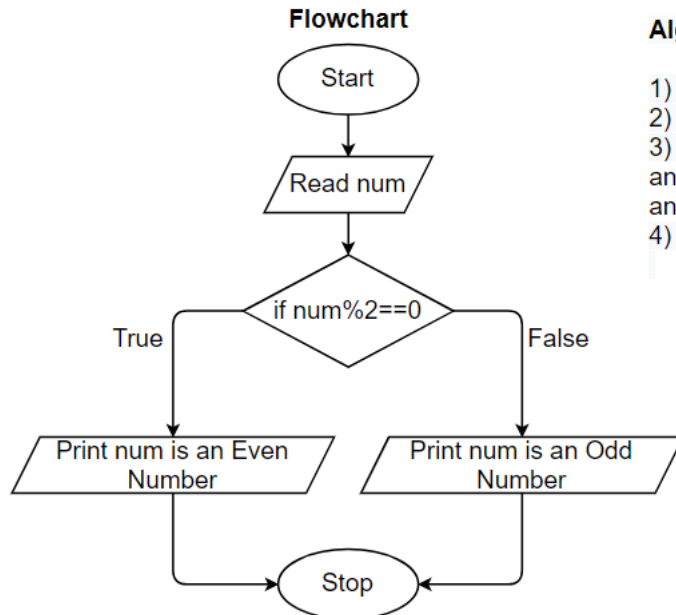


Name: Sanket Ravindra Raut Centre: PG-DAC Kharghar

Topic: Logic Building

Assignment No.1

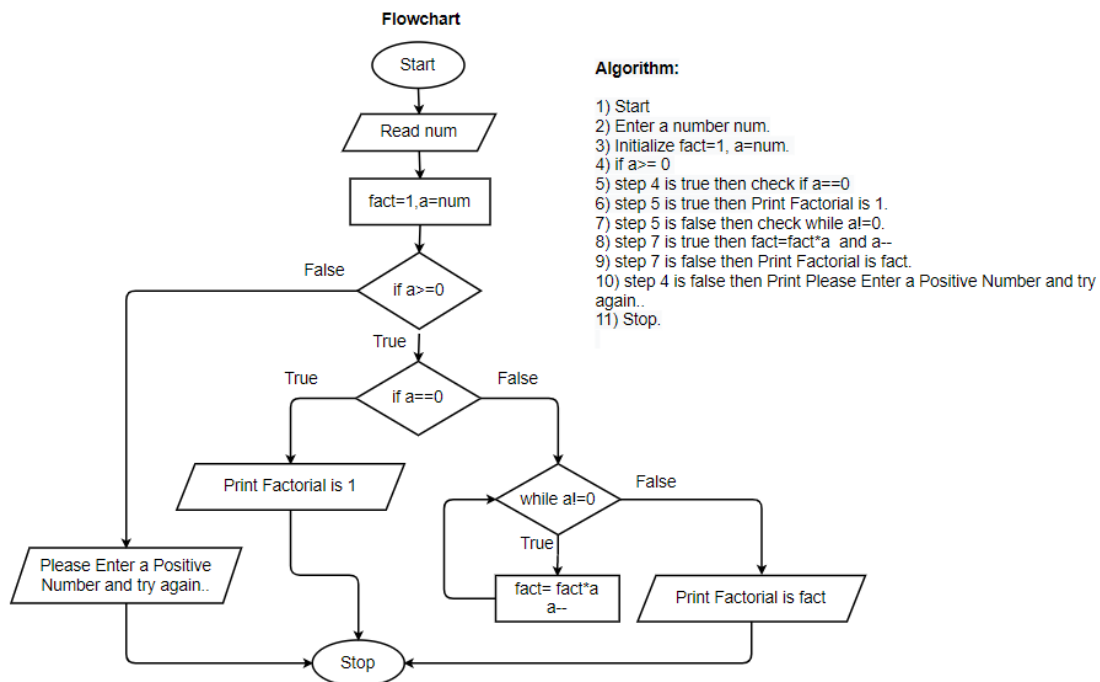
Q1. Check if the given number is Even or Odd Number.



Algorithm:

- 1) Start
- 2) Enter a number num.
- 3) if $\text{num} \% 2 == 0$ then Print num is an Even Number else, Print num is an Odd Number and goto step 4.
- 4) Stop.

Q.2. Write a java program to find the Factorial of a given Number.

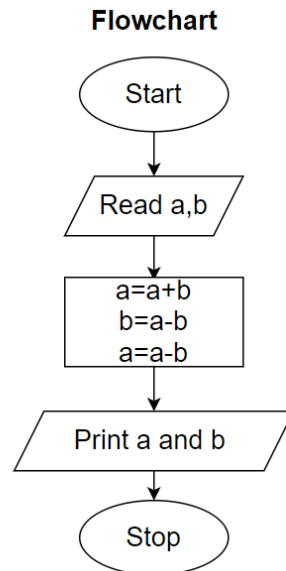


Algorithm:

- 1) Start
- 2) Enter a number num.
- 3) Initialize fact=1, a=num.
- 4) if $a \geq 0$
- 5) step 4 is true then check if $a == 0$
- 6) step 5 is true then Print Factorial is 1.
- 7) step 5 is false then check while $a != 0$.
- 8) step 7 is true then $\text{fact} = \text{fact} * a$ and $a--$
- 9) step 7 is false then Print Factorial is fact.
- 10) step 4 is false then Print Please Enter a Positive Number and try again..
- 11) Stop.

