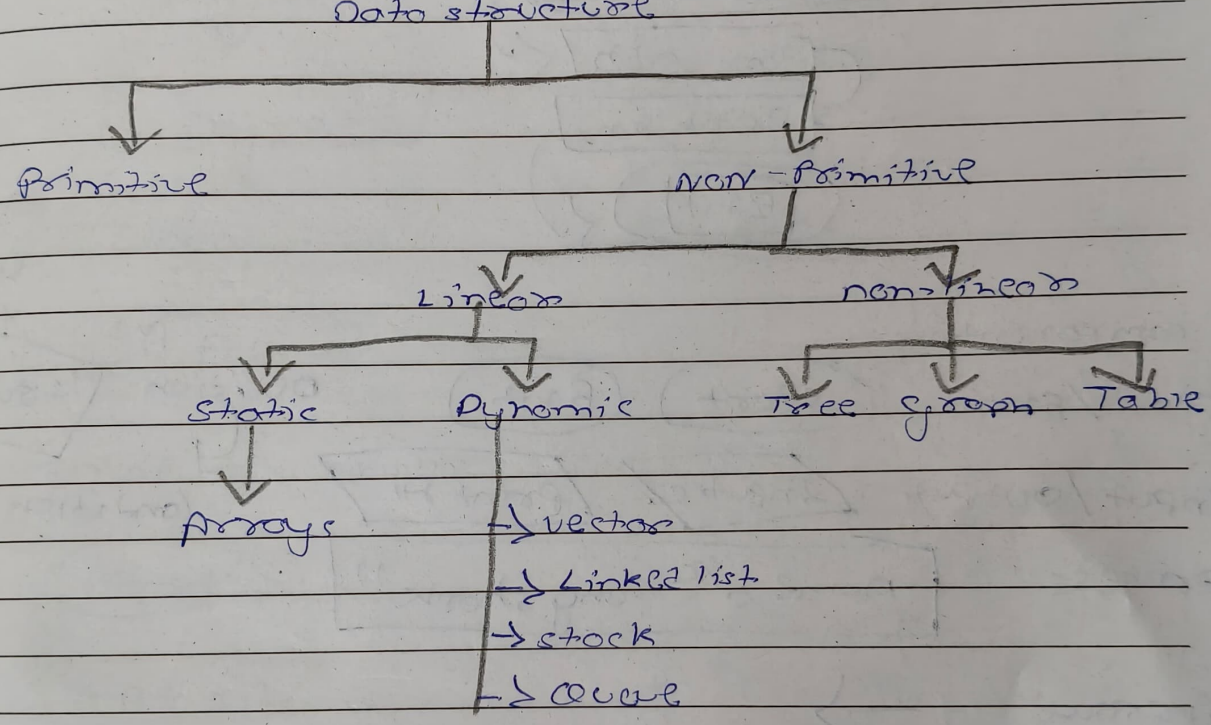
DSA.

Lecture 1: Flowchart and pseudocode

step for solving a problem
1. understand
2. Input (give values)
3. solution
4. code

flowchart



How to solve a problem?

Problem:- find sum of 2 numbers : a & b

sum = a+b

start
Input a & b
sum = a+b
print sum
Exit.

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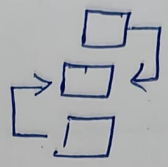
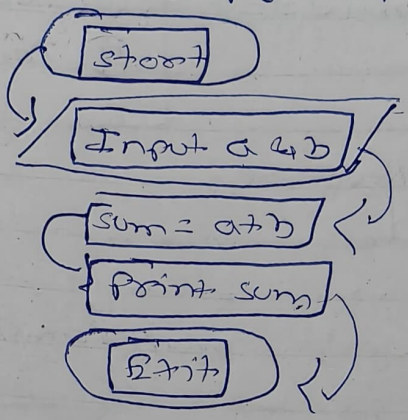
flowchart

→ Diagram of solution

→ It is start.

