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How to solve a problem?

Ex. → Problem: Find the sum of two no's a & b.

⇒ (i) understanding the problem.

(ii) input.

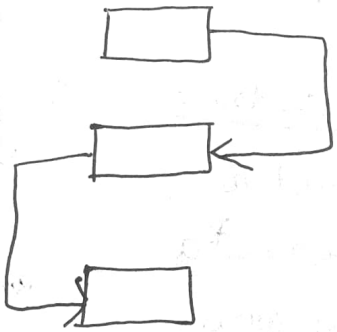
(iii) solution → (in form of flowcharts & pseudocode)

↓ Sum = a+b

(iv) Code → C++

lecture on → Flowchart & pseudocodes :-

Flowchart is defined as diagram of a solution.



(i) Start → Start

(ii) Input a & b. → Input a,

(iii) Sum = a+b. → Sum = a+b

(iv) Print Sum → Print "Sum"

(v) Exit → Exit

Arrows →

Process → name = "S"

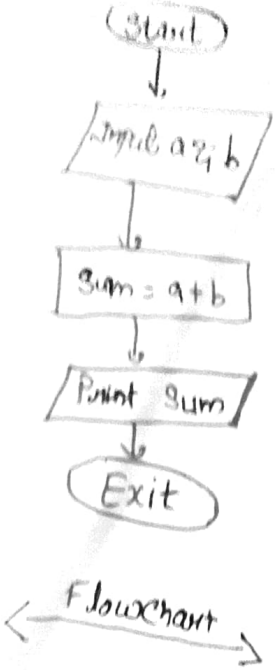
Decision → Condition

↳ Is sum > 0

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Pseudocode → English-like

Pseudocode is defined as general logic of a solution.



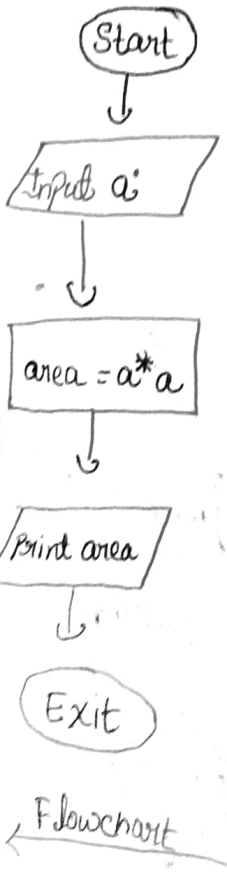
Flowchart

Pseudocode -

1) Input a, b
2) Sum = a + b
3) Print Sum
4) Exit

Pseudocode to get sum of the two numbers

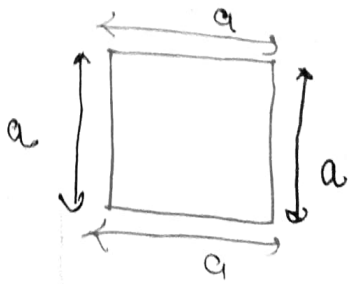
PRAC 01) Find the area of a square.



Flowchart

Pseudocode

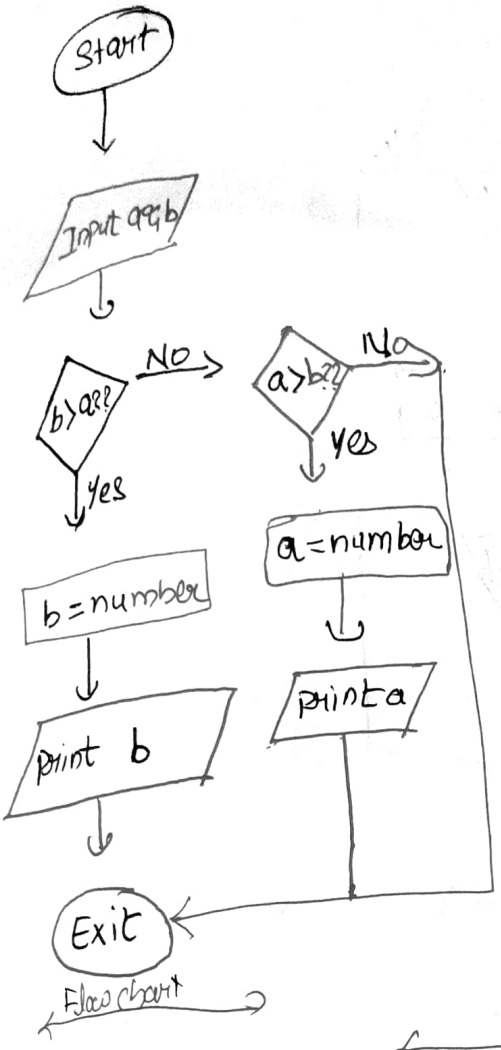
1) Input a
2) area = a*a
3) print area
4) Exit.



area = a × a

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PRAC 02> Find the minimum of two numbers.