Q.3. Find the Factorial of a Numbers using Recursion.

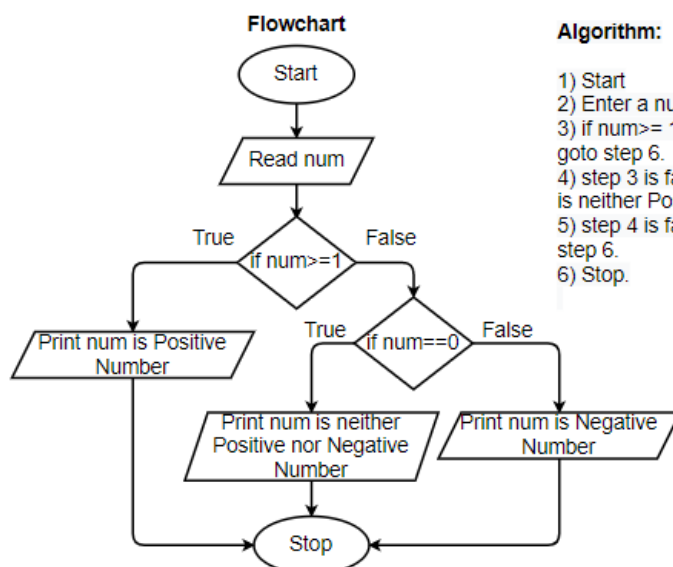
Q.4. Swap Two Numbers without using third variable approach.



Algorithm:

- 1) Start
- 2) Enter two numbers a and b .
- 3) $a = a + b$
 $b = a - b$
 $a = a - b$
- 4) Print a and b.
- 5) Stop.

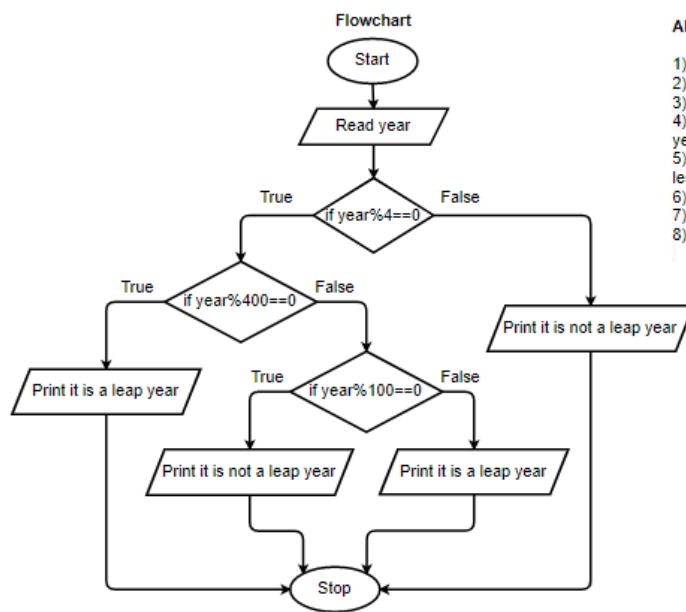
Q.5. How to check whether a given Number is Positive or Negative in java.



Algorithm:

- 1) Start
- 2) Enter a number num.
- 3) if $\text{num} \geq 1$ is true then Print num is Positive Number and goto step 6.
- 4) step 3 is false then check if $\text{num} == 0$ is true then Print num is neither Positive nor Negative Number and goto step 6.
- 5) step 4 is false then Print num is Negative Number and goto step 6.
- 6) Stop.

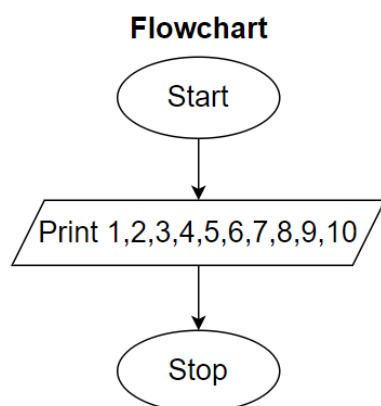
Q.6. Write a java program to find whether a given number is Leap Year or not.



Algorithm:

- 1) Start
- 2) Enter a year.
- 3) if $\text{year} \% 4 == 0$
- 4) step 3 is true then check if $\text{year} \% 400 == 0$ is true then Print it is a leap year and goto step 8.
- 5) step 4 is false then check if $\text{year} \% 100 == 0$ is true then Print it is not a leap year and goto step 8.
- 6) step 5 is false then Print it is a leap year and goto step 8.
- 7) step 3 is false then Print it is not a leap year and goto step 8.
- 8) Stop.

