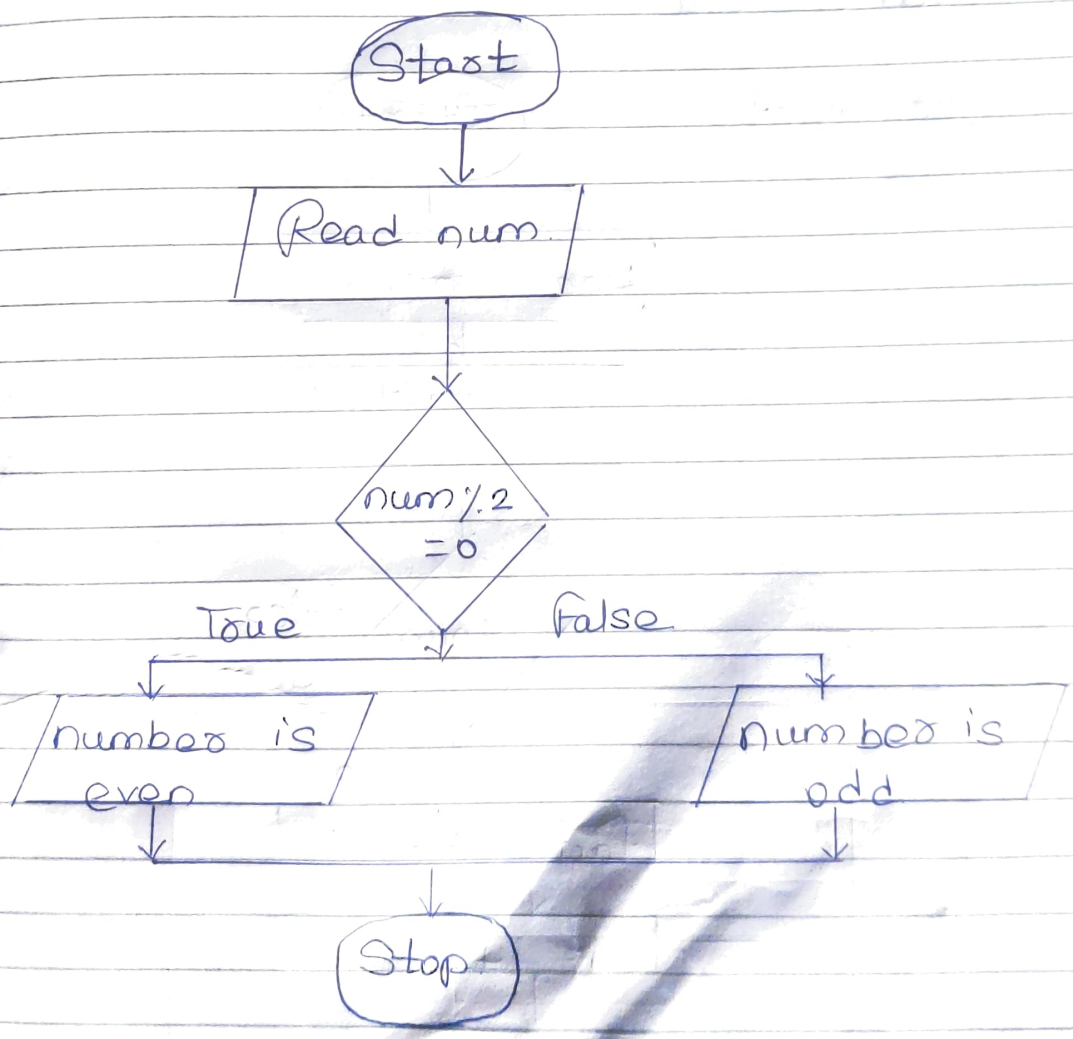
Assignment 1.

Q1. Check if the given number is even or odd

1. Algorithm:

Step 1: Start
Step 2: Read integer variable num.
Step 3: Perform num modulo 2 & check if result is 0.
Step 4: If it is true then number is even
Step 5: If it is false then number is odd
Step 6: Stop.

2. Flowchart.

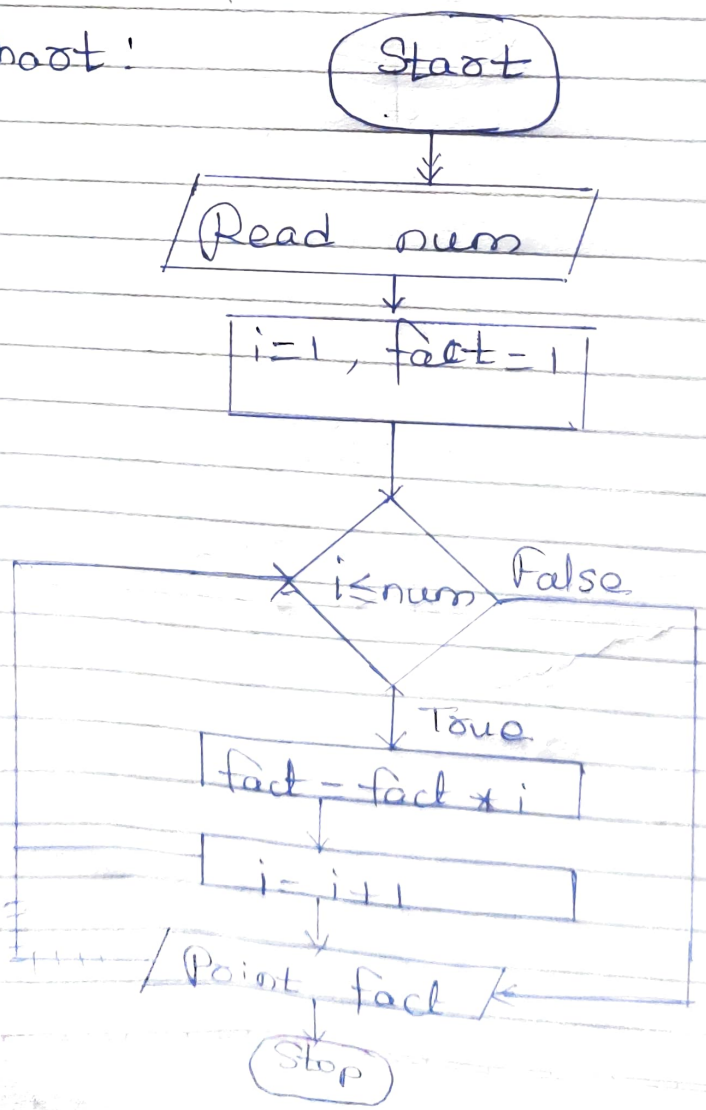


Q2 Write a Java program to find the factorial of a given number.