Flowchart

Method 01

Pseudocode

1) Input a & b

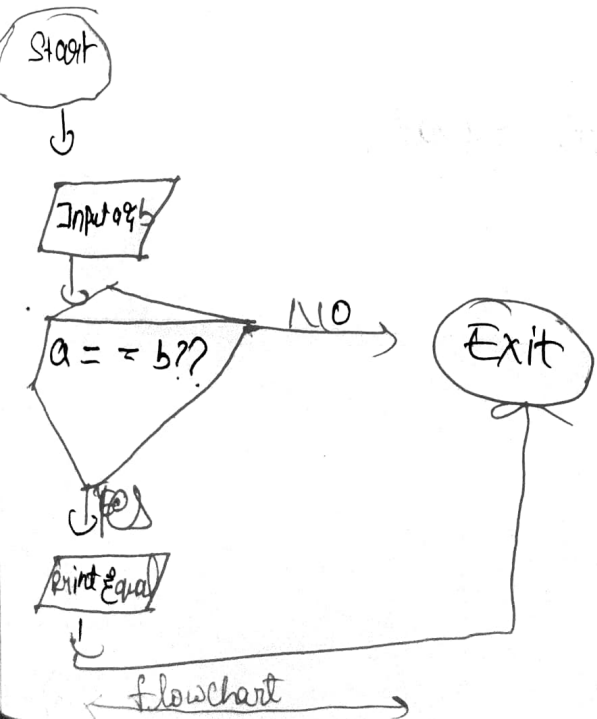
2) Is b>a or a>b

3) If b>a ; b=no. or else a>b ; a=no.

4) If b>a print b; If a>b print a.

5) Exit.

Method 2



flowchart

Pseudocode

1) Input a & b.

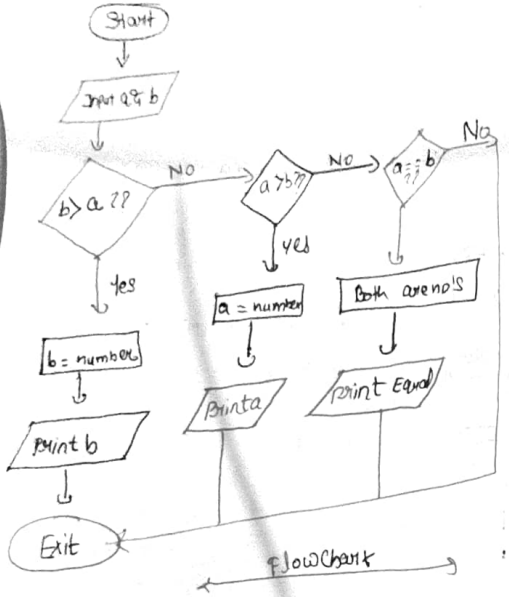
2) is a==b??

3) If yes; print equal else step4.

4) Exit.

METHOD 3

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flowchart

Pseudocode -

1) Input a & b.
2) If b>a ; b = no ; then print b .
3) Else a>b ; a = no ; then print a .
4) If a=b ; both are no's ; then print Equal .
5) Exit .