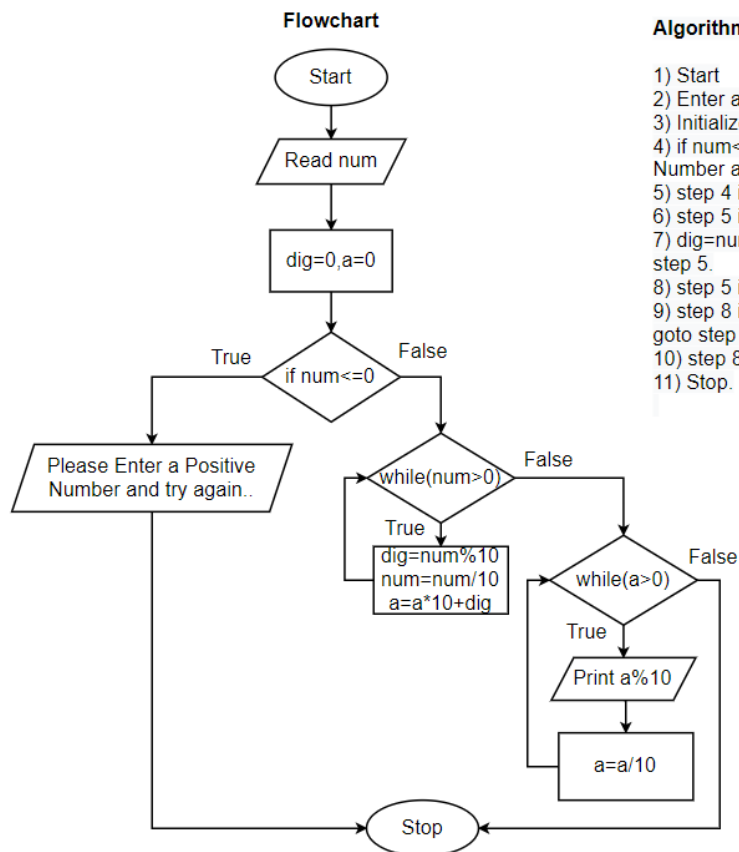
Q.7. Write a java program to Print 1 to 10 without using loop.



Algorithm:

- 1) Start
- 2) Print 1,2,3,4,5,6,7,8,9,10.
- 3) Stop.

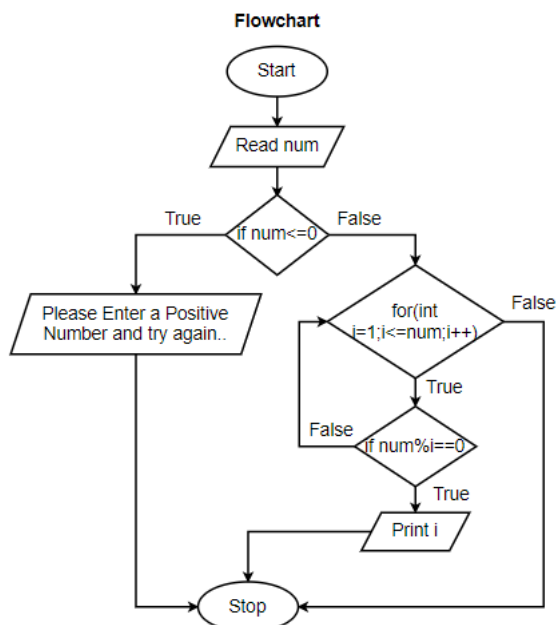
Q.8 Write a java program to print the digits of a given number.



Algorithm:

- 1) Start
- 2) Enter a Number num.
- 3) Initialize dig=0, a=0.
- 4) if num<=0 is true then Please Enter a Positive Number and try again.. and goto step 11.
- 5) step 4 is false then check while(num>0)
- 6) step 5 is true then do step 7.
- 7) dig=num%10, num=num/10, a=a*10+dig and goto step 5.
- 8) step 5 is false then check while(a>0)
- 9) step 8 is true then Print a%10 and do a=a/10 and goto step 8.
- 10) step 8 is false then goto step 11.
- 11) Stop.

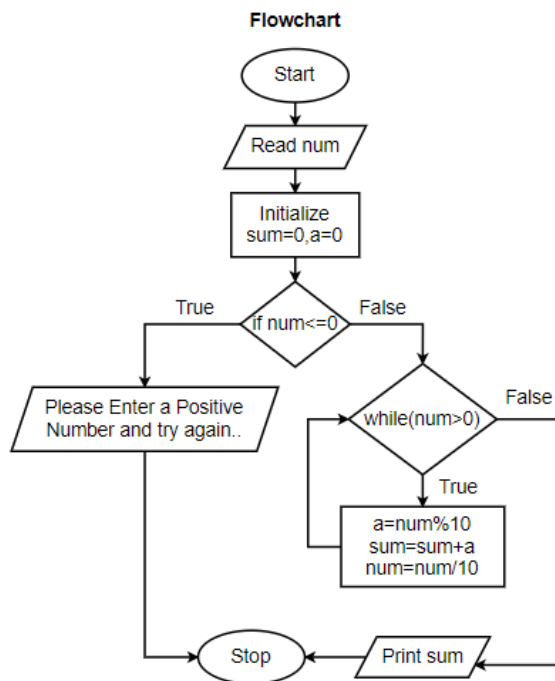
Q.9. Write a java program to print all the factors of a given number.



