

Assignment ①

1) check if the given number is even or odd.

1) start

Algorithm : 2) Read a

3) If $a \div 2 = 0$

then "even" print

or "odd". Print

4) stop

Flowchart note : logic = $\text{if } a \div 2 = 0$

Read a

// ② $a \div 2 * 2 = 0$

explanation : logic i.e. $4 \div 2 * 2 = 4$
 $2 * 2 = 4$ Yes result = 4 = 4
 OK

if $a \div 2 = 0$

odd → print odd
 even → print even

Print odd

Print even

(start)

Program :-

```
import java.util.Scanner;
class program1 {
    public static void main (String args[])
    {
        System.out.println ("Enter any number");
        Scanner Ab = new Scanner (System.in);
        int a = Ab.nextInt();
        if (a%2 == 0)
            System.out.println ("Even");
        else
            System.out.println ("Odd");
    }
}
```

Op:- Enter any number
4

↓

if (a%2 == 0)

{

System.out.println ("Even");

}

else

{

System.out.println ("Odd");

}

}

if (a%2 == 0)

{

System.out.println ("Even");

}

else

{

System.out.println ("Odd");

}

if (a%2 == 0)

{

System.out.println ("Even");

}

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{

System.out.println ("Odd");

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{

System.out.println ("Odd");

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System.out.println ("Even");

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{

System.out.println ("Odd");

}

if (a%2 == 0)

{

System.out.println ("Even");

}

else

{

System.out.println ("Odd");

}

if (a%2 == 0)

{

System.out.println ("Even");

}

else

{

System.out.println ("Odd");

}

(2) Write a Java program to find the factorial of a given number

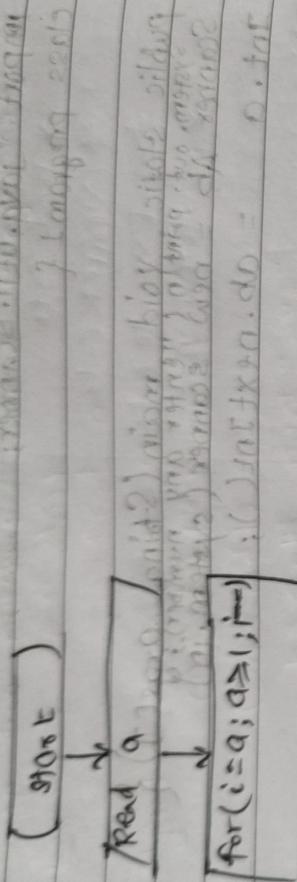
Algorithm :-

- a) Read a number from user.
- b) Initialize a = 1;
- c) a = a * i; i = i - 1;

4) Print value of a i.e. factorial of number

5) Stop

Flowchart:-



```
import java.util.Scanner;  
class Program2Fact {  
    public static void main(String args[]) {  
        int fact = 1;  
        System.out.println("Enter any number");  
        Scanner ob = new Scanner();  
        int a = ob.nextInt(); // 5  
        for (int i = 1; i <= a; i++) {  
            fact = fact * i;  
        }  
        System.out.println("Factorial of " + a);  
    }  
}
```

System.out.println("Factorial of " + fact);

Condition: fact >= 0
Input: fact = 5
Output: 120
(-3,-1,0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100)

for (int i = 1; i <= a; i++) {
 fact = fact * i;
}

3) Swap (two numbers) without using third variables.

sol

"return void return;" after the const v2

- Algorithm -
- ① start
 - ② Read a,b
 - ③ $a = a + b$

$$b = a - b$$

$$a = a - b + b ; \text{ or } a = a + (-b)$$

④ print a,b

⑤ stop.

