Loops – 1

=> Functions HW Q2

Can skip the Sum of Even HW Q in last class.

Today's Agenda :

1. Recap
   1) – Print all nums 1 to N
   2) – Print all nums N to 1
   3) – Print all odd/even nums 1 to N.

After fn class.

return sum

2. Problem Solving Mixed
   - Integer division
   - print all digits in reverse order.
   - Count no. of digits
   - Sum of digits
   - Multiple Inputs

Q1. Print all the nums from 1 to N in the same line.

N = 5

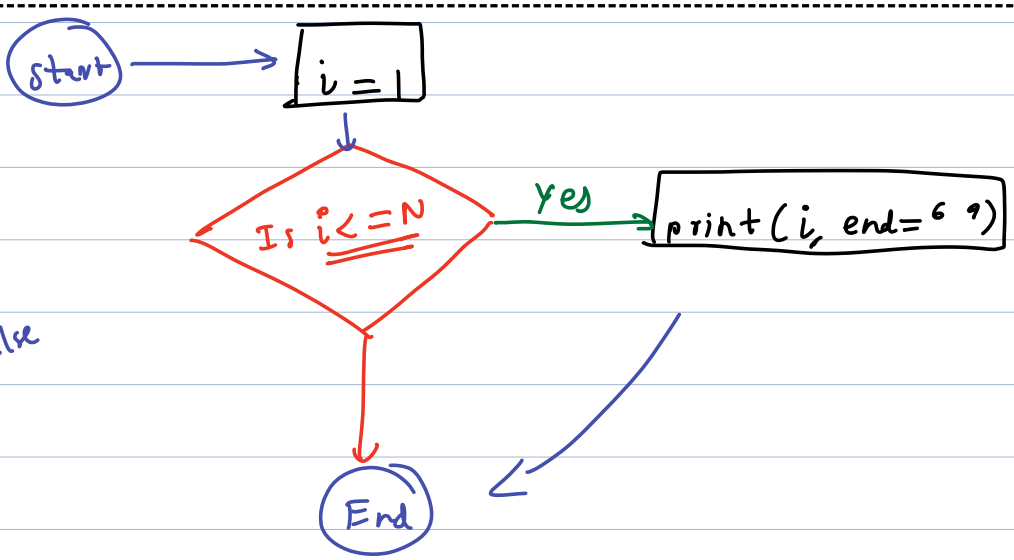
1 2 3 4 5

i = 1

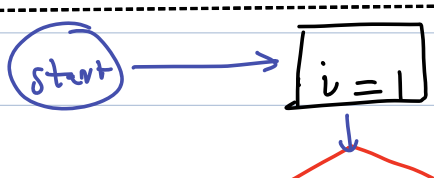
print(i, end=" ")

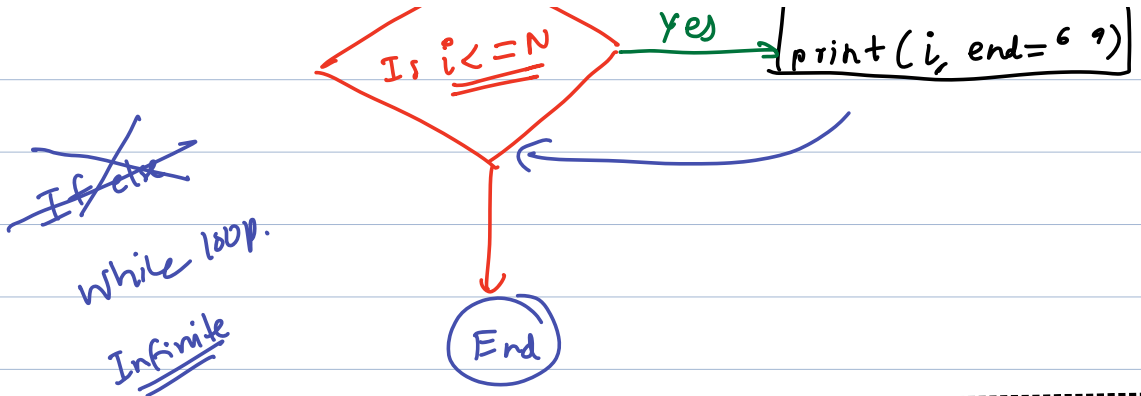
DRY

print(1, end=" ") i=1
print(2, end=" ") i=2
print(3, end=" ") i=3
print(4, end=" ") i=4
print(5, end=" ") i=5



If else





~~If else~~

while loop.