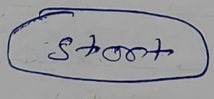


flowchart for perusion question

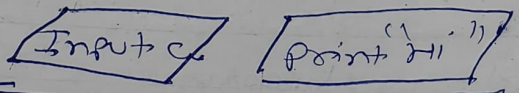


components

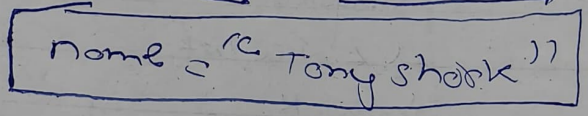
start / Exit



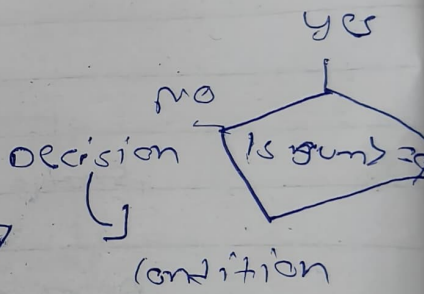
Input / output



process



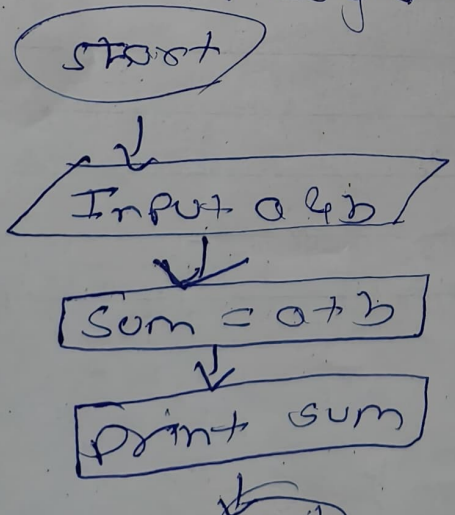
Arrows →



condition

Pseudo-code → English like

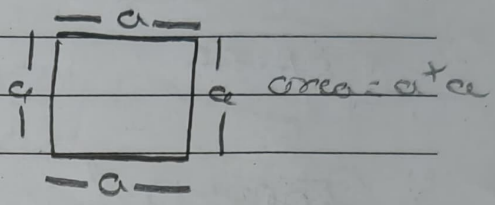
General Logic of solution

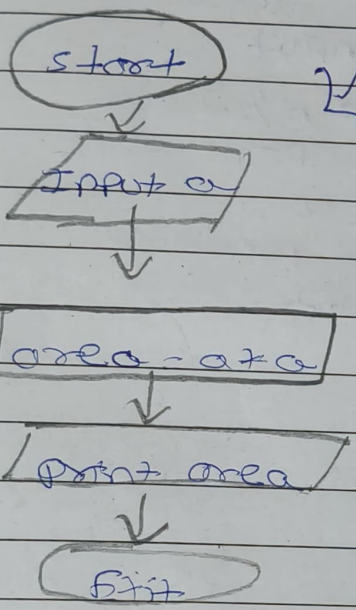


Pseudo code

1. Input a & b
2. sum = a & b
3. print sum
4. Exit

problem :- Area of square

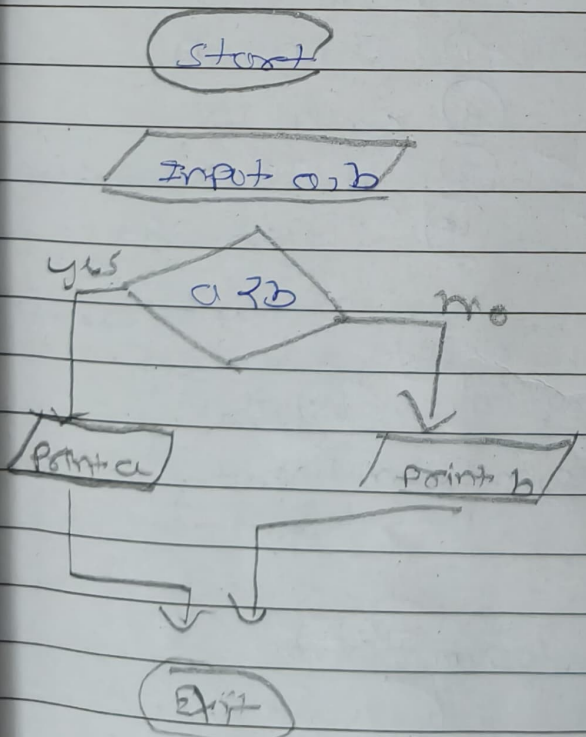




Pseudo code

1. input a
2. area = a*a
3. print area
4. Exit