Flowchart:- (start) returning the v. const v2

Read a,b

$a = a + b$

$a = a * b$

add
and
sub.
mult
and
div
m
n

print a,b

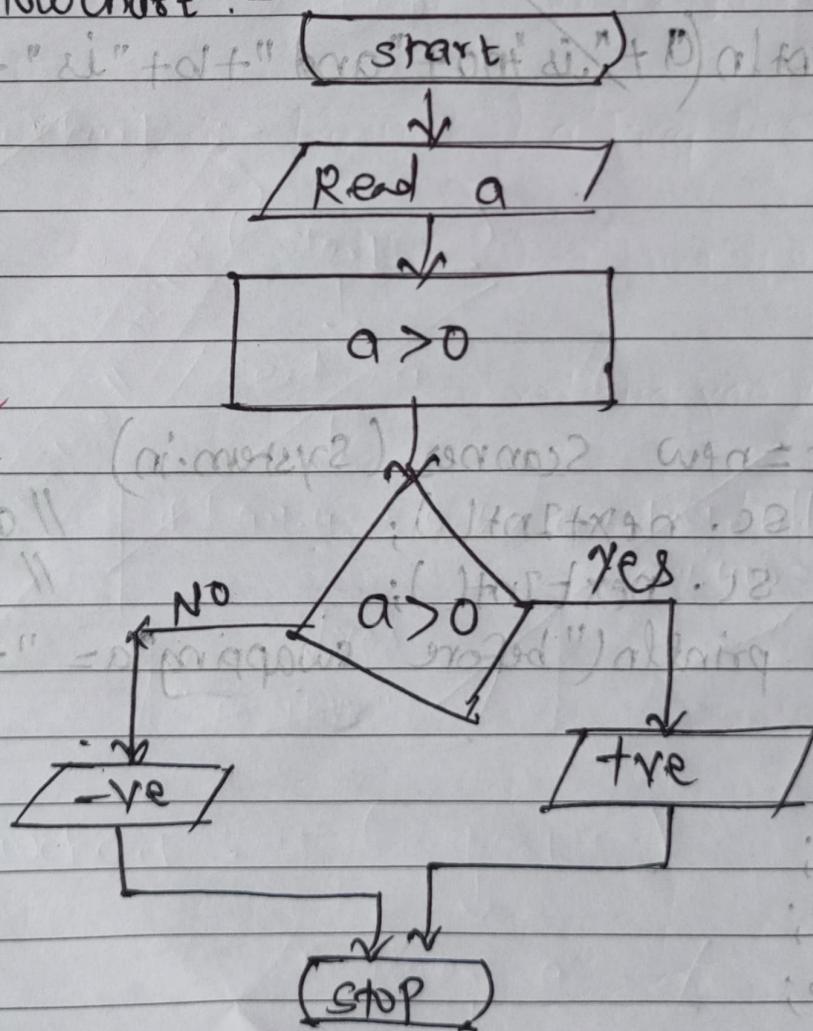
stop

4) How to check whether number is +ve or -ve.

Algorithm :-

- ① Start
- ② Read a
- ③ if $a > 0$
then print "positive".
- else
 if $a = 0$
 print "zero".
- ④ Stop.

flowchart :-



*Logic
 $a > 0$ $a = +ve$
 $a = 0$ $a = 0$
 $a < 0$ $a = -ve$

program:-

```

import java.util.*;

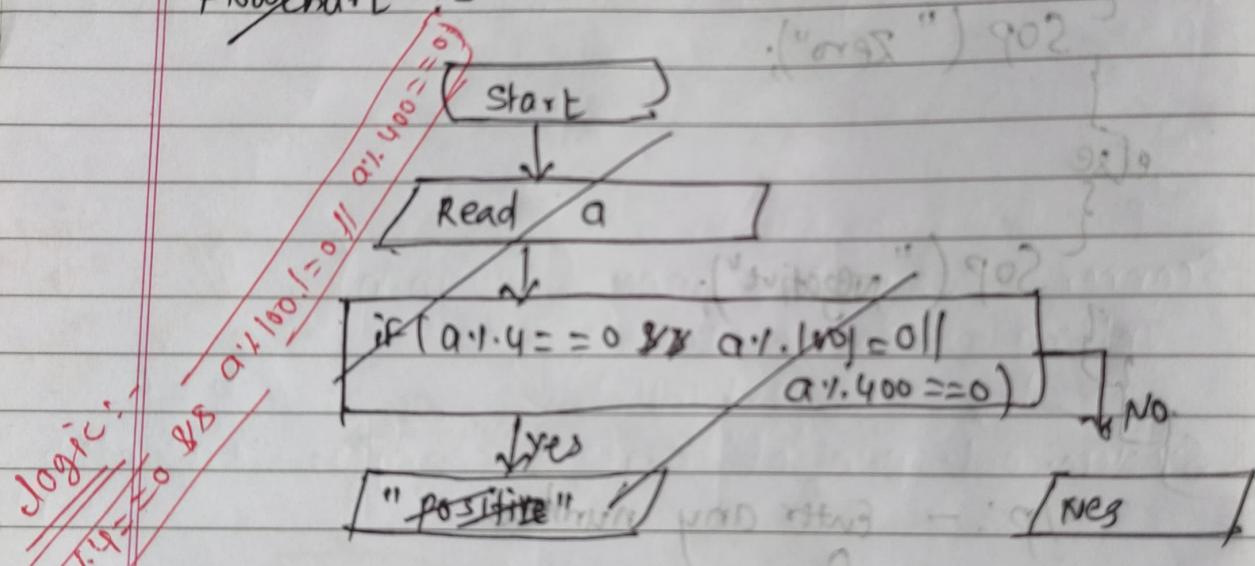
```

