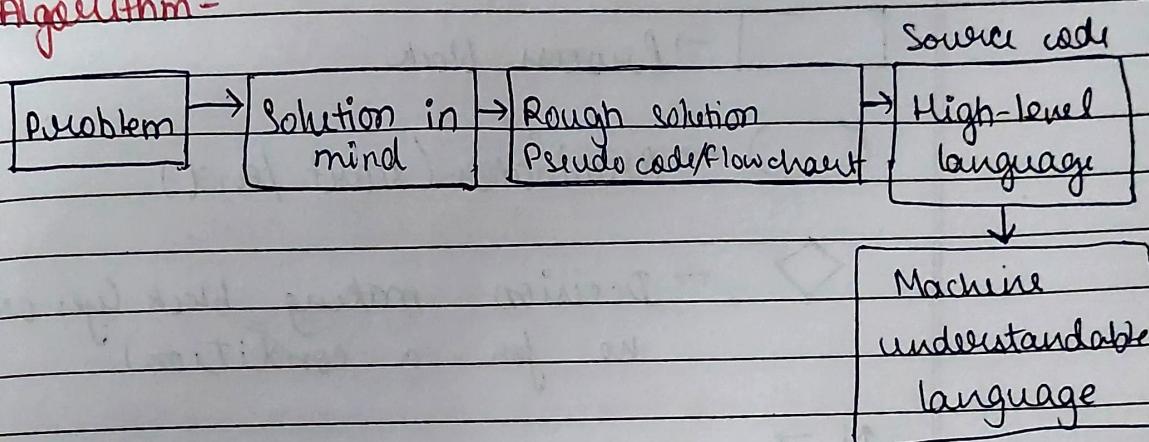


Programming Fundamentals

* Thought Process to solve a problem-

1. Understand the problem
2. Depend upon input/output values
3. Find the approach through algorithm

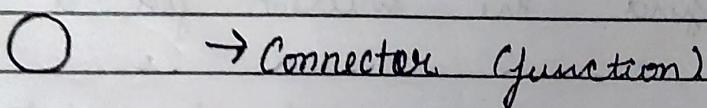
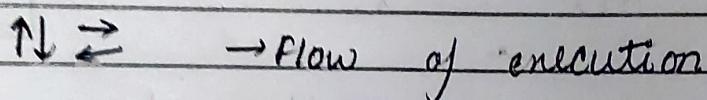
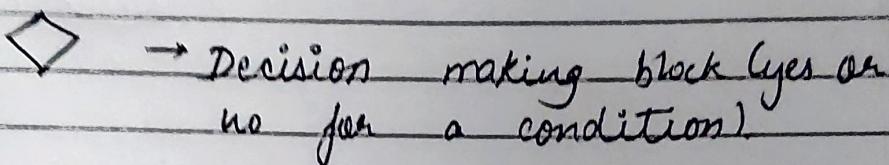
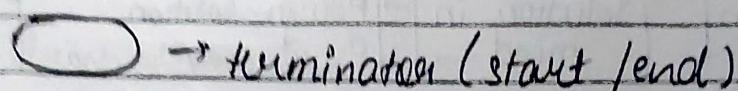
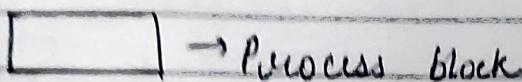
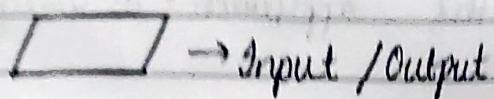
* Algorithm -



1. We are given a problem
2. We find the solution for it in the mind
3. Now we have to make it printed by the computer.
4. We make an algorithm on a rough solution to do so in the form of flowchart which is a diagram or in the form of pseudo code, which is in the form of English sentences.
5. Then, we convert it into high-level language
6. Computer converts it to machine understandable language

* Flowchart:-

Flowchart is a diagram in which steps or algorithm to solve a problem is represented in graphic form.



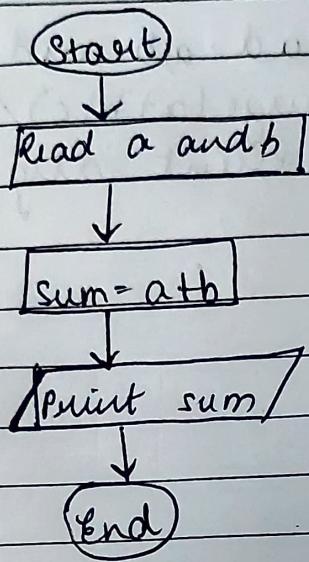
* Pseudo Code:-

It is a general way to represent steps or algorithm to solve a problem in form of steps written in textual way.

* Add 2 numbers by taking input -

Flowchart.

→ Pseudo code

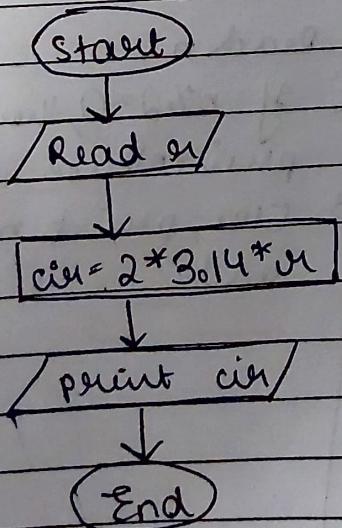


1. Read a and b.
 2. sum = a+b.
 3. print sum.

* Circumference of a circle

Flowchart

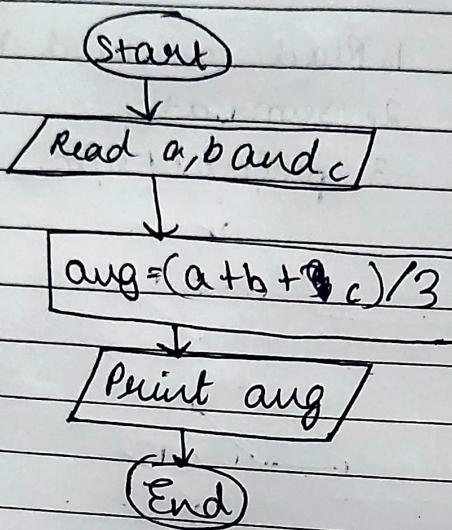
→ Pseudo code



1. Read r
 2. cir = $2 * 3.14 * r$
 3. Print cir.

* Average of 3 numbers

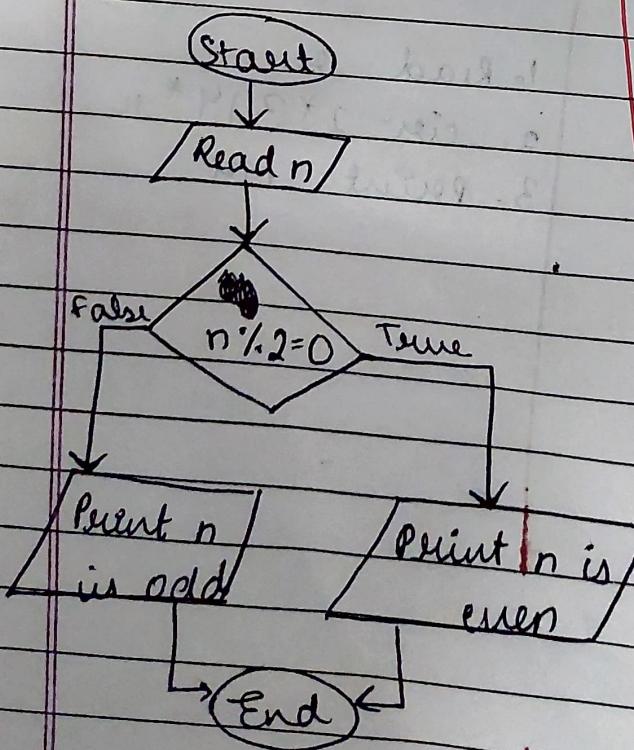