1. Algorithm

Step 1 : Start
Step 2 : Read integer number num.
Step 3 : Declare variable i & fact.
Step 4 : Initialize variable i=1 & fact=1.
Step 5 : if i ≤ number is true then
fact = fact * i & increment value of
Step 6 : If it is false then stop
Step 7 : Point fact
Step 8 : Stop

2 Flowchart :

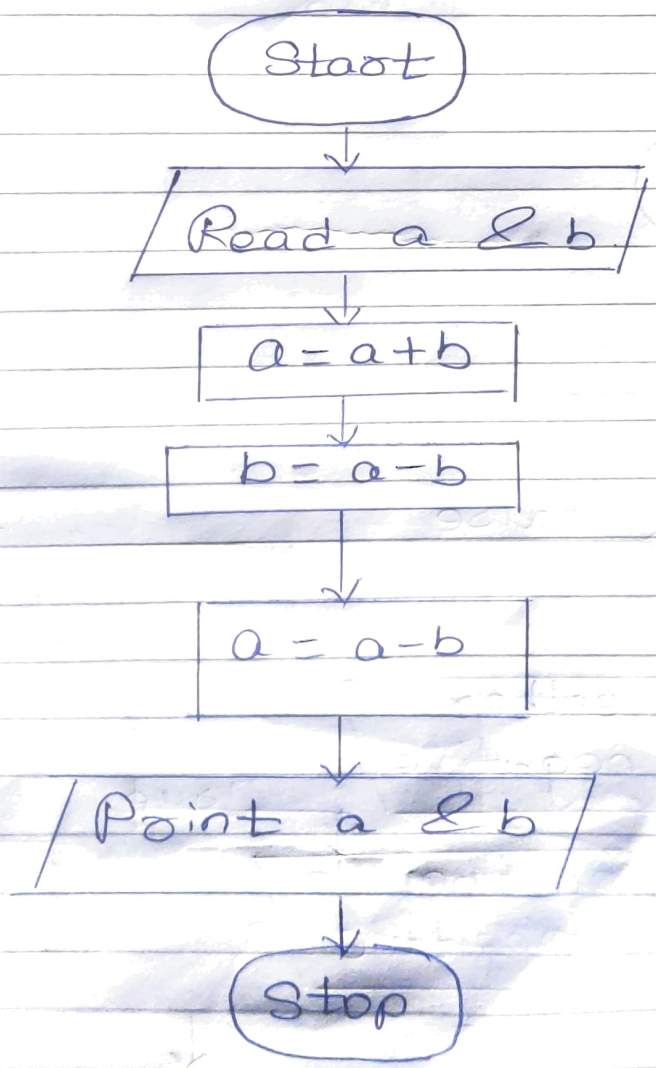


Q4. Swap two numbers without using the third variable approach.

1. Algorithm:

Step 1: Read two numbers a & b.
Step 2: Perform their addition & assign this value to a
Step 3: Perform a-b & assign to b.
Step 4: Perform a-b & assign to a
Step 5: Print a & b
Step 6: Stop

2. Flowchart:



5. How to check whether the given number is positive or negative in java

1. Algorithm

Step 1: Read the number num

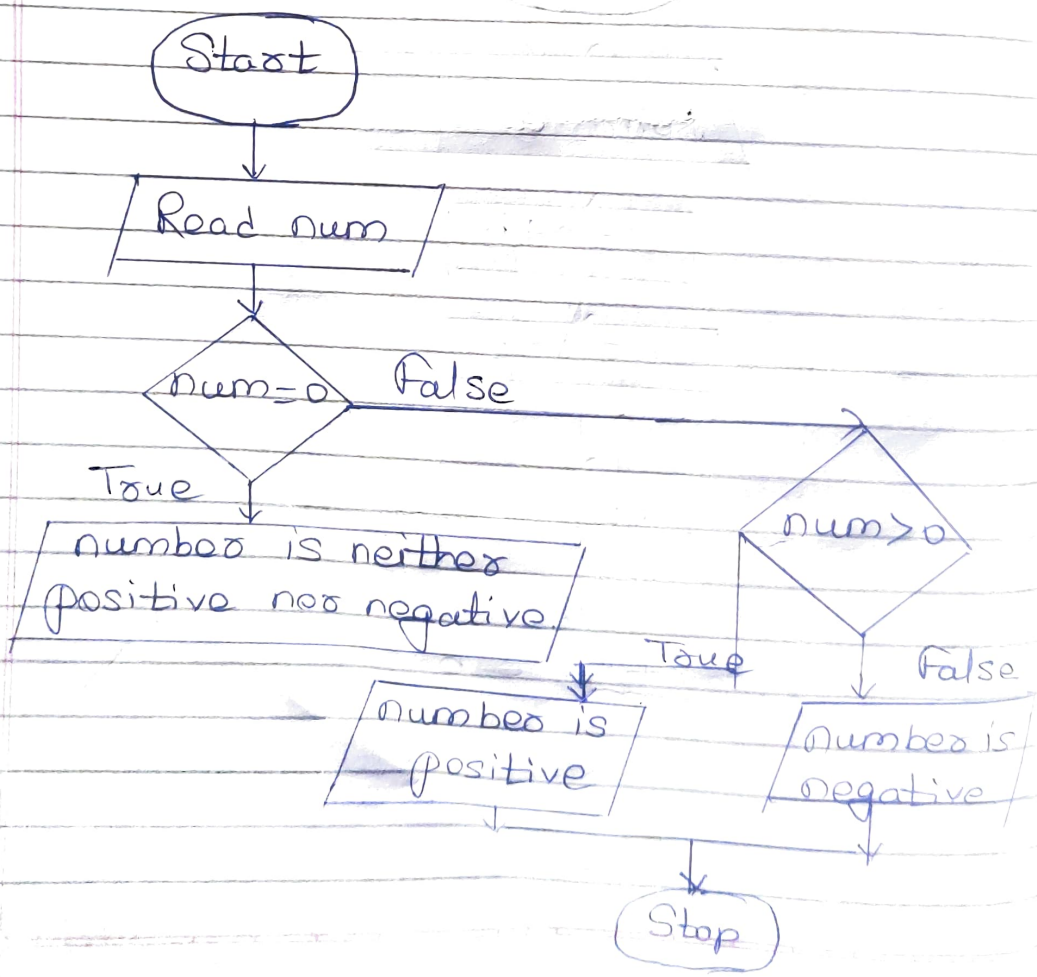
Step 2: if num=0 is true then point number is neither positive nor negative