5) write a java program to find whether a given number is leap year or not

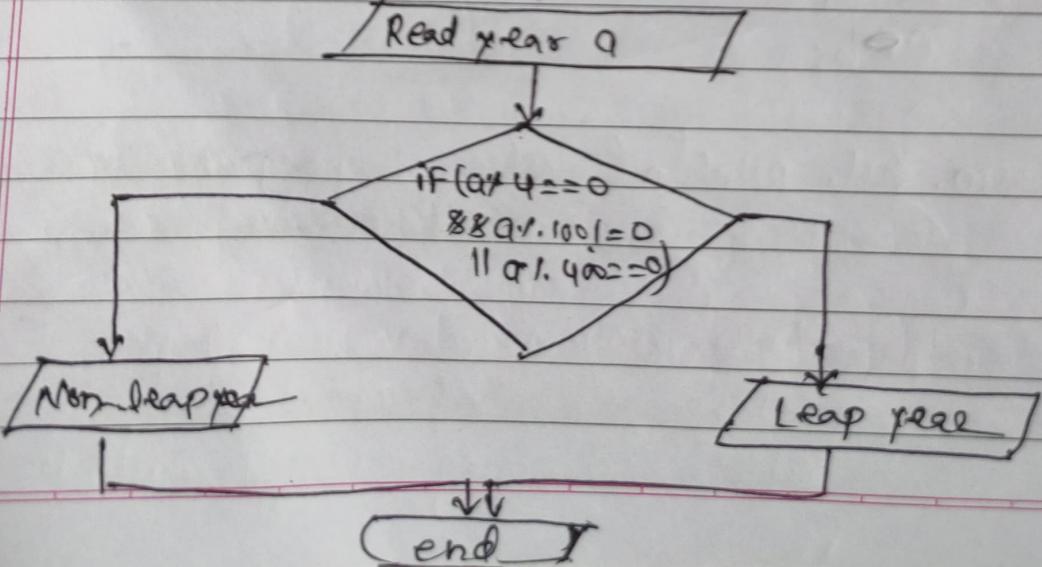
Algorithm :-

- ① Start
- ② Read year a.
- ③ if ($a \div 4 == 0$ & $a \div 100 != 0$ || $a \div 400 == 0$)
then
 print ("It is a leap year");
- ④ else print ("It is a Non-leap year").
- ⑤ Stop.

Flowchart :-



Flowchart :-



7) Write a java programs to prints the digits of given number.