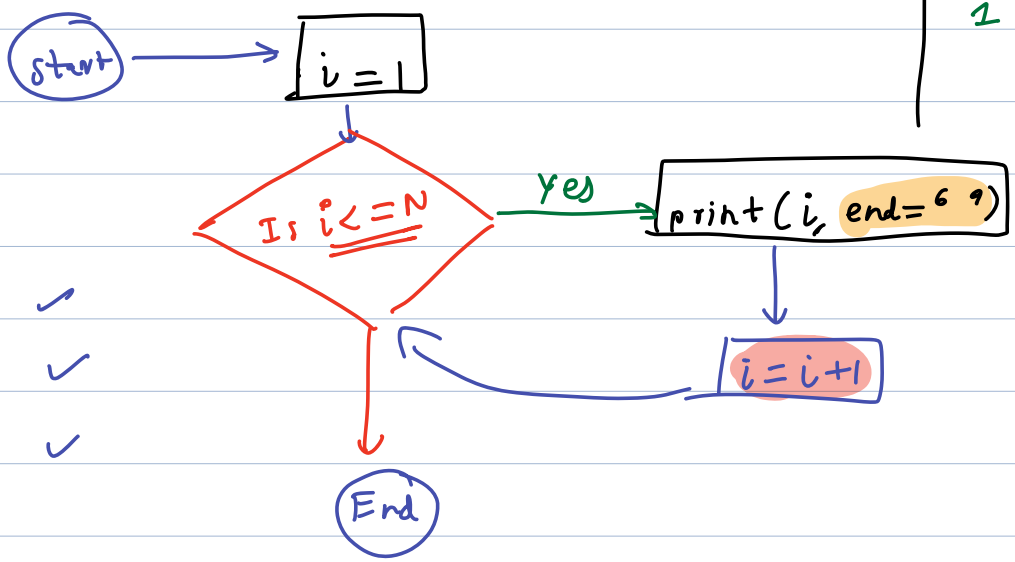
Infinite

Output

1 2 3

Dry Run

eg.



N = 3

i=1 ✓

i=2 ✓

i=3 ✓

i=4

Some special mathematical operators

* ⇒ Add and assign operator.

+=

i = 3

i = i + 1 → 3+1=4

✓ 1→ RHS is computed

2— RHS is assigned to the var on LHS.

i is 4 currently.

i = 3

i += 1 → i = i+1

→ First add to the same var on LHS

→ Then assign.

Quiz-1

a = 3

a = a + 3 (LHS, RHS.)

3+3 = 6

a will become 6.

Quiz-2

a = 6

a += 9

LHS ← a += 9 → RHS.

+= ⇒ a = a + 9

print (a)

1) First compute LHS + RHS

a + 9

= 6 + 9 = 15

2) Assign to the var on LHS.

⇒ a = 15.

* Decrement and assign

-=

*=

/=

%=

a = 6

a -= 9 ⇒ same ⇒ a = a - 9

6 - 9 = -3

a = 6

a *= 9 ⇒ a = a * 9

6 * 9 = 54

/ → float division

a = 6

a /= 9 ⇒ a = a / 9

6/9 = 0.666...

Float division

≃ 0.67

Integer division

↓

Floor

a = 6 // 9

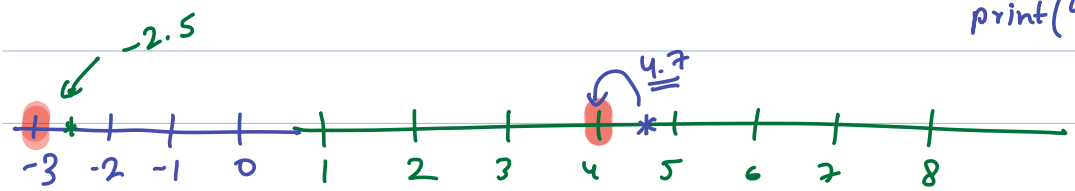
int (6/9)

int (0.667)

⇒ 0

Round off to nearest integer on the left

print(47 // 10)



print(-5 // 2) ⇒ -3

print(5//2) ⇒ 2

a = 6

a %= 9 $\Rightarrow$ a = a % 9

print(a)

6 % 9 $\Rightarrow$ 6.

$$9 \overline{)6} \quad 0 \text{ rem. } 6$$

NOTE:

Dividing by 2.

a % b

= a

when a < b

11 % 2 $\Rightarrow$ 1

$$2 \overline{)11} \quad 5 \text{ rem. } 1$$

Dividing [a] chocolates among b people.

Remainder-

(You want all of these b people to get equal).

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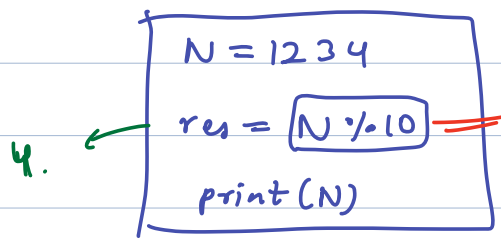
12 % 9

12 − 9 = 3

Q.2 Given a number N, print its last digit.

1234 → 1234 % 10 = 4



only res will get rem. N doesn't change.

Q.3. Given a num N, remove the last digit.

* When only 1 digit => print(0).

N = 1234 → 123

N = 123 → 12

N = 12 → 1

N = 1 → 0

$\frac{1234}{10} = 123.4$

1234 // 10 = 123.

$\frac{-1234}{10} = -123.4$

-1234 // 10 = -124.