Step 3: if num>0 then is true then point number is positive

Step 4: if it is false then number is negative

Step 5: Stop

2. Flowchart:



Q6. Write a Java program to find whether the given number is leap year or not

1. Algorithm:

Step 1: Read year y

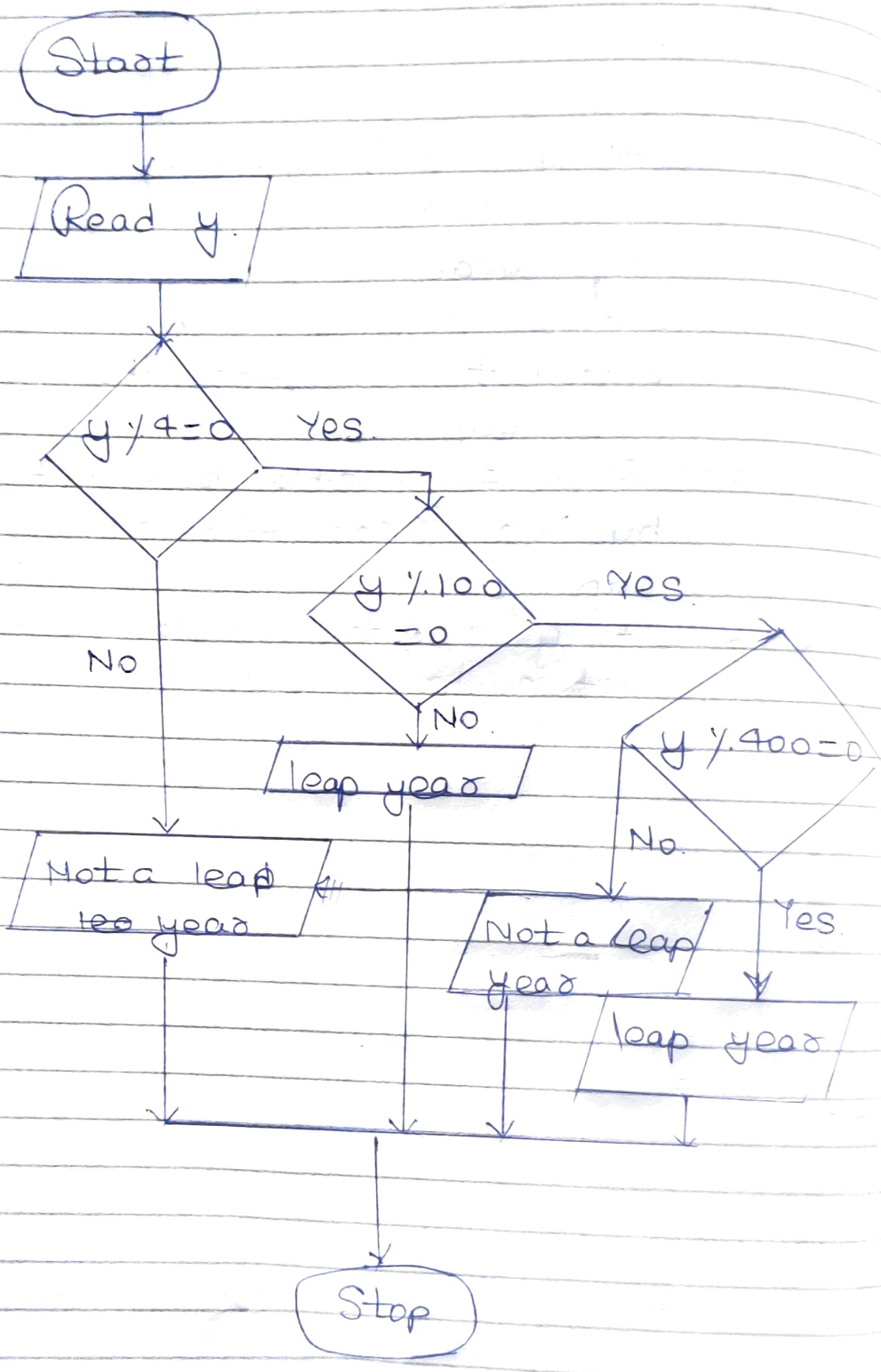
Step 2: If y is divisible by 4, & 100 & 400 then the year is leap year

Step 3: If y is divisible by 4 & 100 but not 400 then the year is not leap year.

Step 4: If y is divisible by 4 but not by 100 & 400 then the year is leap year.

Step 5: If y is not divisible by 4 then not a leap year.

Flowchart:


Start
Read y.
y%4=0
Yes.
No
y%100 =0
Yes.
No.
leap year
y%400=0
No.
Yes
Not a leap year
Not a leap year
leap year
Stop

Q.8. Write a Java program to print the digits of a given number.

1. Algorithm

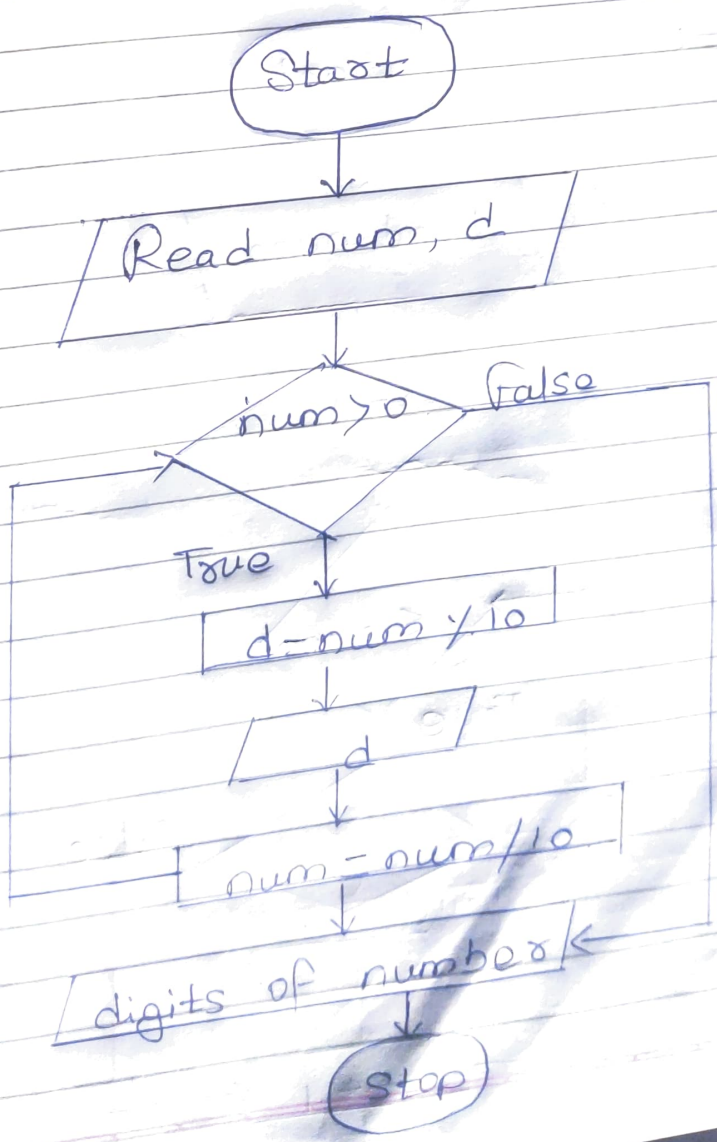
Step 1: Read integers num & d

Step 2: if number is strictly greater than 0. is true then
d = num % 10 & print d &
assign num / 10 to num.

Step 3: Print digits of number

Step 4: Stop.

2. Flowchart:



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Q.9. Write a Java program to print all the factors of the given number.

