

Lecture 4, 20 August 2026

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Programming and Data Structures with Python

Change the question

- Primes upto n

2 n

- First n primes

2 . . . ?

for i in ——— list
sequence like $\text{range}(n)$

Generate 2, 3, . . . till we find n primes

while loop

$l=2$

we have < 100 primes

while condition?

≡ Check isprime(i)

≡ $i = i+1$ ← to progress

Does my loop terminate?

Not computable! — Alan Turing "Halting Problem"

Boolean values

Operations

and
or
not

~~xor~~
~~1~~
~~-~~

AND

x \ y	F	T
F	F	F
T	F	T

x and y

OR

x \ y	F	T
F	F	T
T	T	F

XOR

Programming

Instructions

Values

"Scalars"

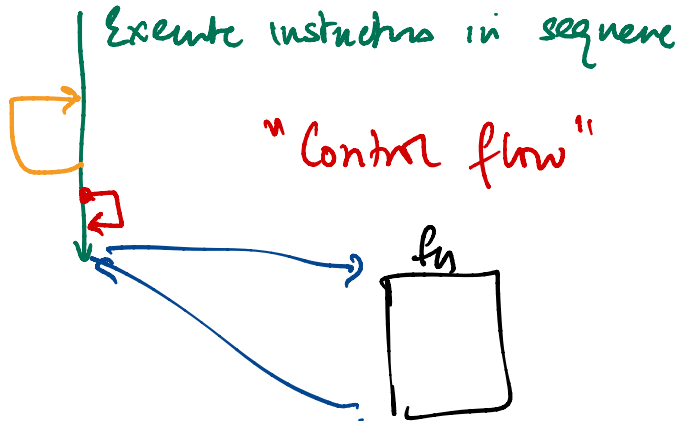
int

float

bool

Collections

- Lists
Dictionaries



Lists

pos 0 1 2 3 4

$l = [1, 2, 3, 4, 5]$

 -5 -4 -3 -2 -1