N = 1234

N //= 10 => N = N // 10

print(N)

1234 // 10 = 123

Work for +ve num.

a = 12

a || = 9

a = a || 9

1

$\frac{12}{9}$ [1.333] = 1

Challenge 4: Print all digits of a positive number from right to left.

(No leading zeros)

0000123 ✗

I/P: N = 1234

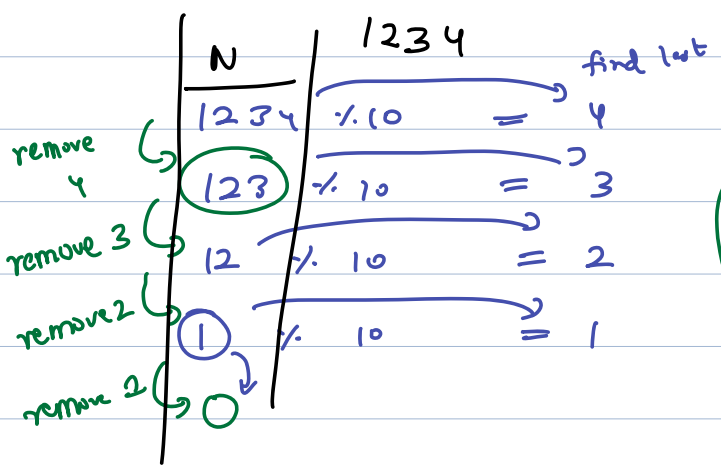
O/P: 4 3 2 1

I/P: 123

O/P: 3 2 1

I/P: 1

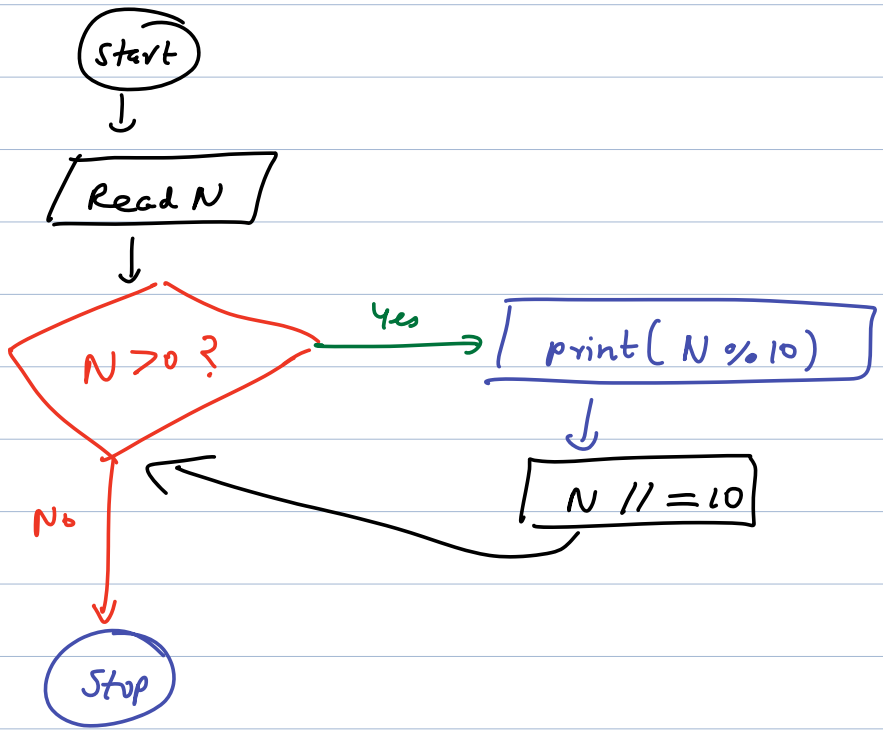
O/P: 1

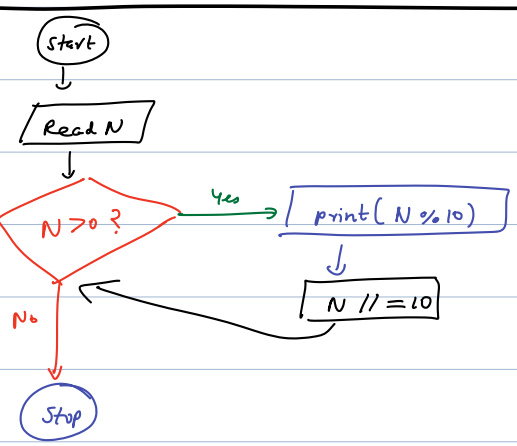


N

- Find last digit of N and print
- Remove last digit of N

Flowchart :





Pseudo code

```
N = int(input())
if N == 0:
    print(0)
while N > 0 :
    # print last digit
    print(N % 10)
    # remove last digit
    N //= 10
```

⇒ for input 0.

Q) Write a program to input T nums (N) from the user and print the number N.

Input.

3
123
9876
11727

Output:

123	3
9876	4
11722	5

Doubts

5
12 2
1 1
2 1
3 1
47 2