1. Algorithm:

Step1: Read variable num

Step2: Declare variable i & initialize i=1.

Step 3: if i ≤ num is true check the condition if num % i = 0

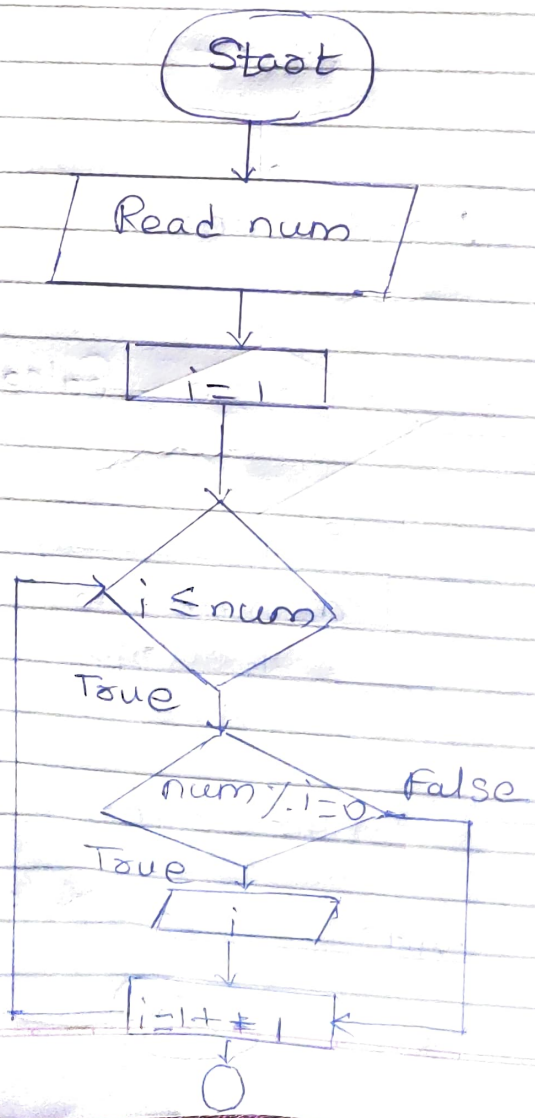
Step 4: If it is true then print i

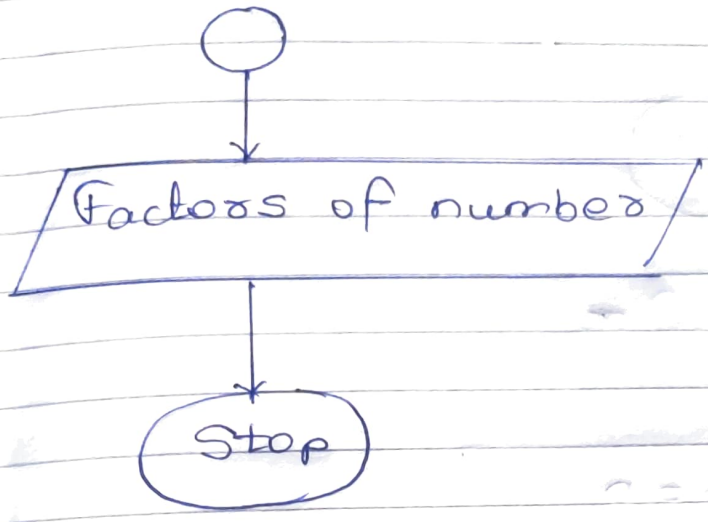
Step 5: else increment the value of i, go to Step

Step 6: Print factors

Step 7: Stop.

2. Flowchart:





Q10. Write a Java program to find the sum of the digits of a given number

1. Algorithm:

Step 1 : Read variable num & x

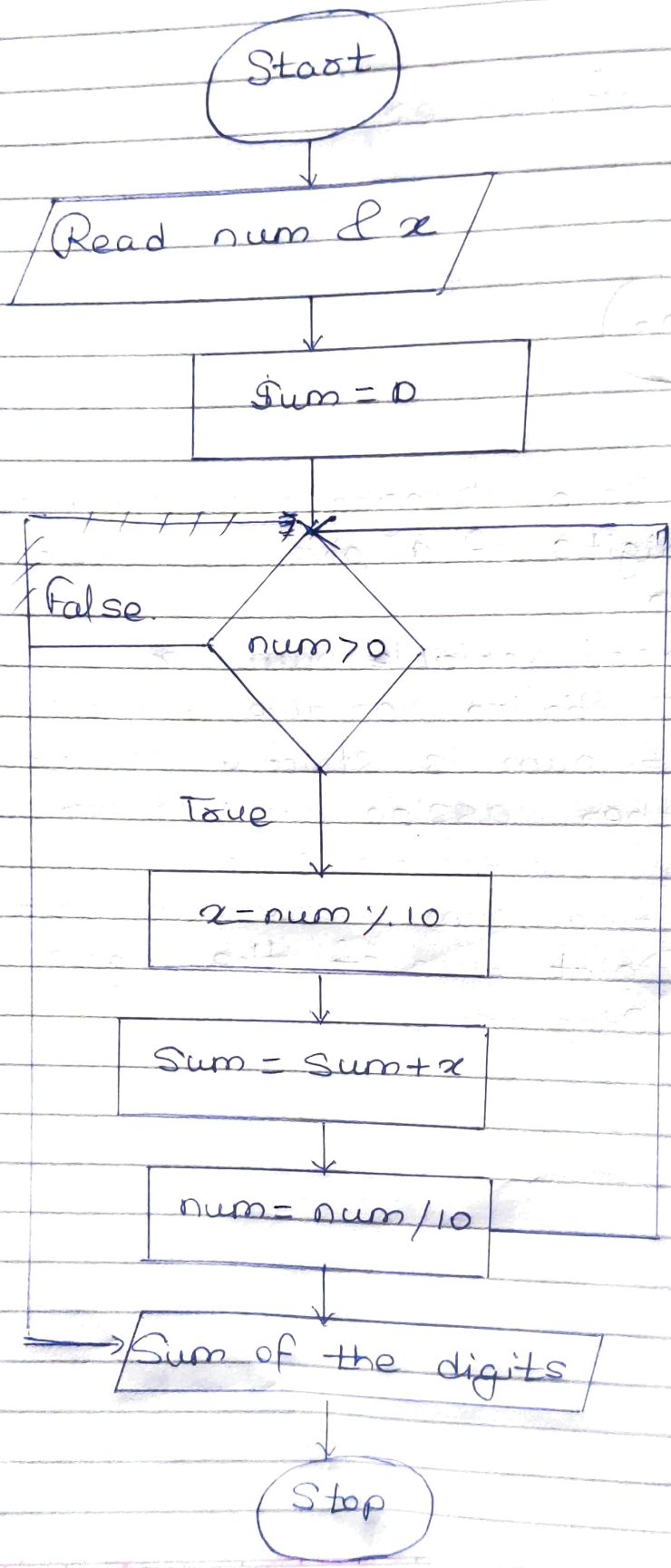
Step 2 : Initialize variable Sum = 0.

