

# Loops

## If Statement

→ where

→ Repetitive tasks

for → Finite Loop

while → <sup>سُکھائی</sup> Infinite Loop



for

Iterable

Array → List  
→ tuple

Set

Dict

for number in → iterable

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}

white-space

for number in [1, 2, 3]:

    + \_\_\_\_\_  
    \_\_\_\_\_

←→  
indentation

for \_\_\_\_\_

for \_\_\_\_\_  
    \_\_\_\_\_

while loop تعداد تکرار را نمی داند

index = 0

while (index < 10):



Loop  
→

Flow Control

if-statement

if (value < 10):  
 print(value)

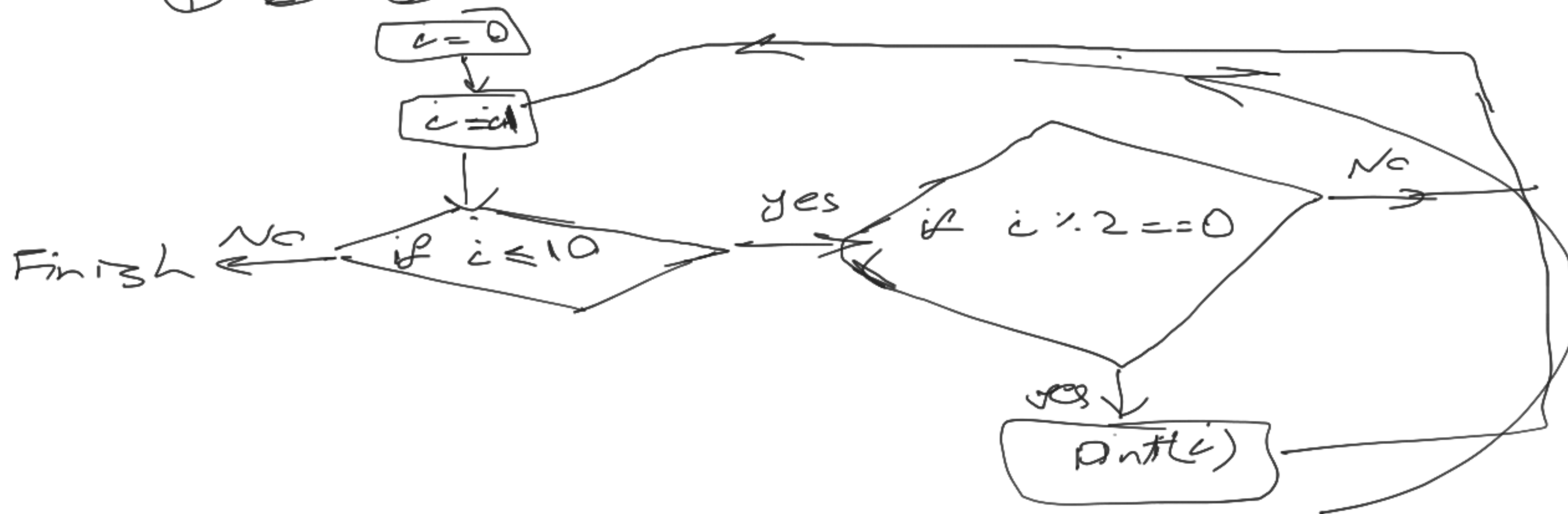
if ~:  
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elif ~:  
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elif ~:  
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elif ~:  
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else:  
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# Flow Chart

دینا سید شمس الدین

1071

① ② ③ 4 ... 10



$$n! = n \times (n-1) \times (n-2) \times \dots \times 1$$

$n$  عدد صحیح  $n > 0$  ,

$$1! = 1$$

$$2! = 1 \times 2 = 2$$

$$3! = 1 \times 2 \times 3 = 6$$

$$4! = 1 \times 2 \times 3 \times 4 = 24$$

...

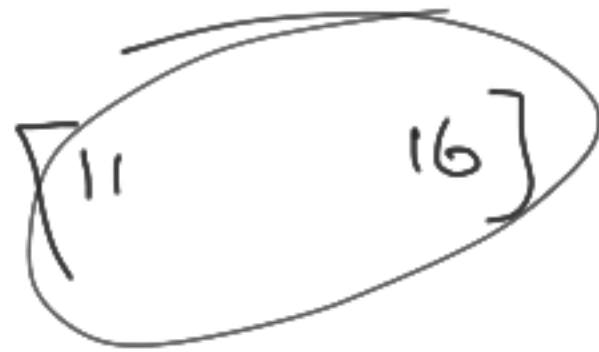
$n$

$$\underline{1} \times 2 \times 3 \times 4 \times \dots \times \underline{n}$$



↑ iterable  
range(start, stop, step)

11      21      5



for number in range(1, 11):