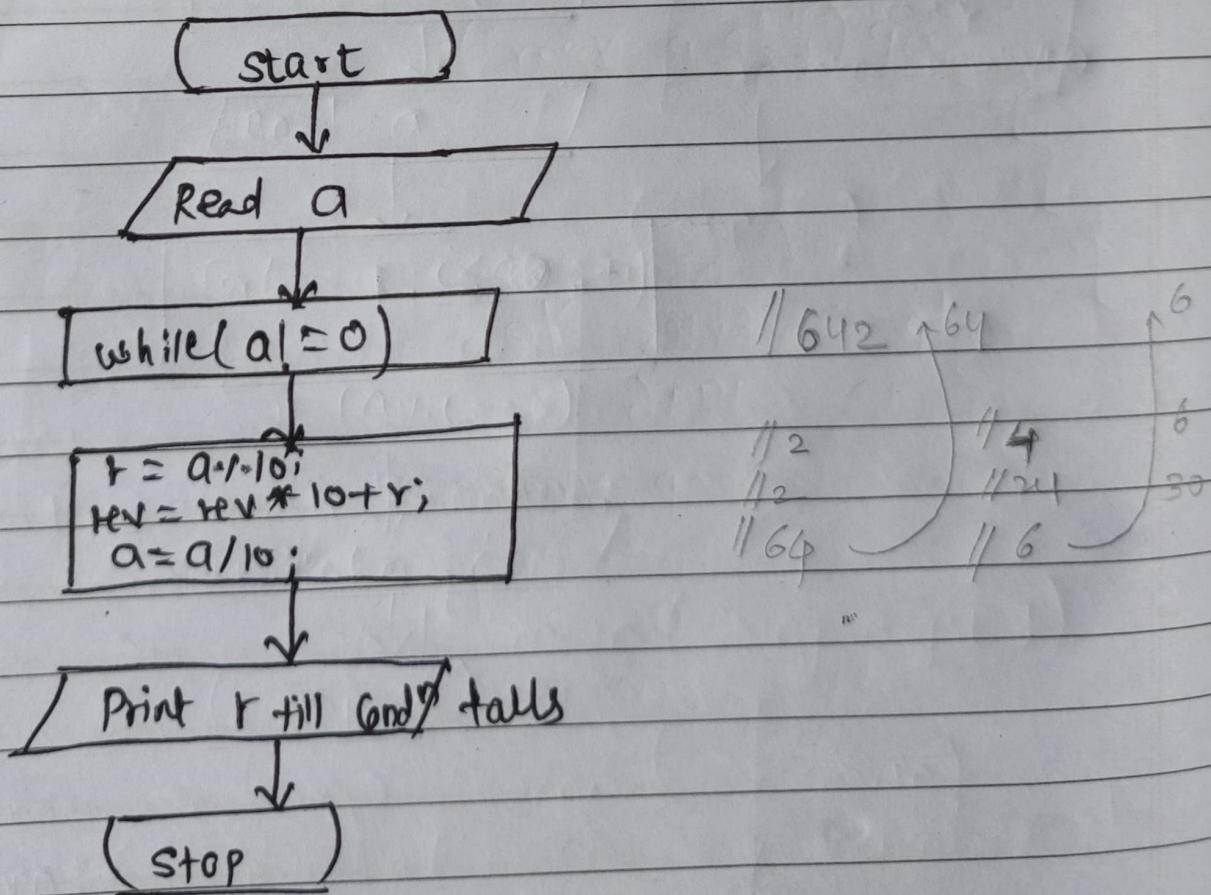
Algorithm:- ① Start

② Read a. // 642
 ③ Initialize while initialize r, rev=0
 ④ while($a \neq 0$) //

```

    {
        r = a % 10;           // 2
        rev = rev * 10 + r;   // 2
        a = a / 10;          // 6
    }
  
```

Flowchart:-

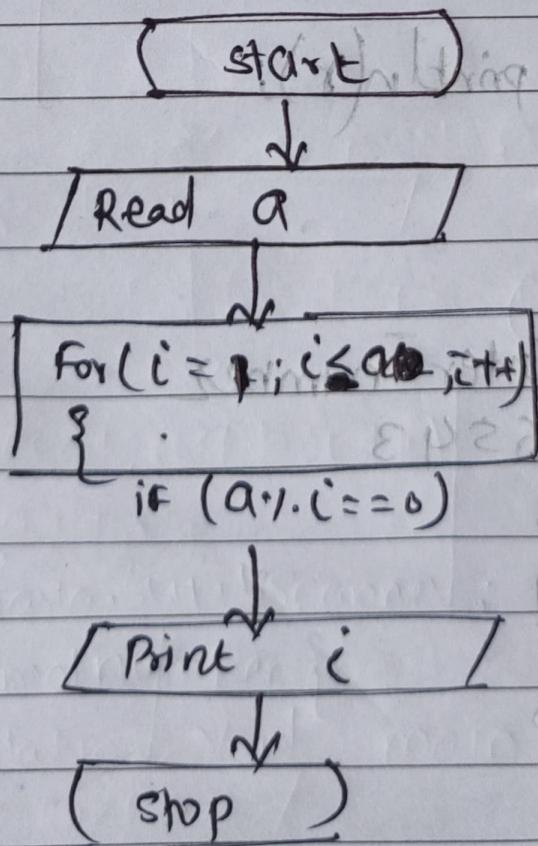


8) Write a java program to print all factors of given number.

Algorithm :-

- ① Start
- ② Read a (number).
- ③ For($i = 1; i \leq a$; $i++$)
- ④ check ~~for~~ if ($a \cdot i == 0$)
then print "i".
- ⑤ Stop

Flowchart :-



difference = remainder

Write a java program to sum of all digit ~~in~~ of given number.