Step 3 : if num is strictly greater than 0 then assign num % 10 to x & sum+x to sum And num/10 to num & again check con

Step 4 : Point sum of the digits

Step 5 : Stop

Flowchart:


Start
Read num & x
Sum = 0
False
num > 0
True
x = num % 10
Sum = Sum + x
num = num / 10
Sum of the digits
Stop

Q.11. Write a Java program to find the smallest of 3 numbers (a,b,c).

1. Algorithm:

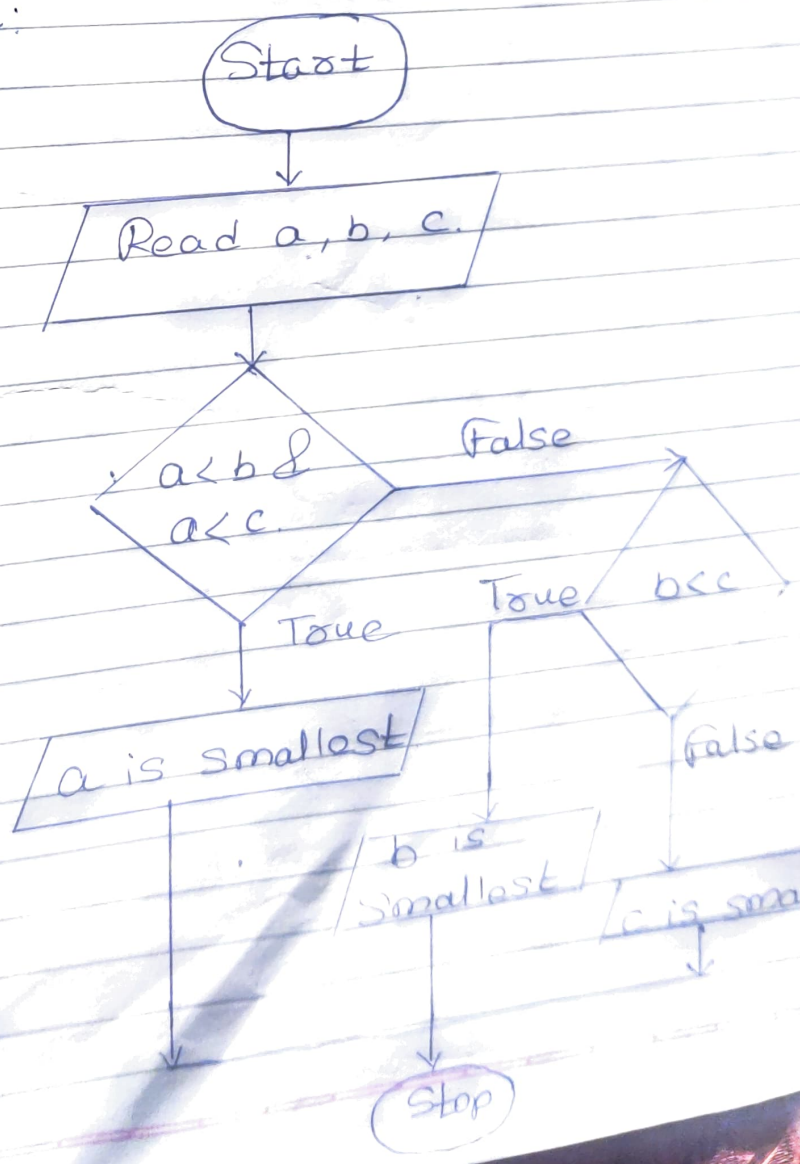
Step 1: Read 3 numbers a, b & c

Step 2: Check the condition if a<b & a<c both are simul true then point smallest number is a

Step 3: If it is false & b<c is true then point b is smallest.

Step 4: If it is also false then point c is smallest.

2. Flowchart:



Q 13. Write a Java program to reverse a given number.

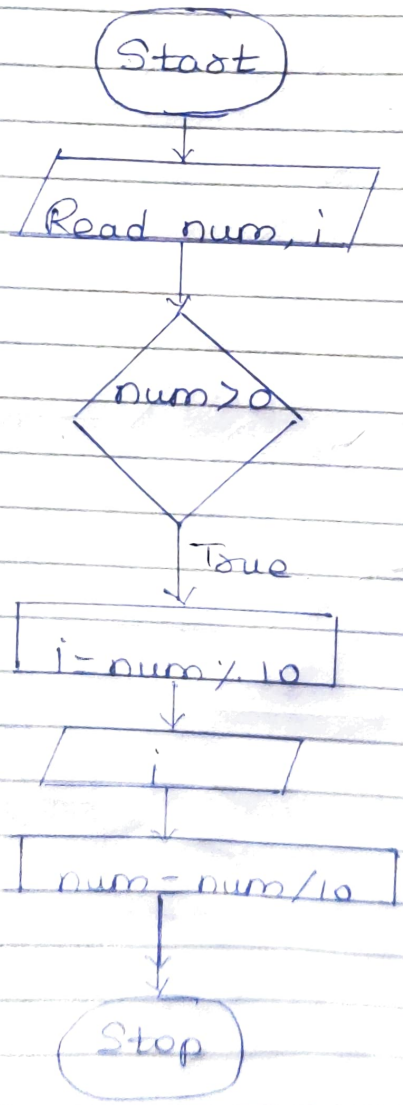
1. Algorithm:

Step 1: Read variable num & i.

Step 2: if num>0 is true then i=num%10 then print value of i & then assign num/10 to num.

Step 3: Stop

2. Flowchart:



Q14. Write a Java program to find the GCD of two given numbers

Algorithm:

Step 1: Read variable x & y.

Step 2: Initialize variable g = 1.

Step 3: Initialize fact = 1.