problem of Two number

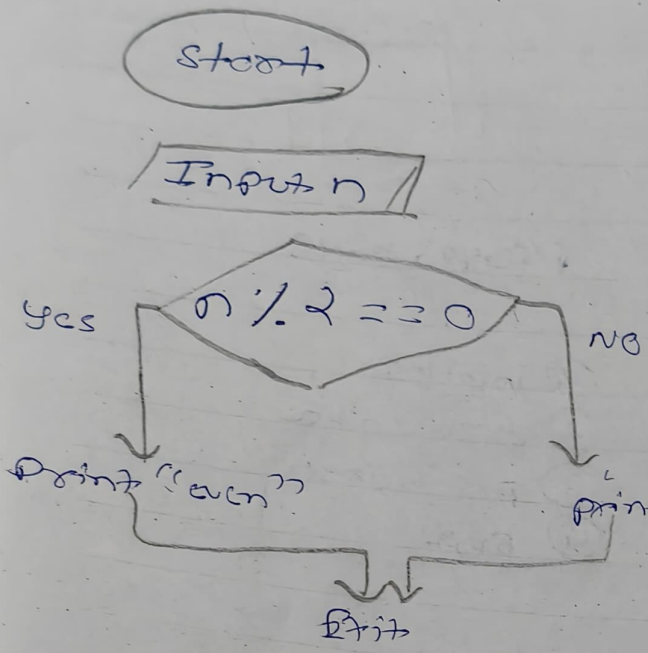


Input
↓
a, b

Pseudo code

1. Input a, b
2. If a > b
3. ↔ print a
   else
   ↔ print b
4. Exit

→ Is number odd or even



Pesudo code

1. Input
2. if n % 2 == 0
   print even
   else
   print odd
3. exit

→ Sum of number from 1 to N input → N

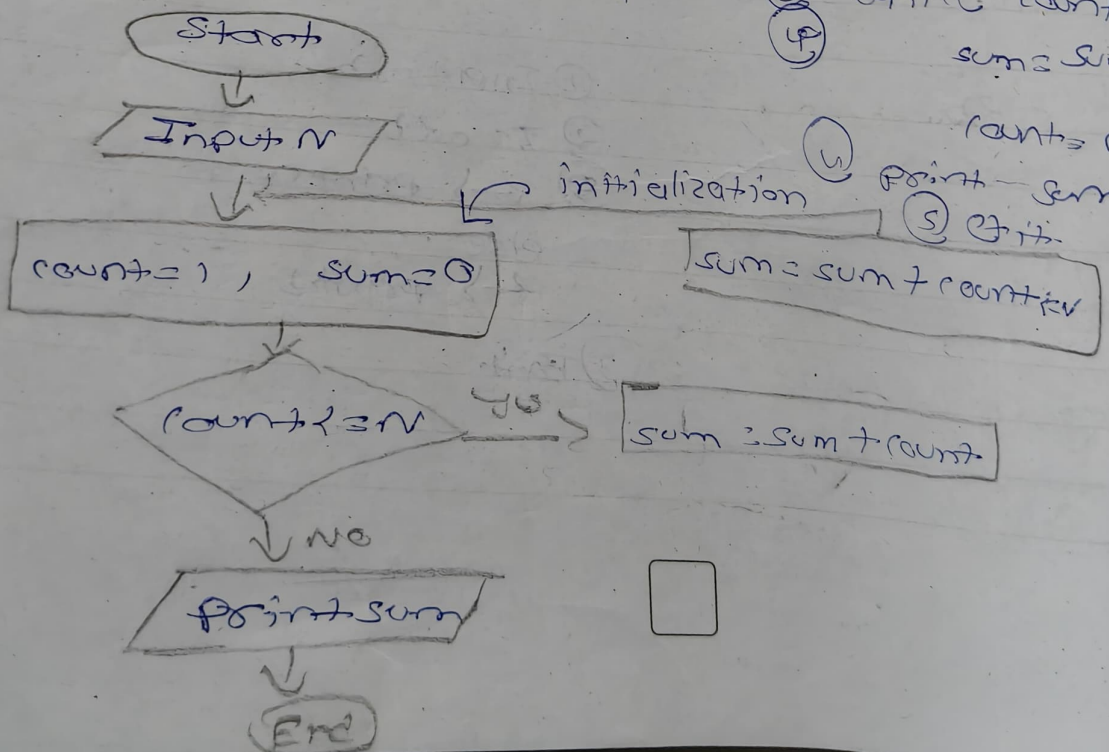
1 to N = 5

Sum = 1+2+3+4+5 N = 5

count = 2 sum = 0+1+2

Pseudo code

1. Input n
2. count = 1, sum = 0
3. while count <= n
4. sum = sum + count
   count = count +
5. Print sum
5. Exit.



Prime no -> 1, no
(n) 2, 3, 5, 7, 11, 13

Is number Prime or not

3 -> 1 7 -> 1 1*7] factors
3 -> 3 7 -> 7 7*1]