Algorithm:

- 1) Start
- 2) Enter a Number num.
- 3) if num<=0 is true then Please Enter a Positive Number and try again.. and goto step 8.
- 4) step 3 is false then check for(int i=1; i<=num; i++)
- 5) step 4 is true then check if num%i==0
- 6) step 5 is true then Print i and goto step 8
- 7) step 4 is false then and goto step 8.
- 8) Stop.

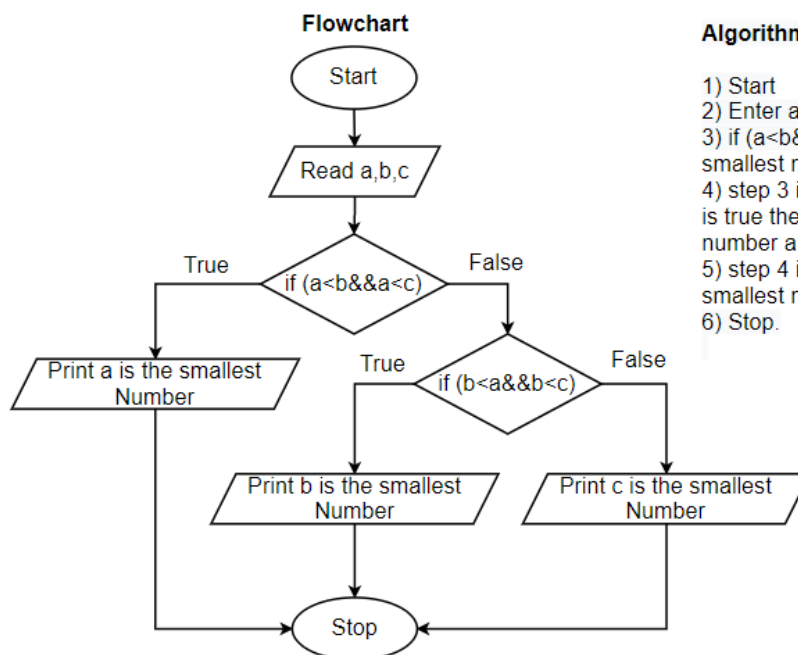
Q.10. Write a java program to find sum of digits of a given number.



Algorithm:

- 1) Start
- 2) Enter a Number num.
- 3) Initialize sum=0, a=0.
- 4) if num<=0 is true then Please Enter a Positive Number and try again..and goto step 8.
- 5) step 4 is false then check while(num>0).
- 6) step 5 is true then
 $a = \text{num} \% 10$
 $\text{sum} = \text{sum} + a$
 $\text{num} = \text{num} / 10$
- 7) step 5 is false then Print sum and goto step 8.
- 8) Stop.

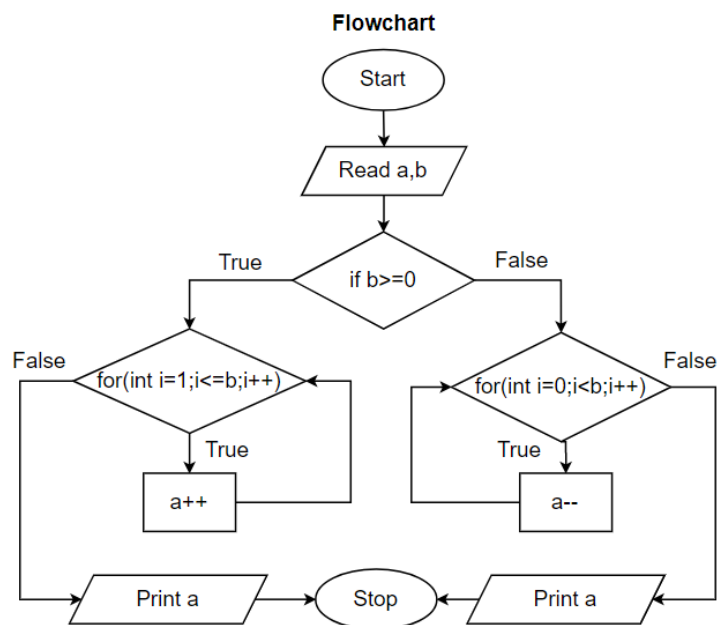
Q.11. Write a java program to find the smallest of 3 number.