Step 4: Check the condition if fact <= x & fact <= y is true then

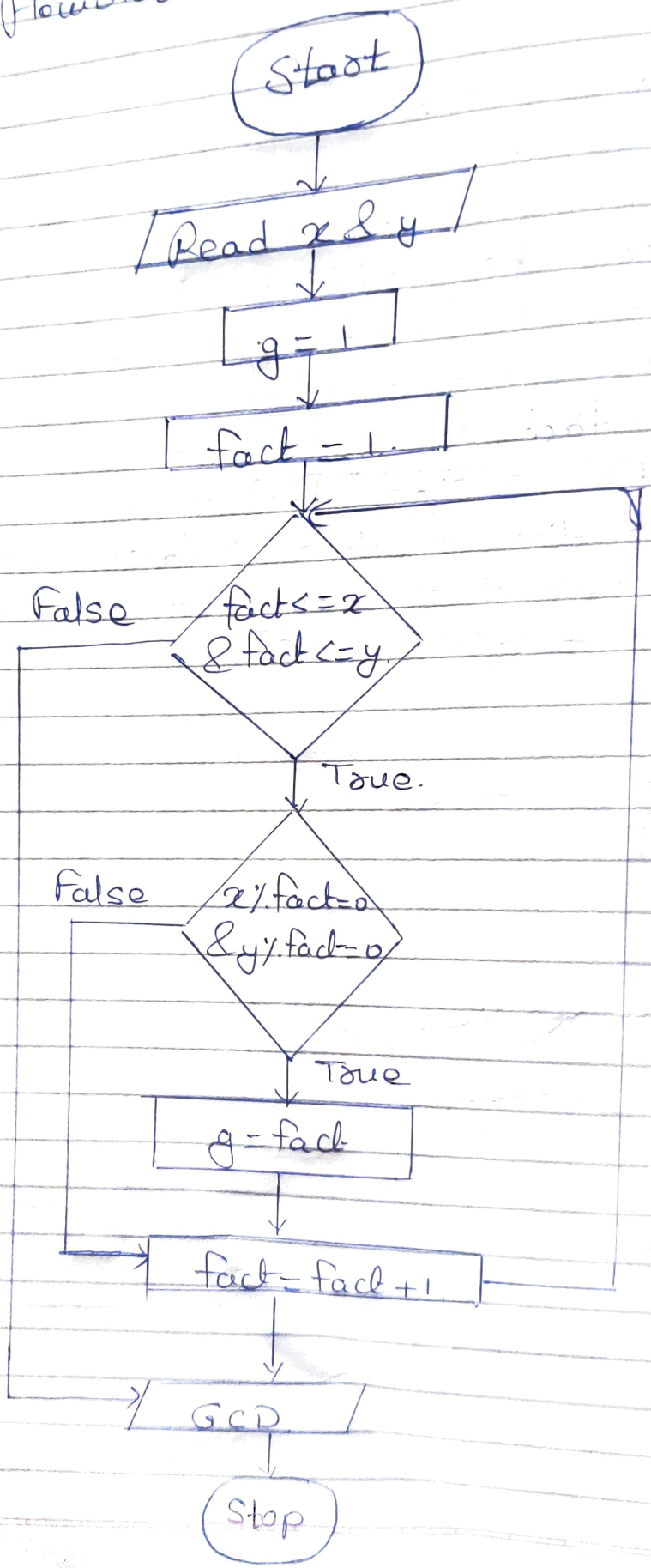
Step 5: Check for condition x % fact = 0 & y % fact = 0 is true then assign fact to g.

Step 6: If the condition is false then increment the value of fact, goto step 4

Step 7: Print GCD

Step 8: Stop.

2 Flowchart:


Start
Read x & y
g = 1
fact = 1.
fact<=x & fact<=y.
False
True.
x%fact=0 & y%fact=0
False
True
g = fact
fact = fact + 1
GCD
Stop

Q15 Write a Java program to LCM of two given numbers

1. Algorithm:

Step 1: Read variables x & y

Step 2: Initialize g=1 & l=1

Step 3: Initialize fact = 1

Step 4: if fact <= x & fact <= y is true then check for another condition

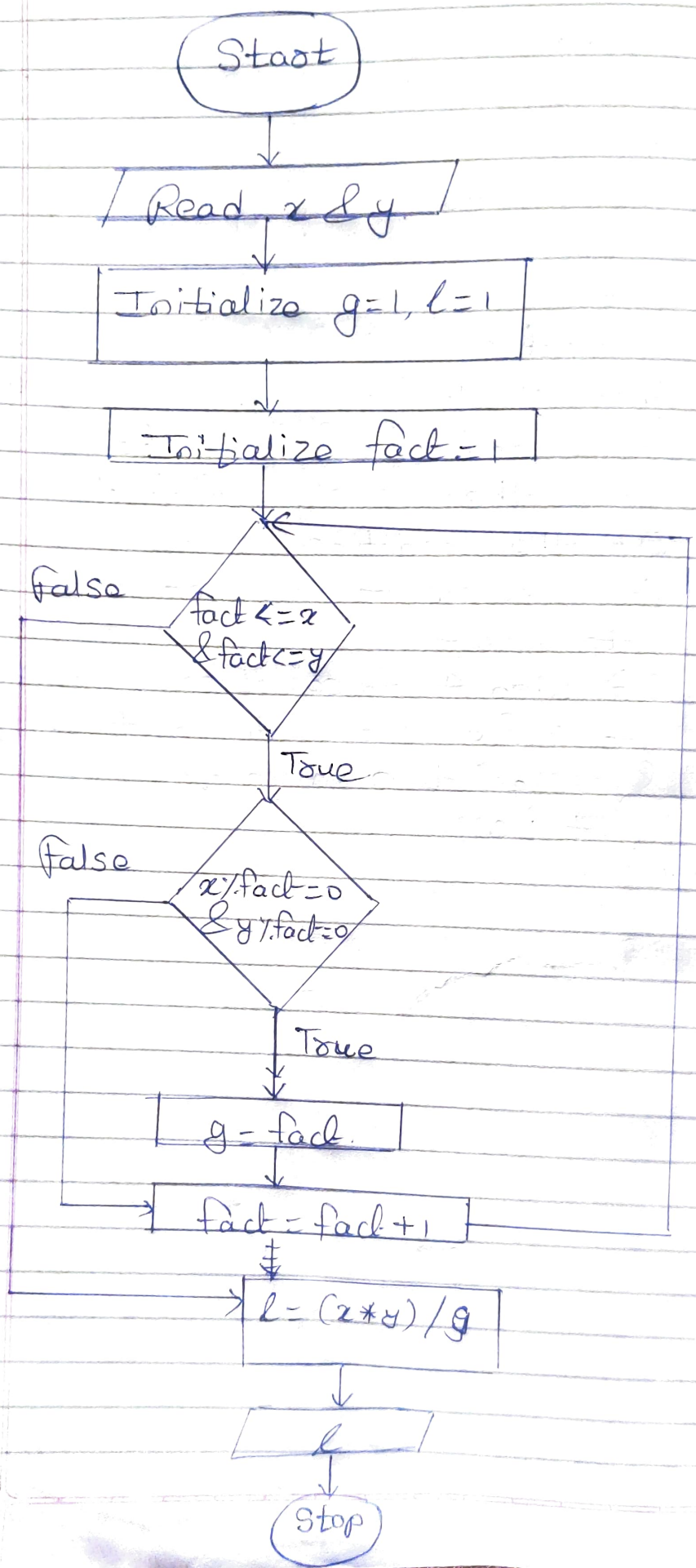
Step 5: If x % fact = 0 & y % fact = 0 is true then assign fact to g

Step 6: If the condition is false then increment value of fact & goto step 4.

Step 7: If step 4 false then multiply ~~l=~~ x, & y & then divide it by g & assign this value to l

Step 8: Print LCM.

Step 9: Stop.


Start
Read x & y
Initialize g=1, l=1
Initialize fact=1
fact<=x & fact<=y
False
True
x%fact=0 & y%fact=0
False
True
g=fact
fact=fact+1
l=(x*y)/g
l
Stop

Q17. Check whether the given Number is a Palindroome or not.