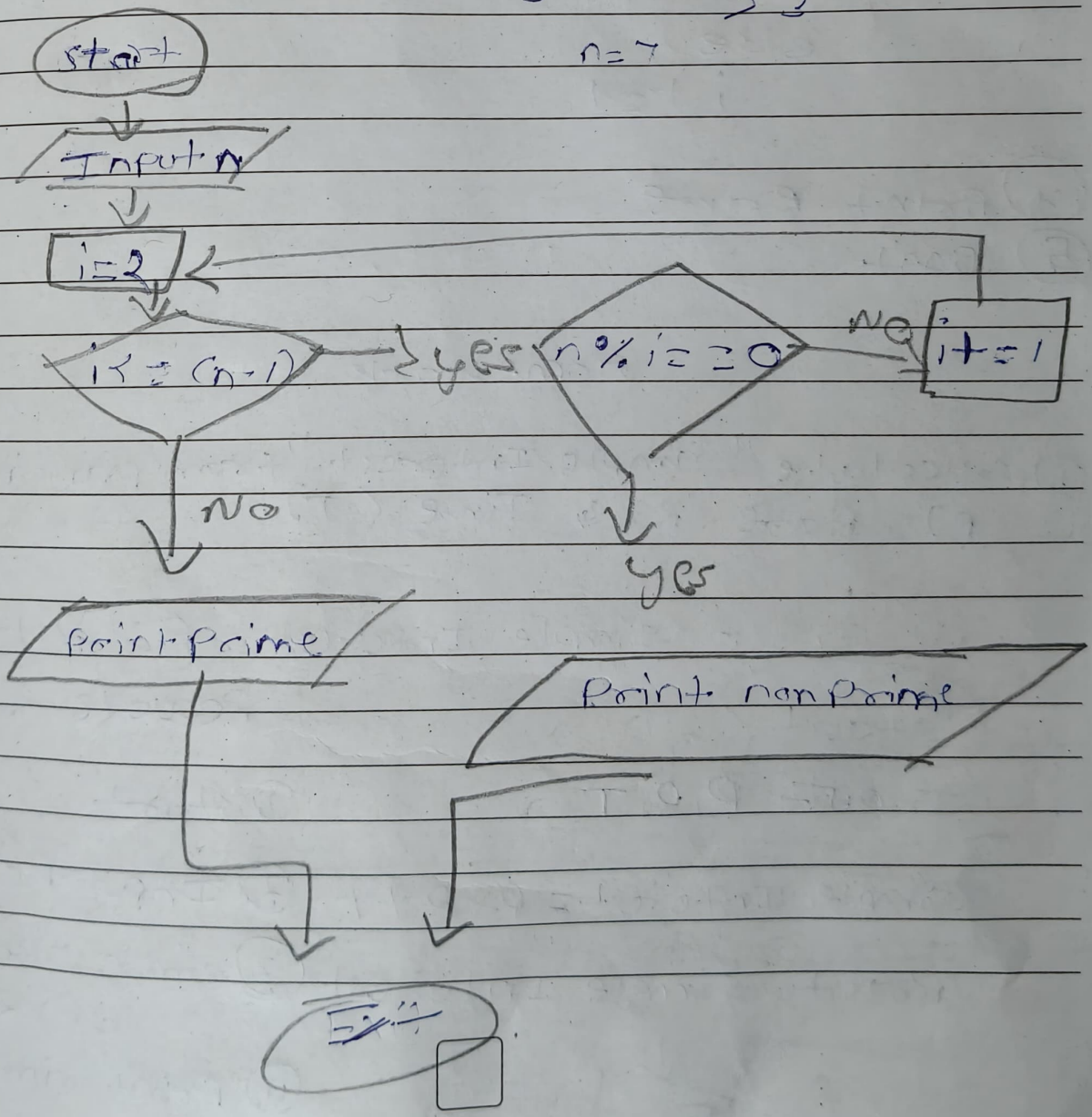
-> Is number prime or not

Prime ->
(n)

for n = 7

3 -> 1 7 -> 1 2, 3, 5, 7, 11, 13
3 -> 3 7 -> 7

n = 7



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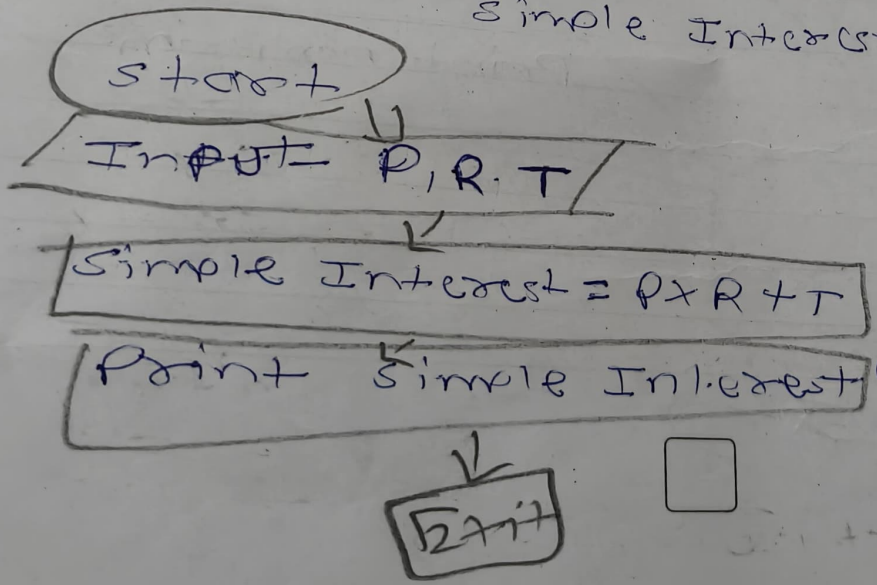
Pseudo code

① Input n
② i = 2
③ while i <= (n-1)
    if n%i == 0
        print "not prime"
        Exit
    else
        i = i+1
④ print prime
⑤ Exit

Homework

① Calculate "simple Interest" from principle (P), Rate (R) & Time (T).