Algorithm:

- 1) Start
- 2) Enter a number a,b,c.
- 3) if (a<b&&a<c) is true then Print a is the smallest number and goto step 6.
- 4) step 3 is false then check if(b<a&&b<c) is true then print b is the smallest number and goto step 6.
- 5) step 4 is false then print c is the smallest number and goto step 6.
- 6) Stop.

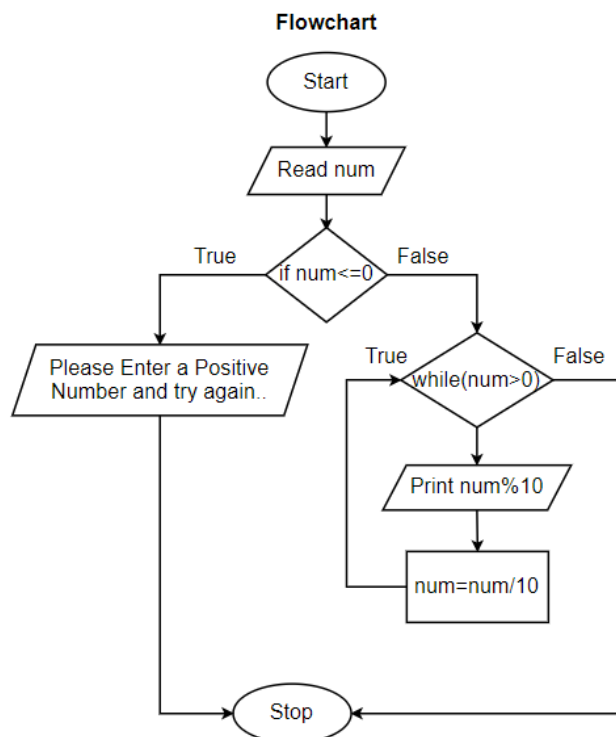
Q.12. How to add two numbers without using arithmetic operators in java.



Algorithm:

- 1) Start
- 2) Enter a number a,b.
- 3) if $b \geq 0$
- 4) step 3 is true then check for $(\text{int } i=1; i \leq b; i++)$.
- 5) step 4 is true then $a++$ and step 4 is false then Print a and goto step 8.
- 6) step 3 is false then check for $(\text{int } i=0; i < b; i++)$.
- 7) step 6 is true then $a--$ and step 6 is false then Print a and goto step 8.
- 8) Stop.

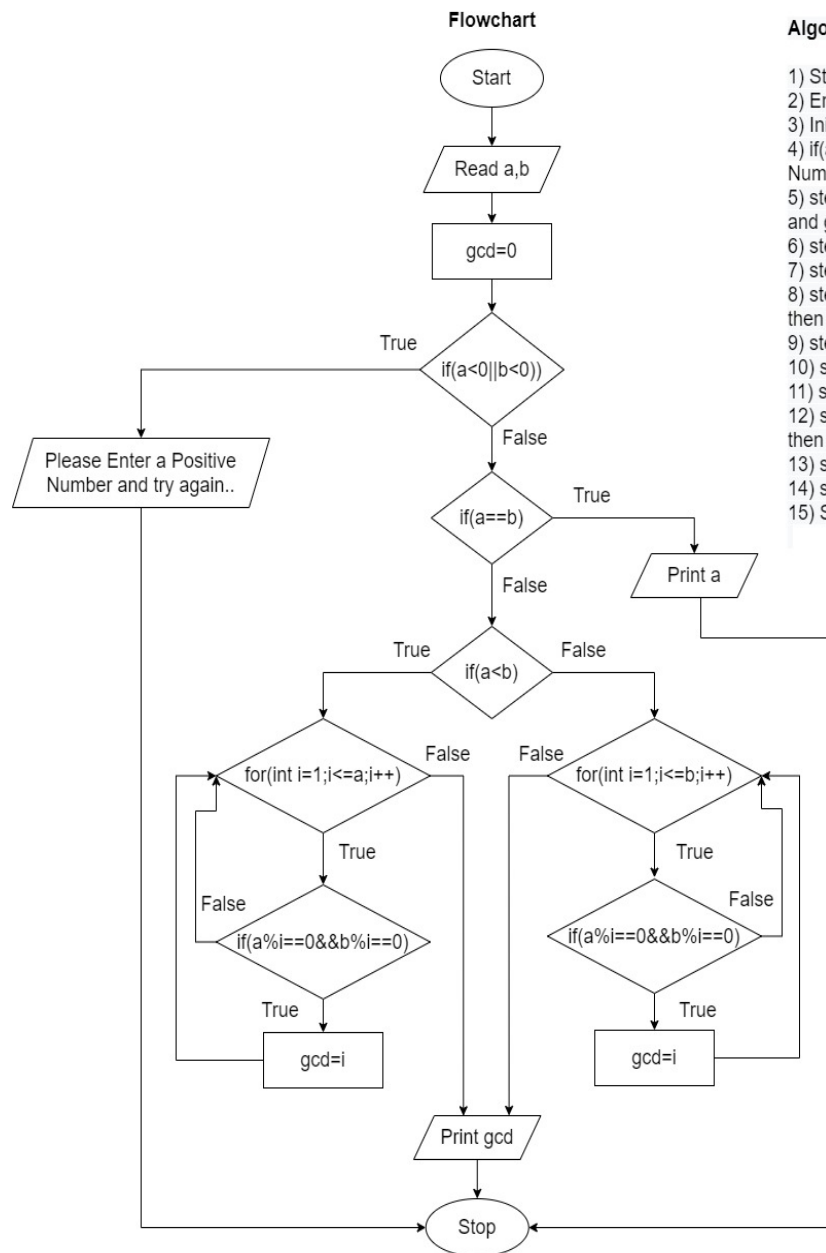
Q.13. Write a java program to reverse a given number.



Algorithm:

- 1) Start
- 2) Enter a Number num.
- 3) if $\text{num} \leq 0$ is true then Please Enter a Positive Number and try again.. and goto step 8 .
- 4) step 3 is false then check while $(\text{num} > 0)$
- 5) step 4 is true then Print $\text{num} \% 10$ and do step 6
- 6) $\text{num} = \text{num} / 10$ and goto step 4.
- 7) step 4 is false then goto step 8.
- 8) Stop.

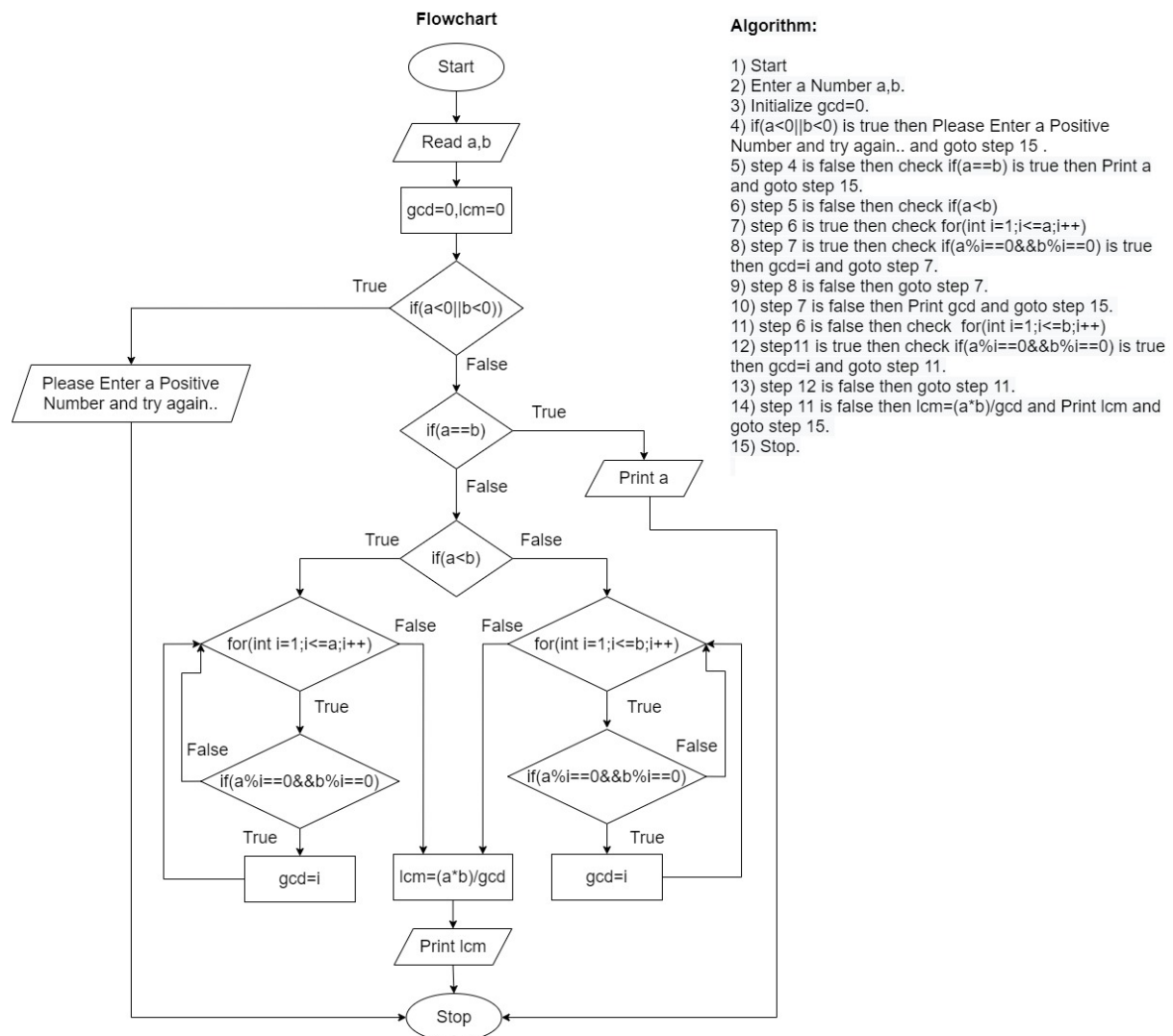
Q.14. Write a java program to find GCD of two given numbers.



