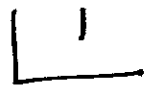


CSE 20 9-30-21

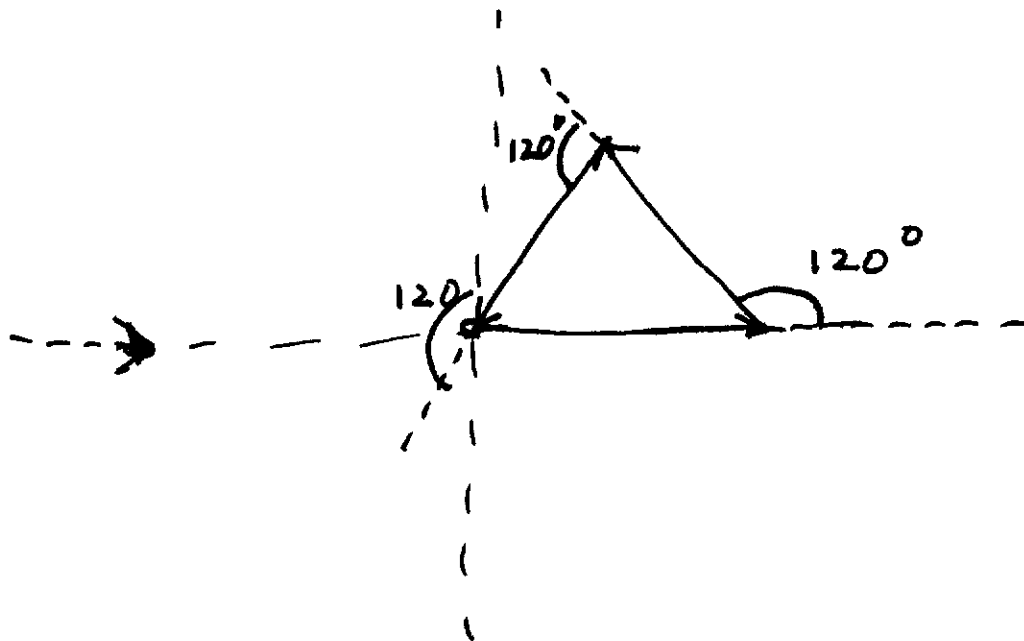


Read = char 3 (functions)
= char 4 (... turtle module...)

Example

Turtle 2.py

Turtle 3.py



Types of Control Structures

- sequential ✓
- iterative (loops)
- conditional (branching)

Iterative control structures:

For loop

loop control variable (LCV) →

loop heading →

for variable in list :

do something

:

do some other thing

} loop body

end for ←

Some other stuff.

all indentation must be same

I like
3 spaces

not necessary
but I think
adds to
readability

note a list can consist of any 3
objects

['one', 'two', 'three']

[1, 2, 3]

[1.0, 2.0, 3.0]

[1.0, 2, 'three']

Loop 1. Py ✓

Loop 2. Py

Loop 3. Py (larger list)

Range object

$\text{range}(a, b) \sim [a, a+1, \dots, b-1]$

$\text{range}(a) \sim [0, 1, 2, \dots, a-1]$

$\text{range}(a, b, c)$

↑ ↑ ↑
start stop step size

Loop4.py computer

$$1 + \frac{1}{2} + \frac{1}{3} + \dots + \frac{1}{n}$$

n^{th} Harmonic number

compound assignment operators

$$a = a + b \quad a += b$$

$$a = a - b \quad a -= b$$

$$a = a * b \quad a *= b$$

$$a = a / b \quad a /= b$$

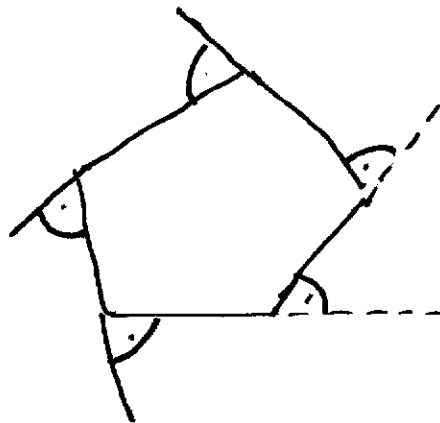
$$a = a // b \quad a //= b$$

$$a = a \% b \quad a \% = b$$

↑
remainder

Ex TurtleLoop1.py

Pentagon



Ex. TurtleLoop2.py

of iterations is obtained
from user input .

Ex. Turtle Loop 3.py

beginfill()

endfill()

\$ cd ~/Desktop

file system!

