose of our class
  - → Interfaces

∴ diff runtimes for specific functions w/in ADT

Lists

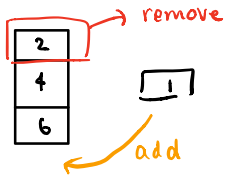
- ordered seq.
- "array w/ unbounded size"
  - fixed size
- Use: when order matters

Maps:

- key value pairs (keys unique)
- "dictionary in python"

Queues:

- FIFO : First In, First Out
- waiting in line (rollercoaster)



Sets:

- unordered collection
- Use: contains is constant → ask! to compare w/ lists

Stacks:

- LIFO : Last In, First Out
- dishes, pancakes
- → push(int x) : puts x on top of stack
- → int pop() : Removes & Returns top item from stack