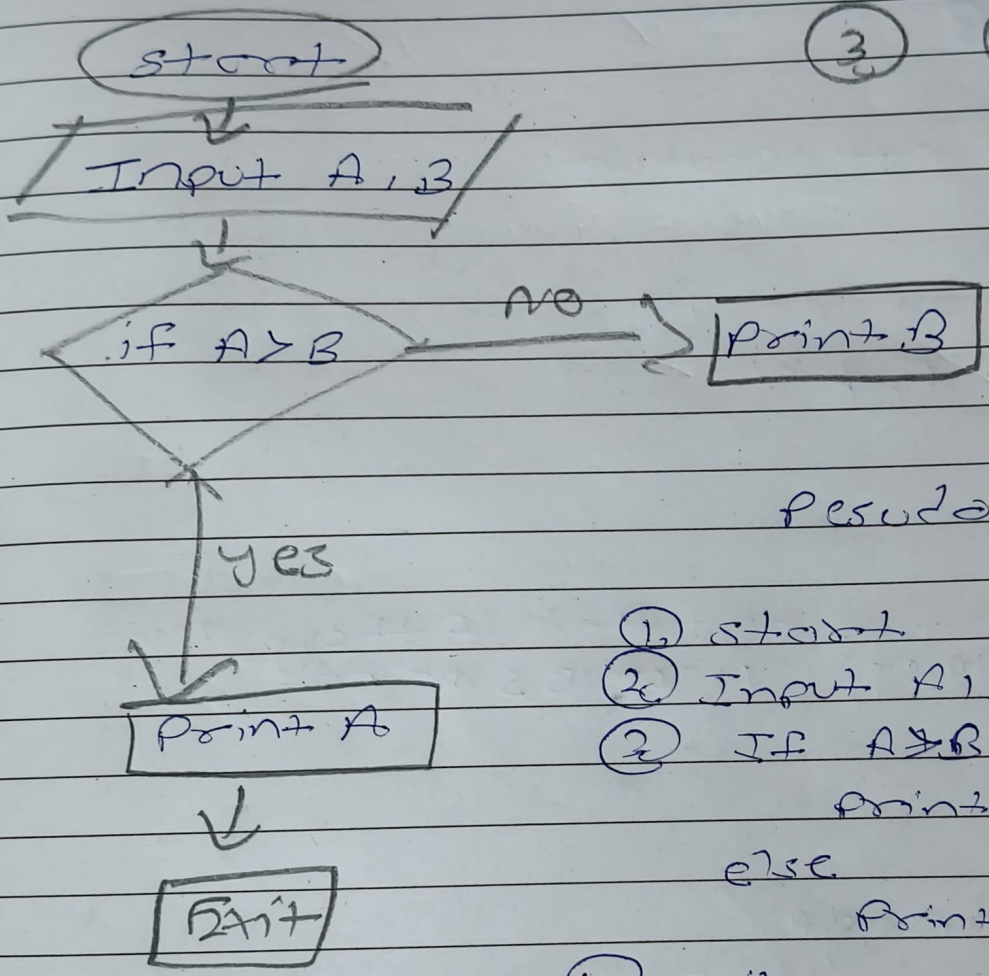
simple Interest = P x R x T



Pseudo code

① ~~Start~~
② Input P R T
③ simple Interest = P x R x T
④ Print simple

(b) calculate max of 2 numbers.



3 4 Input

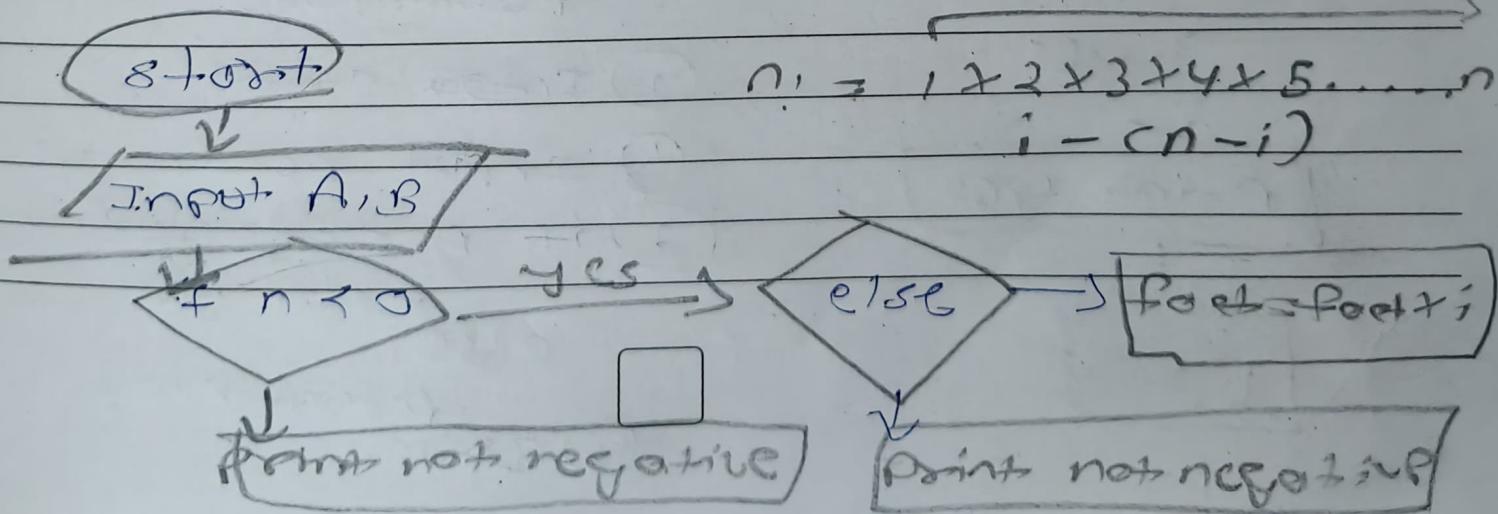
Pesudo code.