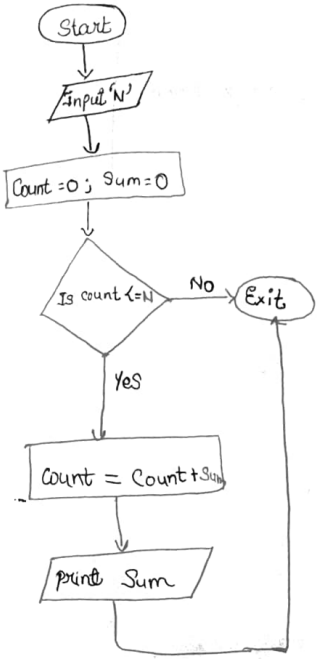
PRAC 03) →

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Try on own problems :-

1) Is no. odd or even] → Brainstorming.
2) Sum of no.'s from (1) to (N)]

Sol" (2)



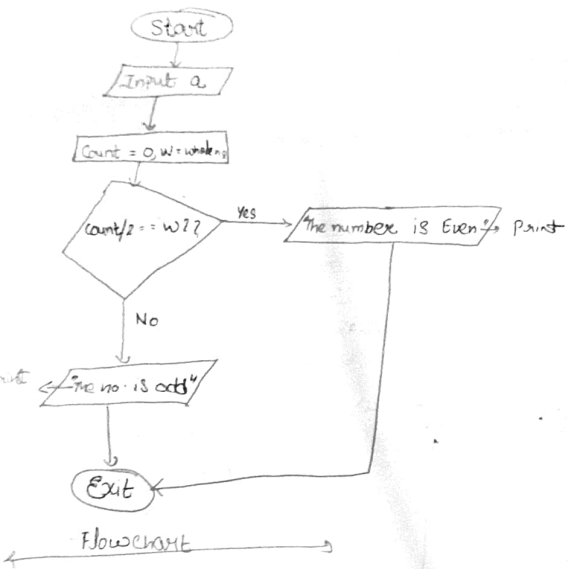
Flowchart



Pseudocode

1) Start
2) Input N
3) a) Initialize count to 0
   b) Initialize Sum to 0
4) Check if Count value is less than or equal to N.
5) If yes, then, Count = Count + Sum
6) Then, if no, Equally, ignore step (5).
7) print Sum.
8) Exit.

① No. add of Even :-





Flowchart

pseudocode

1) Start.
2) Input a.
3) Initialize count to zero & W is any whole no
4) if count/2 = W then, print no is Even.
5) else, print, no is odd.
6) Exit.

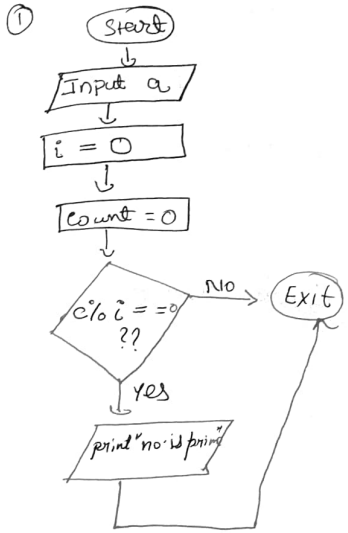
Try on own <-> [redacted] Homework.

① no. is prime or not.
② calculate simple intrest from principle(P), rate(R) & time(T).
③ Calculate factorial of number N.
④ Calculate Max of 2 nos.
⑤ Given a person's age, find if they should get driving license or not.

Solutions

① pseudocode

1) Start
2) Input a
3) initialize i to 0 & count to 0.
4) if c % i = 0, then print no. is prime.
5) else, skip step 4.
6) Exit.



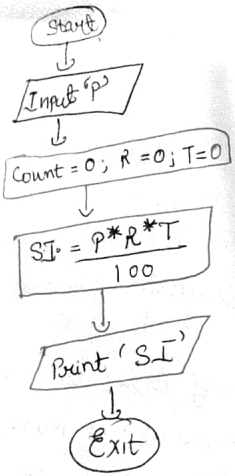
Flowchart

② Calculate simple interest from principal (P), rate (R), Time (T)

Soln (i) understand :-

$$SI = \frac{P \times R \times T}{100}$$

(ii) Flowchart :-



(iii) Pseudocode :-

1) Start.
2) Input P.
3) Count = 0, R = 0, T = 0 ; & the initialization.
4) $SI = \frac{P*R*T}{100}$
5) Print SI
6) Exit