Algorithm:-

① start

② Get a number i.e. number

③ initialise Sum=0, rev=0, r;

④ while (number != 0)

~~(if (a >= 0) a = a % 10)~~ sum = sum + a;

r = number % 10;

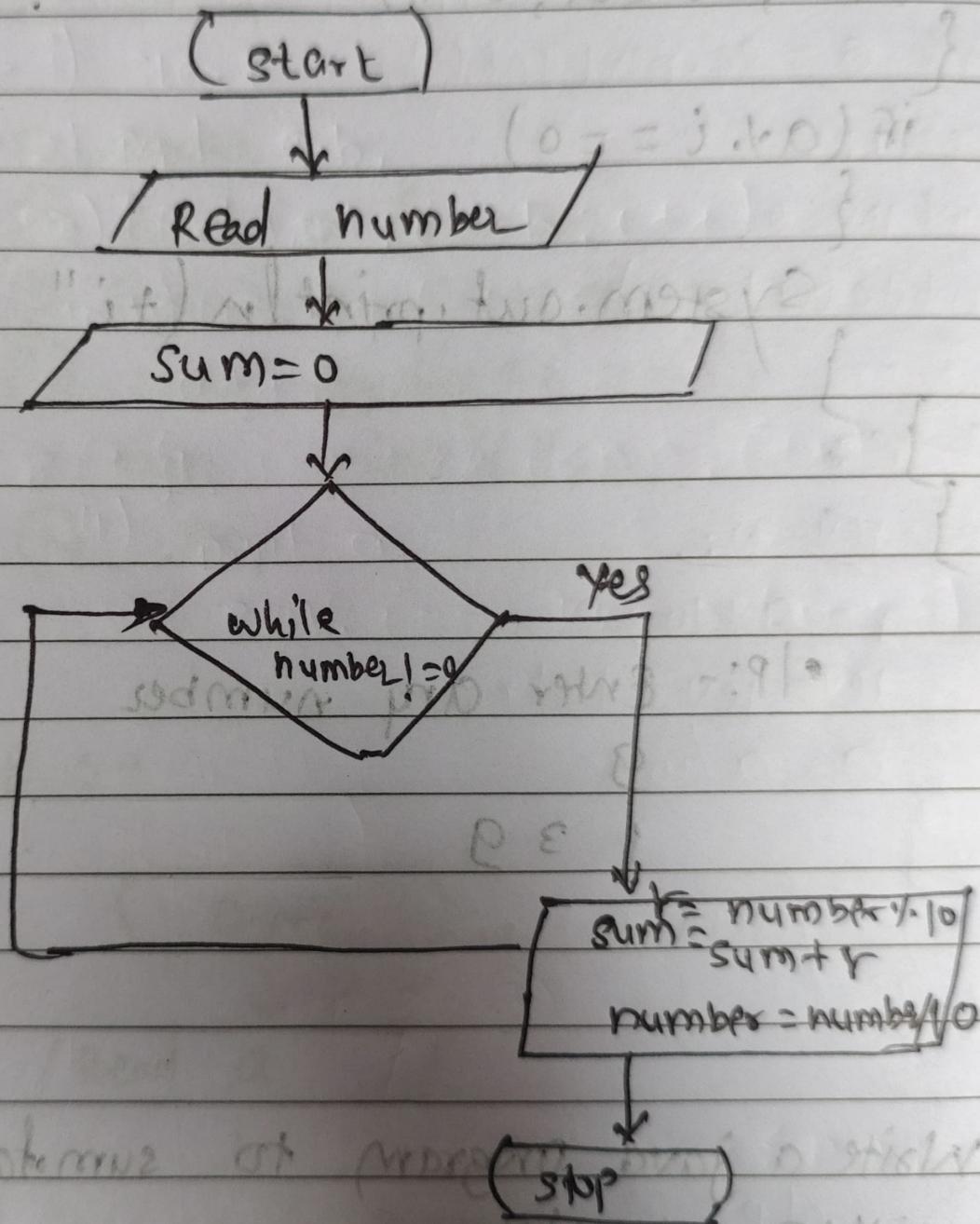
~~rev = rev * 10 + r~~ sum = sum + r

a = a / 10;