Algorithm:

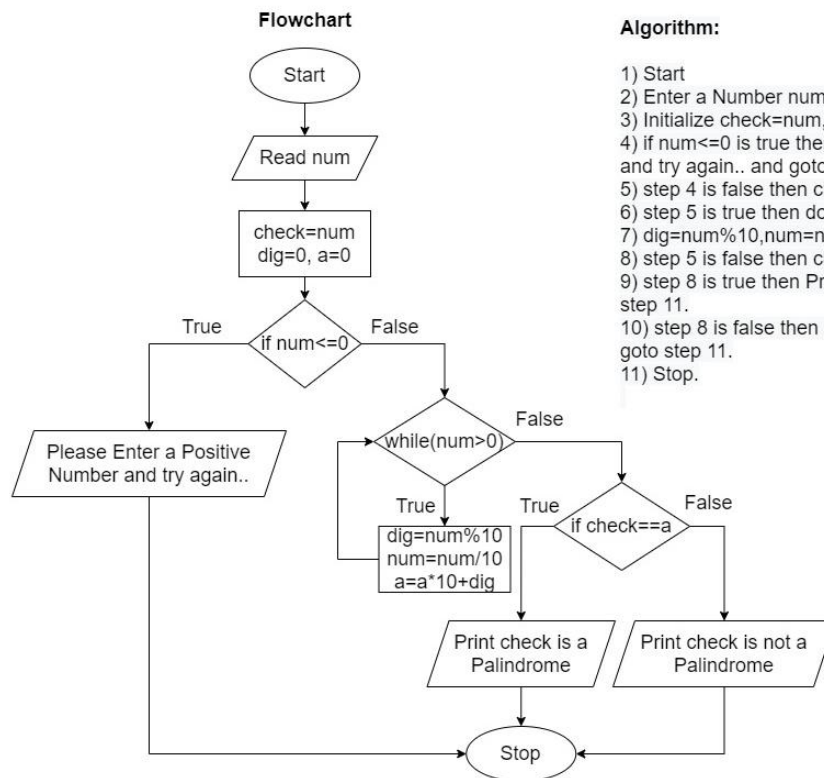
- 1) Start
- 2) Enter a Number a,b.
- 3) Initialize gcd=0.
- 4) if(a<0||b<0) is true then Please Enter a Positive Number and try again.. and goto step 15 .
- 5) step 4 is false then check if(a==b) is true then Print a and goto step 15.
- 6) step 5 is false then check if(a<b)
- 7) step 6 is true then check for(int i=1;i<=a;i++)
- 8) step 7 is true then check if(a%i==0&&b%i==0) is true then gcd=i and goto step 7.
- 9) step 8 is false then goto step 7.
- 10) step 7 is false then Print gcd and goto step 15.
- 11) step 6 is false then check for(int i=1;i<=b;i++)
- 12) step 11 is true then check if(a%i==0&&b%i==0) is true then gcd=i and goto step 11.
- 13) step 12 is false then goto step 11.
- 14) step 11 is false then Print gcd and goto step 15.
- 15) Stop.

Q.15. Write a java program to find LCM of two given numbers.

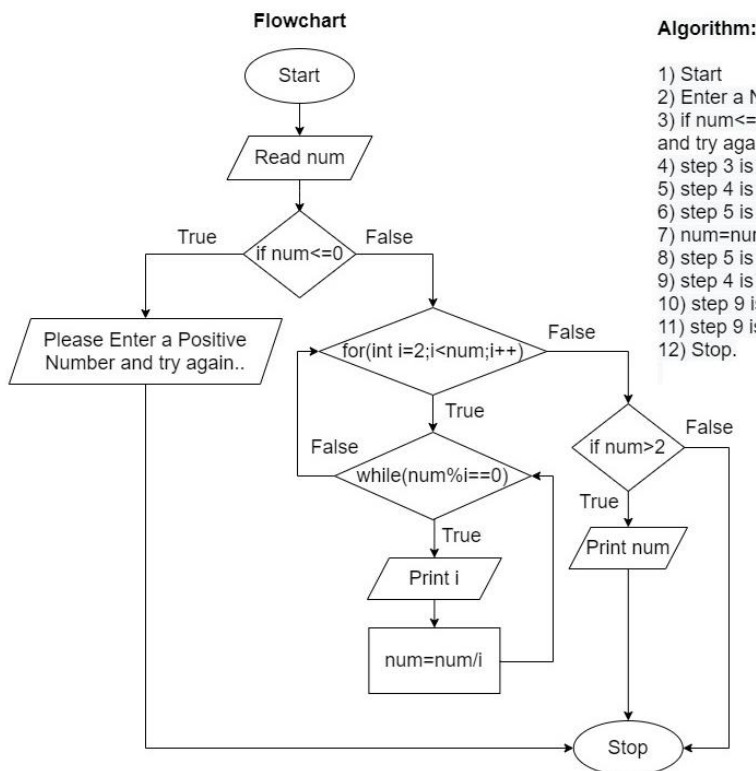


Q.16. Write a java program to find LCM of two given numbers using the Prime factors method.