1. Algorithm:

Step 1: Read variables num, r & flag

Step 2: Initialize t=0.

Step 3: Assign num to flag

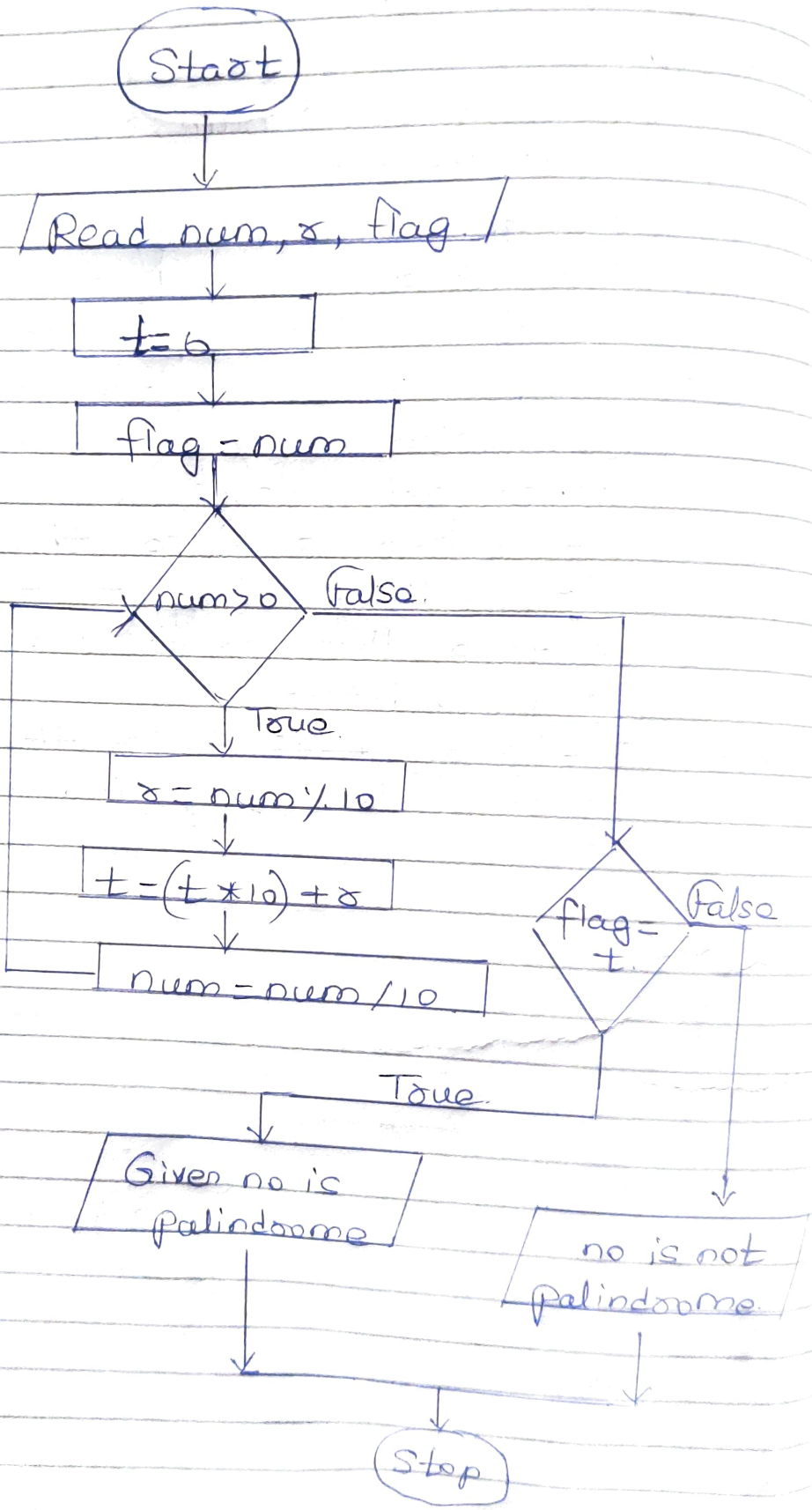
Step 4: If ~~while~~ num>0 this condition is true then step 5 else goto step 6

Step 5: r = num % 10, t = (t*10)+r & assign num/10 to num. then goto step 4.

Step 6: If num>0 is false then check for condition flag = t if this is true then point given number is pallindroome

Step 7: If flag = t is false then point given no is not palindroome

2 Flowchart:


Start
Read num, r, flag
t=0
flag = num
num>0
False
True
r = num % 10
t = (t * 10) + r
num = num / 10
flag = t
False
True
Given no is palindrome
no is not palindrome
Stop

Q.18 Write a Java Program to print all the Prime factors of the given number

1. Algorithm:

Step 1: Read integer x.

Step 2: Assign $i = 2$.

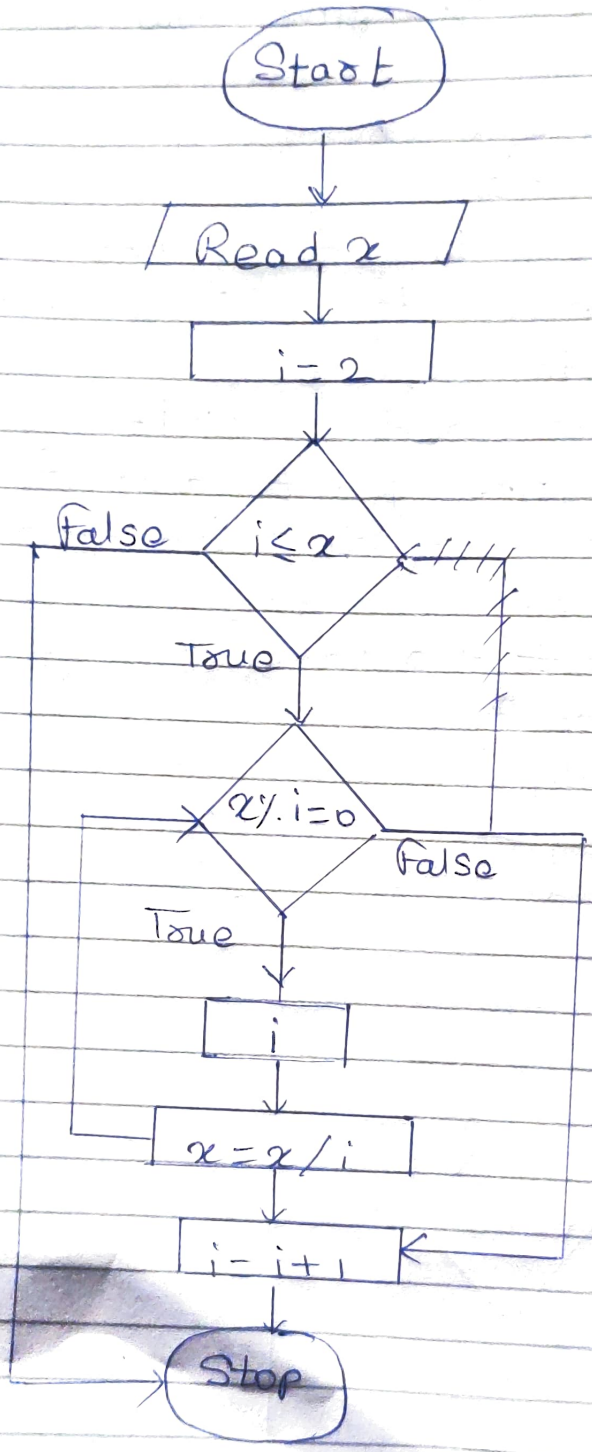
Step 3: if $i <= x$ is true then check for condition in step no. 4 & if false then goto step.