1. start
2. Input A, B
3. If A>B
   print A is max
   else
   print B is max
4. Exit

(3) calculate factorial of a number N

$n! = 1 \times 2 \times 3 \times 4 \times 5 \ldots n$

$i - (n-i)$

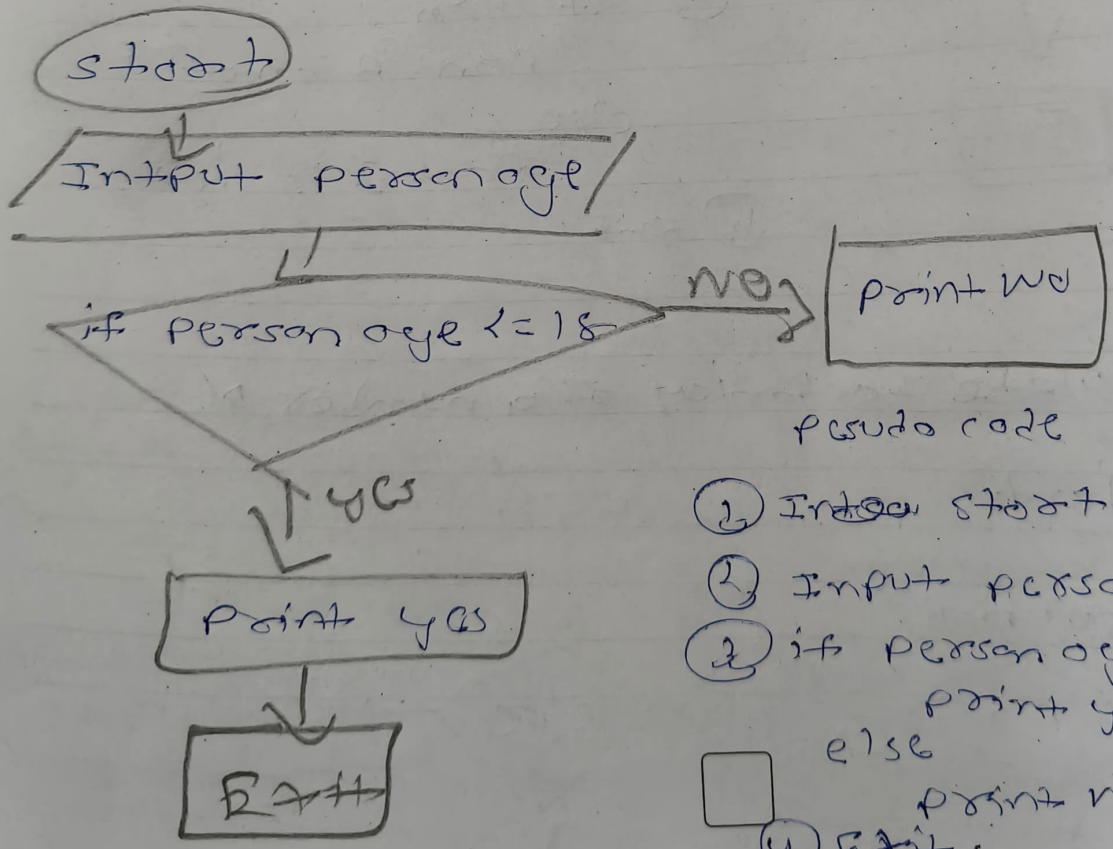


pesudocode

1. start
2. Input A, B
3. If n>0
   print not negative

   else
   for int i=0 i<n; i++
   fact = fact * i
4. exit.

4. Give a person age find if they are eligible for a driving licenses or not



pesudo code

1. Integer start
2. Input person age
3. if person age <= 18
   print yes
   else
   print no
4. Exit.