⑤ print sum

⑥ stop

flowchart :-

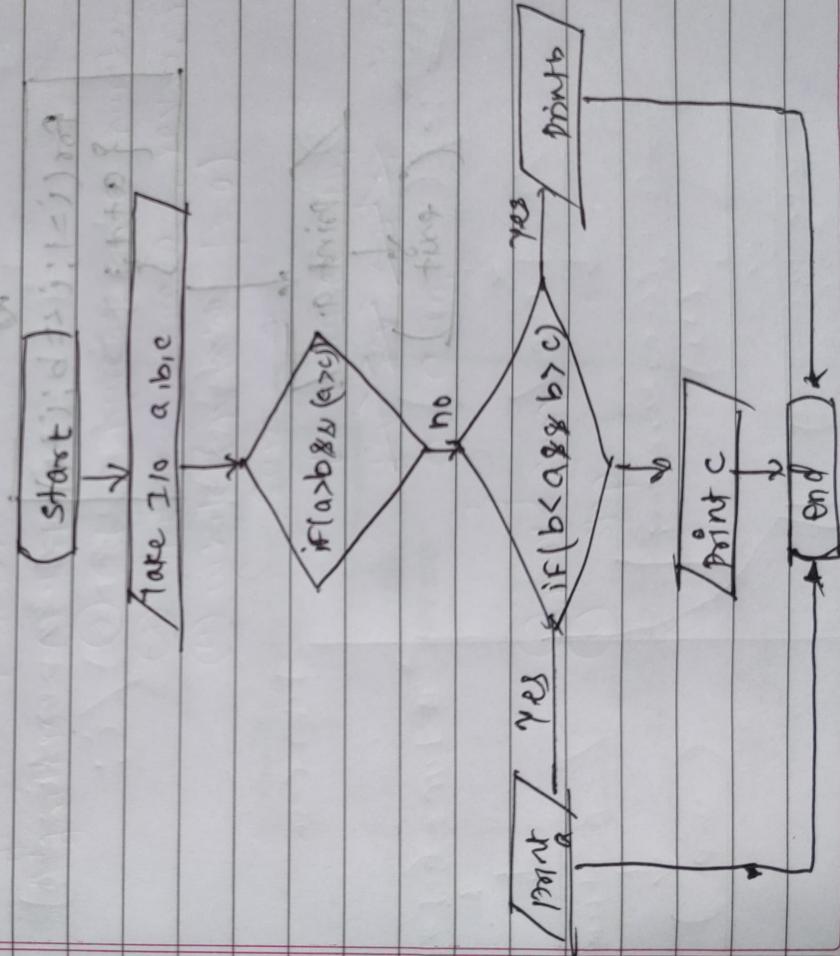


10) write a java program to find smallest of 3 numbers.

Algorithm :-

- ① Start
- ② Read a,b,c.
- ③ if ($a > b$), then
 we check ($a > c$)
 if yes , then $a = \text{highest}$
 $c = \text{smallest}$

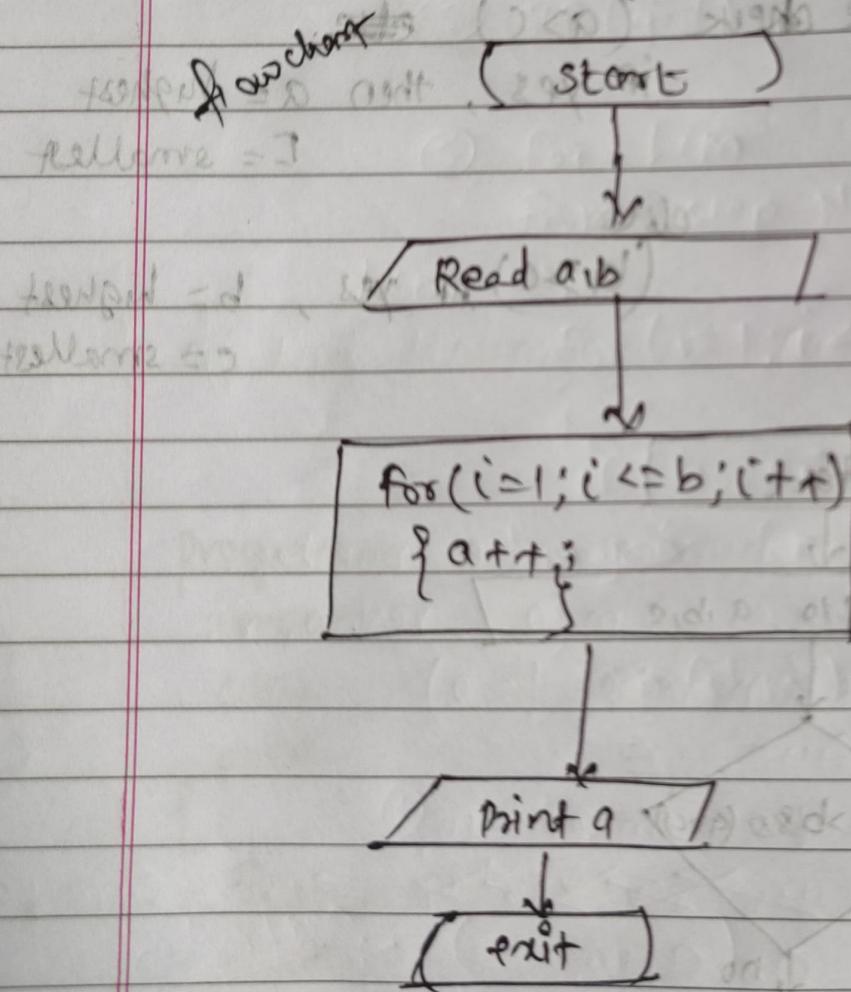
else
($a > c$) if yes , $b = \text{highest}$
 $c = \text{smallest}$