Flowchart : Pseudo code



1. Read a, b and c
2. $\text{avg} = (a+b+c)/3$
3. Print avg

* Number is odd or even

Flowchart

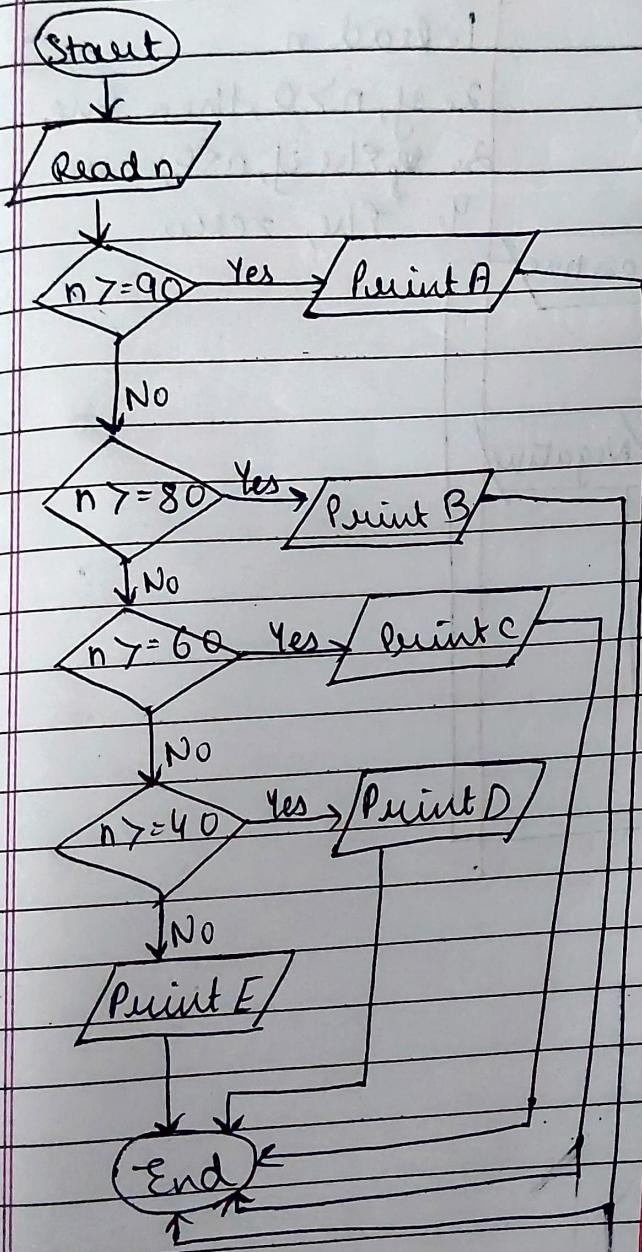


Pseudo code

1. Read n
2. If $n \% 2 = 0$, then
print "even".
3. Else, print n is
odd.

* Student & Grade Flowchart -

Flowchart -



Pseudo code

Pseudo code -

1. Read n.

2. If $n \geq 90$, then print A

3. Else if, $n \geq 80$, then
print B.

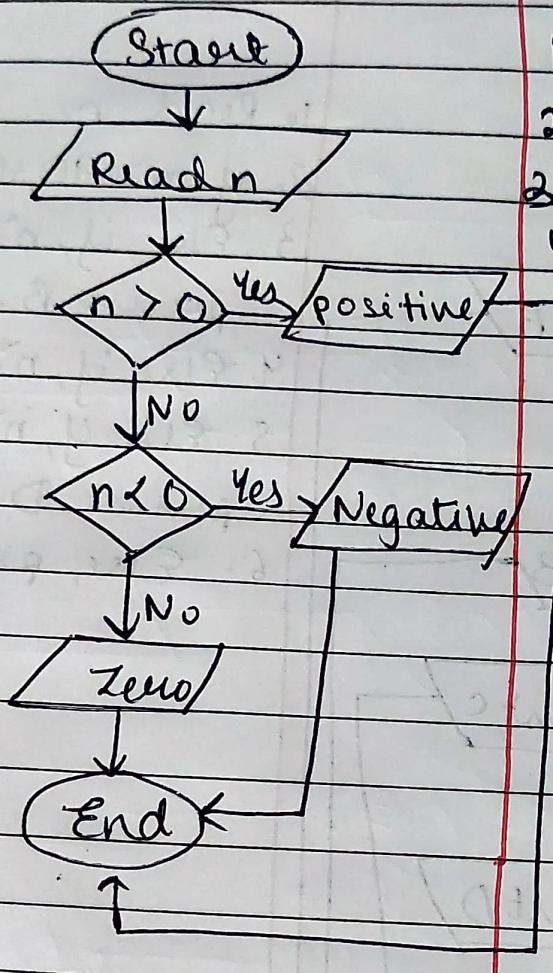
4. Else if, $n \geq 60$, then print C

5. Else if, $n \geq 40$, then
print D.

6. Else, print E.