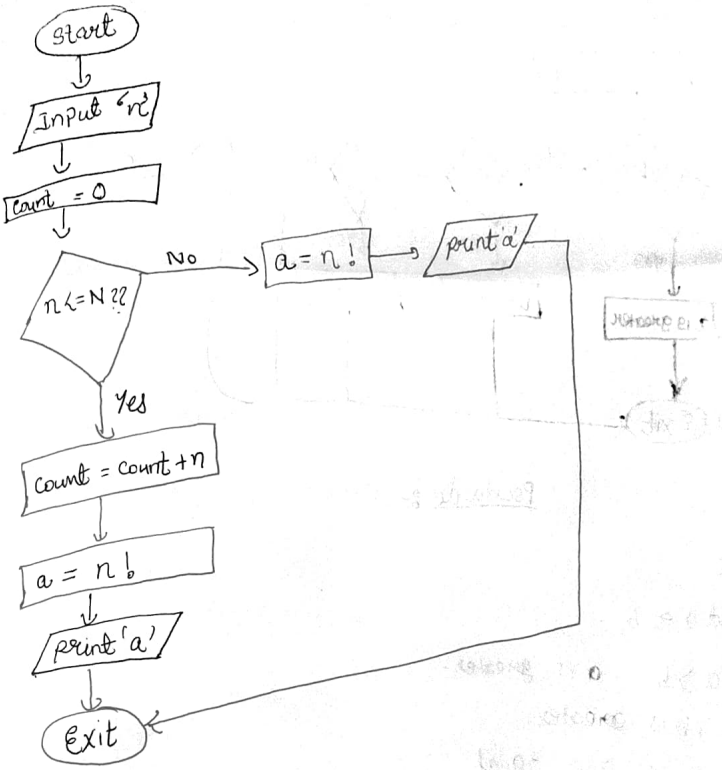
③ Calculate factorial of no. N. → Brainstorming

Soln (i) understanding :-

n → no. ✓
C → Count ✓
N → last limit no. ✓

N! = ?? → To find ✓

(ii) Flowchart :-

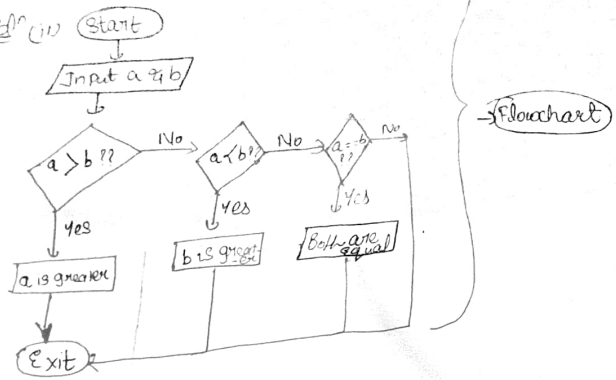


(iv) Pseudocode :-

① Start
② Input 'n'.
③ initialize count to 0.
④ If n <= N, then, Count = Count + n
⑤ Else, we ignore step 4.
⑥ a = n!
⑦ Print 'a'
⑧ Exit.

⑤ Max of 2 no's.

Sol^{n} (i) Start



Pseudocode :-

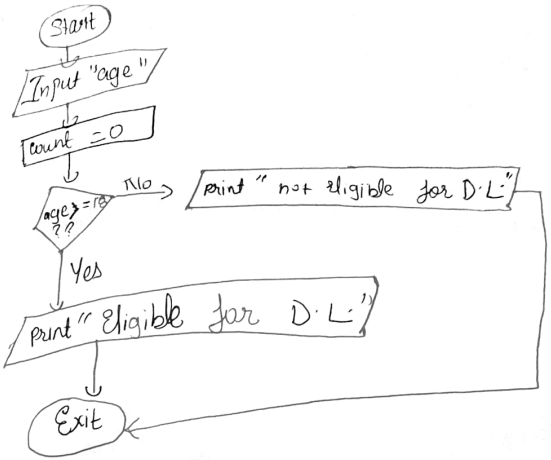
1) Start
2) Input a & b
3) If a > b, a is greater.
4) else, b is greater.
5) If, both are equal
6) Exit.

⑥ Given a person's age, determine he/she should get driving lisence or not.

Sol^{n} (i) understanding

D.L. is eligible if person age equal or greater than 18 only.

(ii) Flowchart :-



(iii) Pseudocode :-

1) Start.
2) Input age.
3) Count = 0, initialized.
4) If age >= 18, print person is eligible to get D.L.
5) else, print, person is not eligible to get D.L.
6) Exit.