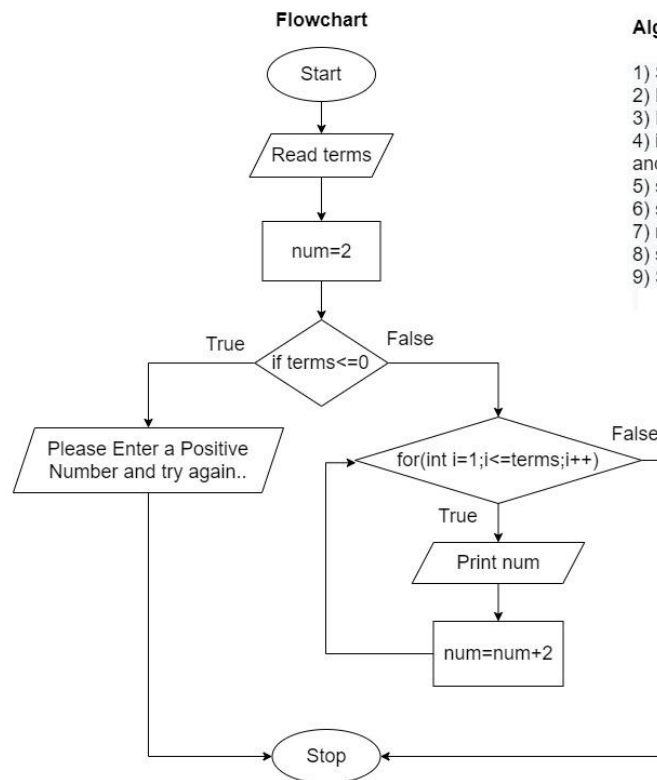
Q.17. Check whether the given number is a Palindrome or Not.



Q.18. Write a java program to print all Prime factors of the given number.



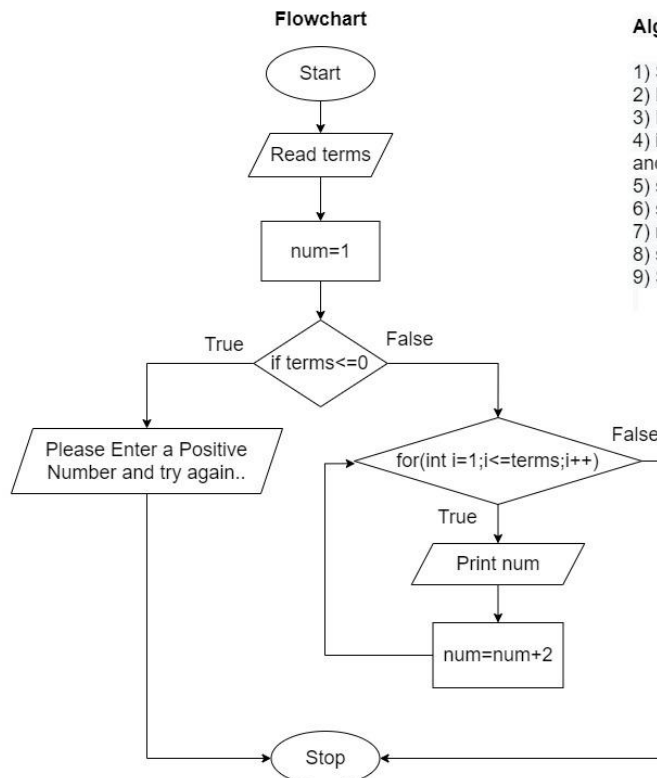
Q.19. Write a java program to print following Even number series 2 4 6 8 10 12 14



Algorithm:

- 1) Start
- 2) Enter a Number of terms.
- 3) Initialize num=2.
- 4) if num<=0 is true then Please Enter a Positive Number and try again.. and goto step 9.
- 5) step 4 is false then check for(int i=1;i<=terms;i++)
- 6) step 5 is true then Print num and do step 7.
- 7) num=num+2 and goto step 5.
- 8) step 5 is false then goto step 9.
- 9) Stop.

Q.20. Write a java program to print following Odd number series 1 3 5 7 9 11 13.....



Algorithm:

- 1) Start
- 2) Enter a Number of terms.
- 3) Initialize num=1.
- 4) if num<=0 is true then Please Enter a Positive Number and try again.. and goto step 9.
- 5) step 4 is false then check for(int i=1;i<=terms;i++)
- 6) step 5 is true then Print num and do step 7.
- 7) num=num+2 and goto step 5.
- 8) step 5 is false then goto step 9.
- 9) Stop.