* Number is positive negative or 0.

Flowchart - :-

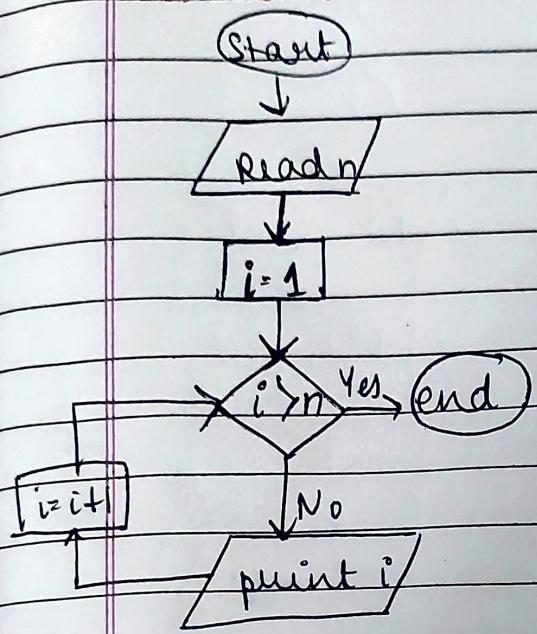


Pseudo code -

1. Read n
2. If, $n > 0$, then true
3. Else if, $n < 0$, -ve
4. Else, zero.

* Counting from 1 to N-

Flowchart -

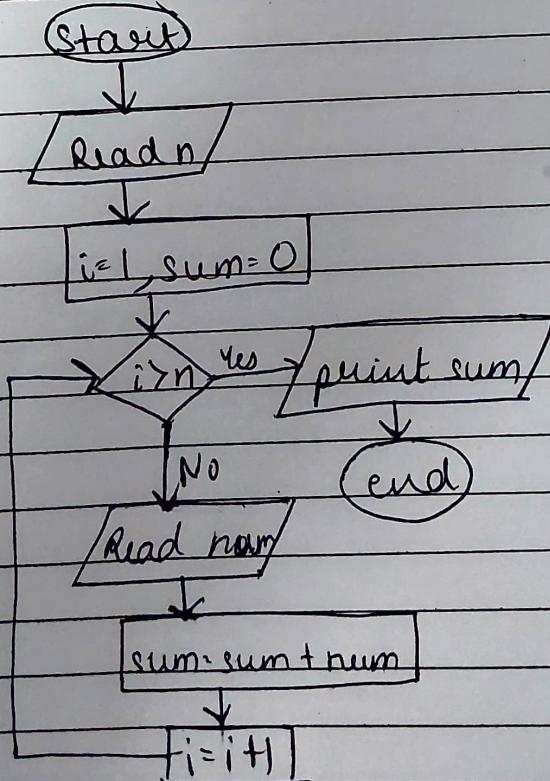


Pseudo code -

1. Read n
2. $i = 1$
3. If $i > n$, then exit
4. Else, print i , $i = i + 1$
and go to step 3.

* Add n numbers from user -

flowchart -



Pseudo code -

1. Read n
2. $i = 1, sum = 0$
3. If $i > n$
print sum
exit
4. Else
Read num
 $sum = sum + num$
 $i = i + 1$
go to step 3.