1, 2, ..., 10



# Fibonacci Sequence



$$a_n = a_{n-1} + a_{n-2}$$

n

$$a_1 = 1$$

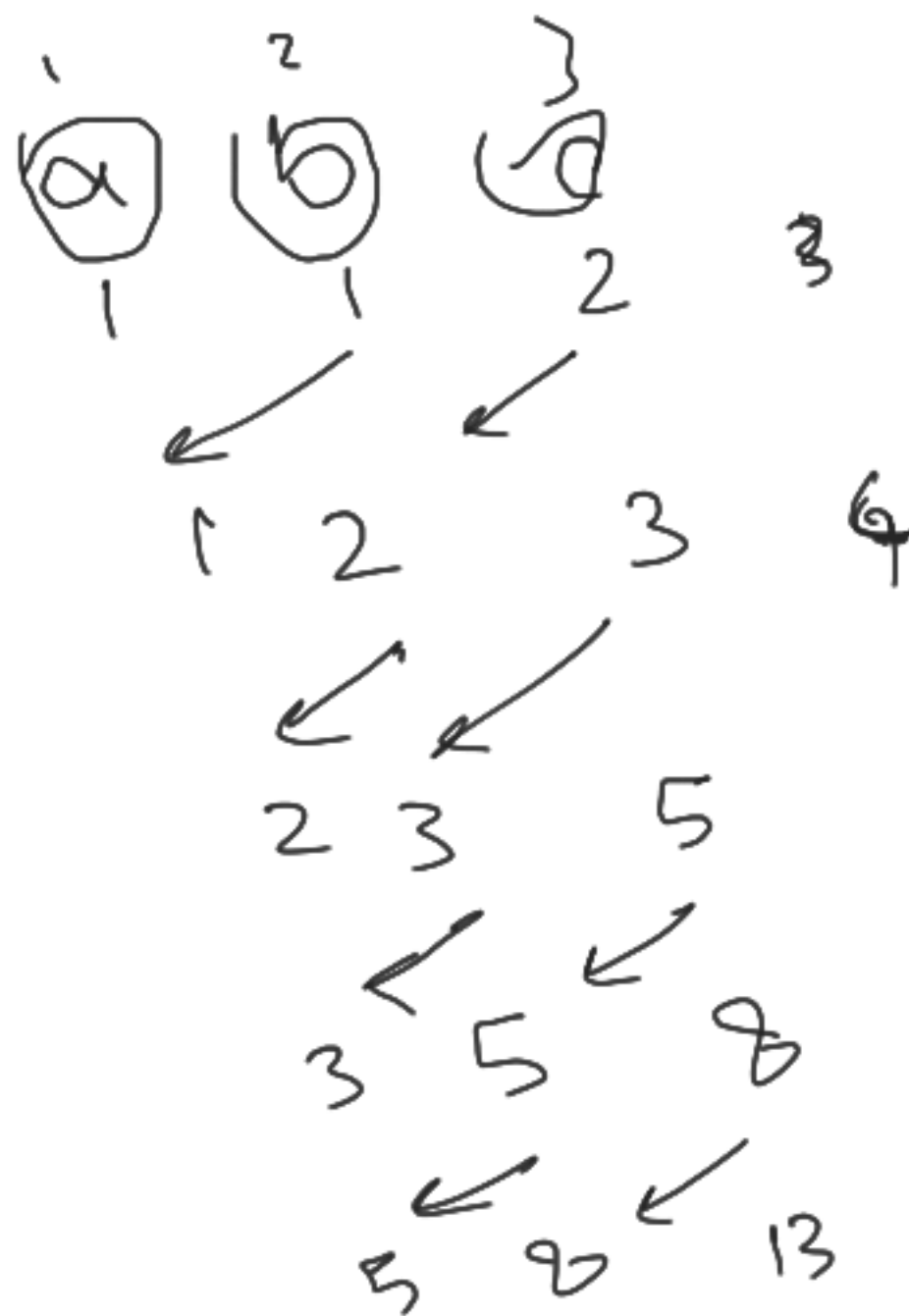
$$a_2 = 1$$

$$a_3 = a_1 + a_2$$

$$a_4 = a_2 + a_3$$

[0 0 0 0 0]

21



~~10~~ 7

$$a \begin{bmatrix} 0 & 0 & 2 & 0 & \dots & \dots & 0 \end{bmatrix}$$

$$\begin{array}{ccccccc} 0 & 1 & 2 & & & & 0 \\ \left[ \begin{array}{ccccccc} 1 & 1 & 0 & 0 & \dots & \dots & 0 \end{array} \right] \end{array}$$

$\xrightarrow{\text{row } 2}$

$\rightarrow ?$

# Prime Number

(n)

True

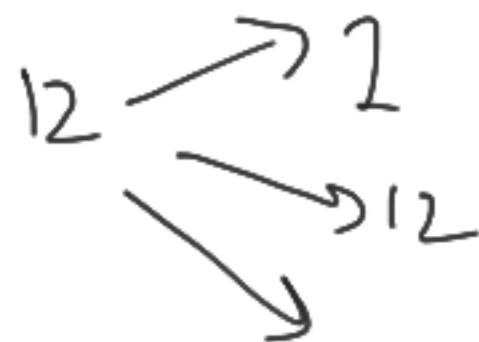
False

$1 < x < n$

↑  
sub

2

3



11 0 2

2 3 4

115768561 ~ ~ ~

121

2 129

2 12

11+1212

129000

n

$$1 < x < \text{int}(\sqrt{n}) + 1$$