11) Addition without arithmetic operator.

algorithm :-

- 1) start
- 2) Read a,b;
- 3) for($i=1; i \leq b; i++$)
- 4) print $a + a$ & $\{$ - : (arithmetic)
- 5) exit



- 12) Reverse given number, and
 13) palindromic Case } same. (2)

Note (i ~: middle)

algorithm :- i) start

2) Read no

3) use while loop

(++) ; while ($no \neq 0$) : $i = i + 1$ } loop no

initialize r_1 ; $rev = 0$

$r_1 = no \% 10$; $j = k$

$rev = rev * 10 + r_1$; $k = k - 1$

$no = no / 10$;

} mod rot

ok get rot

4) print rev

(++) ; $no \geq 0$ } 5) exit $\Rightarrow j; i = i + 1$ rot

flowchart :- code (start) ?

? (code) \downarrow (i) = 0 ml

Read no

while ($no \neq 0$)

$r_1, rev = 0$

$r_1 = no \% 10$
 $rev = rev * 10 + r_1$
 $no = no / 10$

Print r_1

exit

14)

GCD and Lcm of number;

15)

same

algorithm:- 1) start

2) Read n_{o1}, n_{o2}

3) initialize gcd = 1

4)

for gcd do { (i=1; i ≤ n_{o1} & i ≤ n_{o2}; i++) }if (n_{o1} % i == 0 & n_{o2} % i == 0)

gcd = i;

5) Sop(gcd);

⑤ For Lcm

from step No ③

Lcm ⇒

for (i=1; i ≤ n_{o1} & i ≤ n_{o2}; i++)

{

if (n_{o1} % i == 0 & n_{o2} % i == 0)lcm gcd = (n_{o1} * n_{o2}) / i;

{

Sop(lcm);

⑥ exit.

Lcm Case

algorithm:-

(start)

↓

/ Read n_{o1}, n_{o2} /

↓

for (i=1; i ≤ n_{o1} & i ≤ n_{o2}; i++)

↓

if (n_{o1} % i == 0 & n_{o2} % i == 0)

↓

if Lcm = $\frac{(n_1 * n_2)}{i}$

↓

Point lcm

↓

stop

16) Even and odd series.

Even \rightarrow 2 4 6 ...

17) odd \rightarrow 1 3 5 ...

1) start

algorithm :-

1) Read a

2) check Condⁿ

for ($i = 2$; $i \leq a$; $i = i + 2$)

{ if ($i \% 2 == 0$) —— even.

print i

}

4) exit

5) end

in odd

for ($i = 1$; $i \leq a$; $i = i + 1$)

{ if ($i \% 2 != 0$) —— odd

case

print i

}

6) Exit

algorithm :- (start)

1) read a

2)

for ($i = 2$; $i \leq a$; $i = i + 2$)

{ if ($i \% 2 == 0$)

{ print i;

}

odd

↓

if ($i \% 2 == 0$)

{ print i;

}

exit

↓

end