Step 4: Check for condition $x \% i = 0$ if it is true then print value of i & $x = x / i$ if this condition is false then

Step 5: Increment the value of i by 1 & goto step 3.

Step 6: ~~Print~~ Stop.

2. Flowchart:



Q19. To print the following series EVEN number series 2 4 6 8 10 12 14 16 ....

1. Algorithm:

Step1: Read a variable num

Step 2: Assign i = 2

Step 3: Check the condition for i ≤ num

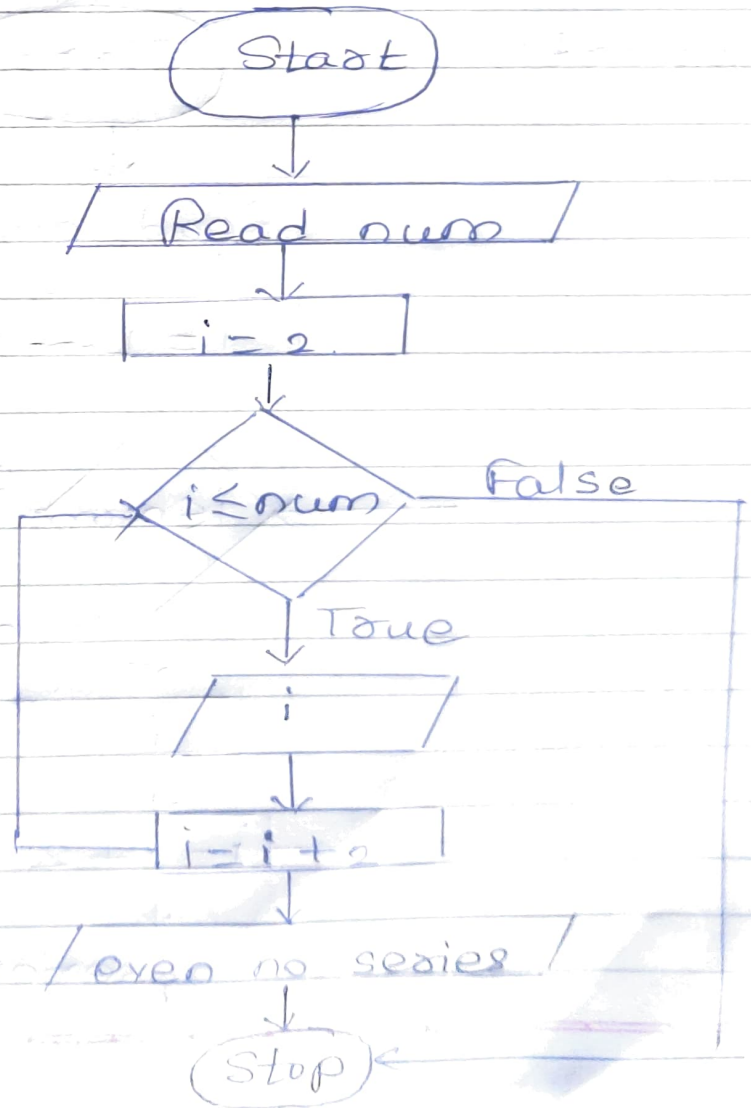
Step 4: If the condition is true then print i & ~~ies~~ increment the value of i by 2 & goto step 3

Step 5: If ~~the~~ condition is false goto stop

Step 6: Print even no series

Step 7: Stop.

2. Flowchart:



20. To print the following series ODD number series 1 3 5 7 9 11 13 ...

1. Algorithm:

Step 1: Read variable num

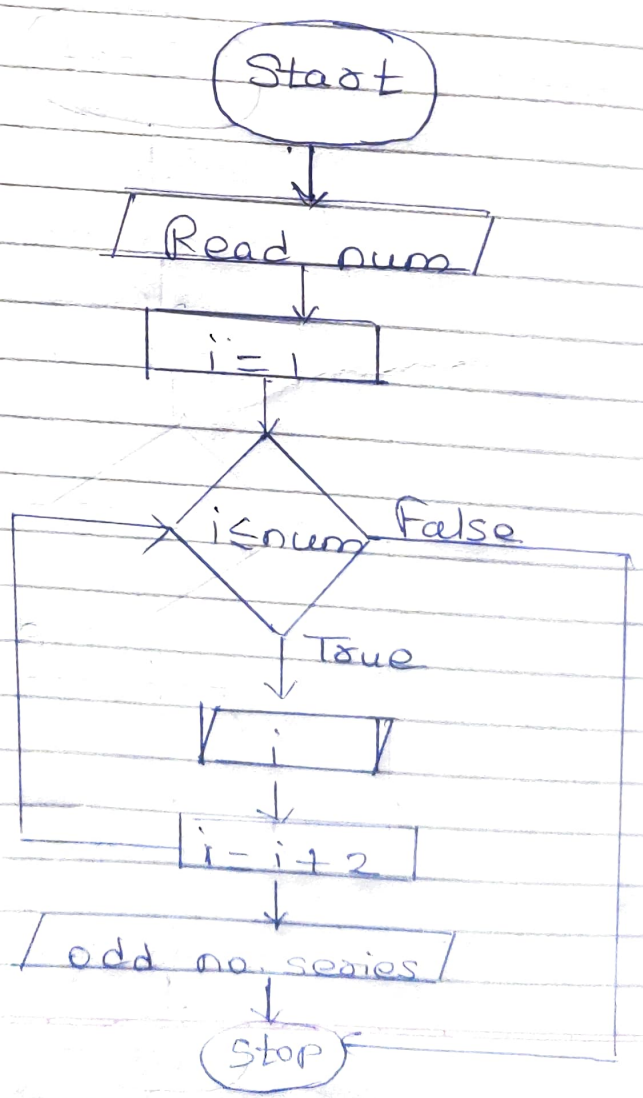
Step 2: Assign i=1

Step 3: Check for condition i≤num

Step 4: if this condition true then print i & increment the value of i by 2 & then goto step 3

Step 5: If the condition is false goto stop

Step 6: Print odd no. series

Step 7: Stop

2. Flowchart: