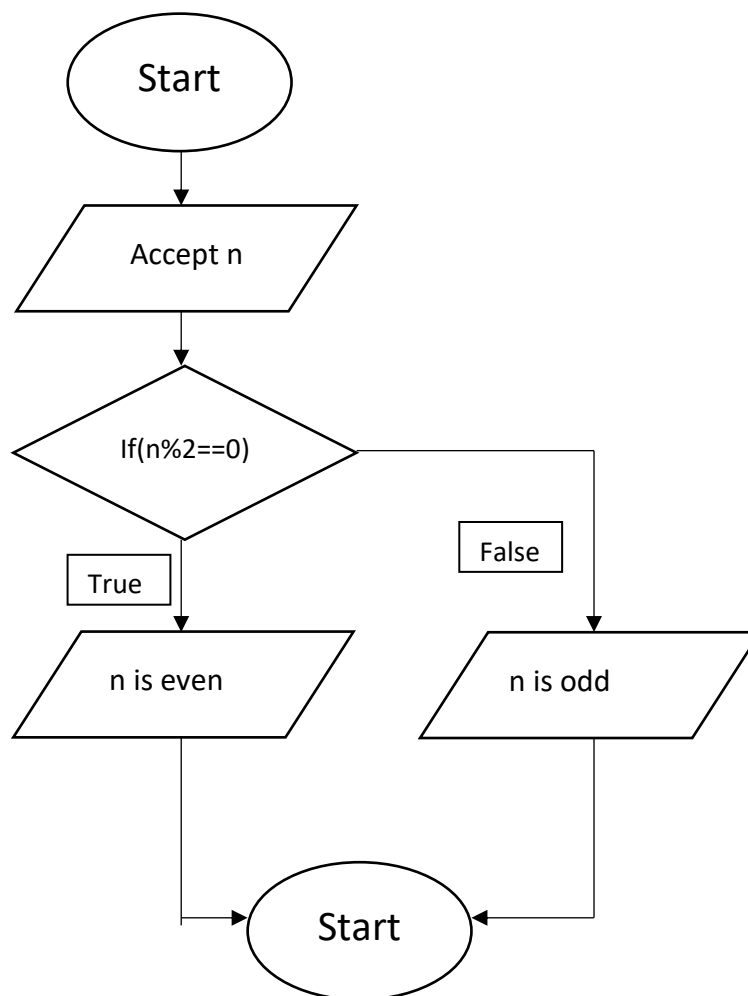


## 1. Write a program to check number is odd or even

### Algorithm:

1. Start
2. Declare variable n
3. Read variable n
4. Check remainder after dividing given number by 2
5. If remainder is 0, then the number is even
6. Else number is odd
7. Print even or odd

Flowchart :



### Program:

```
import java.util.Scanner;
class evenodd{
public static void main(String args[]){
Scanner sc =new Scanner(System.in) ;
System.out.println("enter the number");
int a =sc.nextInt();
if(a%2==0){
```

```
System.out.println("number is even");
}  
else{System.out.println("number is odd");  
}  
} }
```

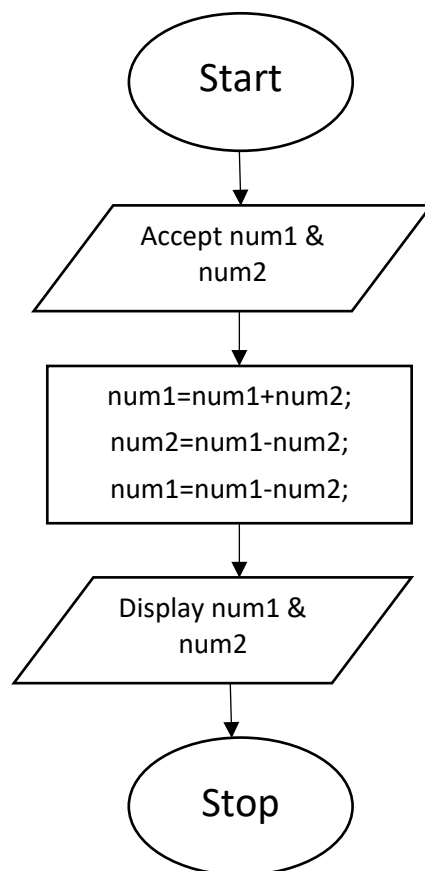
---

## 2. Write a program to swap number without using 3<sup>rd</sup> variable

### Algorithm:

1. Start
2. Accept and print two numbers
3.  $\text{num1} = \text{num1} + \text{num2}$   
 $\text{num1} = \text{num1} - \text{num2}$   
 $\text{num2} = \text{num1} - \text{num2}$
4. Print swapped numbers
5. Stop

Flowchart :



**Program:**

```
import java.util.Scanner;
class swap{
public static void main(String agrs[]){
Scanner sc=new Scanner(System.in);
System.out.println("Enter two numbers ");
int num1= sc.nextInt();
int num2= sc.nextInt();
System.out.println("Entered numbers are num1 = " +num1+ " and num2 = " num2);
num1=num1+num2;
num2=num1-num2;
num1=num1-num2;
System.out.println("Numbers after swapping are num1 = " +num1+ "and num2 = "
+num2 );
}}
```

---

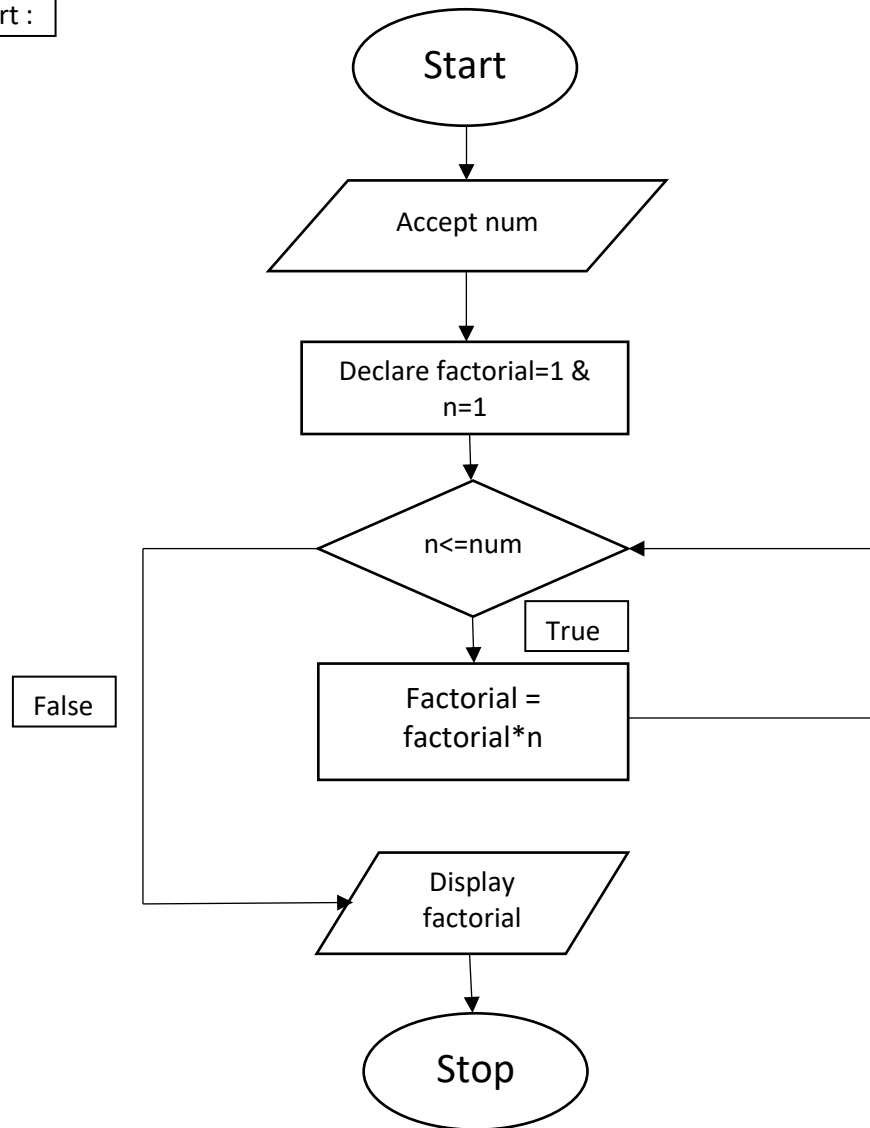
**3. Write a program to find factorial of given number****Algorithm:**

1. Start
2. Accept num
3. Declare factorial=1, n=1
4. Repeat till i<=num  
    factorial =factorial\*n  
    n++
5. Display factorial
6. Stop

**Program:**

```
import java.util.Scanner;
class factorial{
public static void main(String args[] ){
Scanner sc=new Scanner(System.in);
System.out.println("Enter the number ");
int num= sc.nextInt();
int factorial=1 ;
for(int n=1;n<=num;n++){
factorial=factorial*n; }
System.out.println("Factorial of num " +num +" is " +factorial); }}
```

Flowchart :



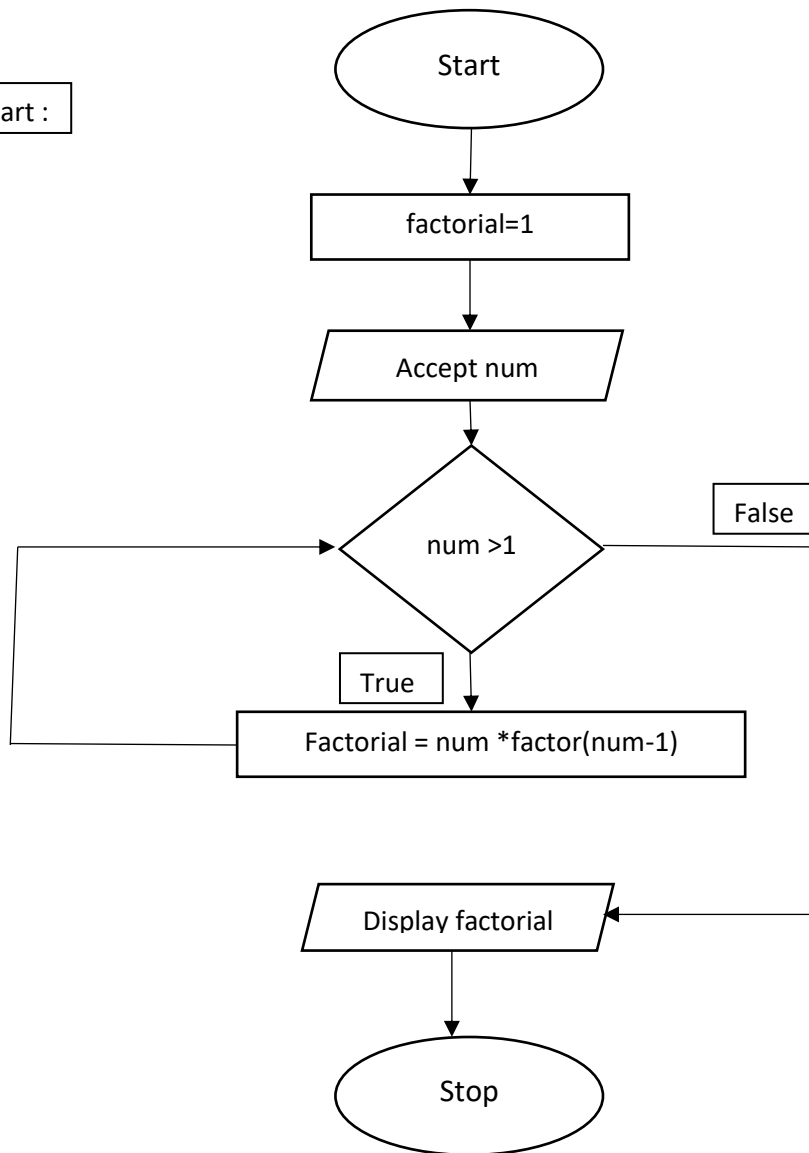
---

#### 4. Write a program to find factorial of given number using recursion

**Algorithm:**

1. Start
2. Declare variable factorial=1
3. Accept num
4. Call method factor(number) recursively until value of num>1
5. Print factorial
6. Stop

Flowchart :



### **Program:**

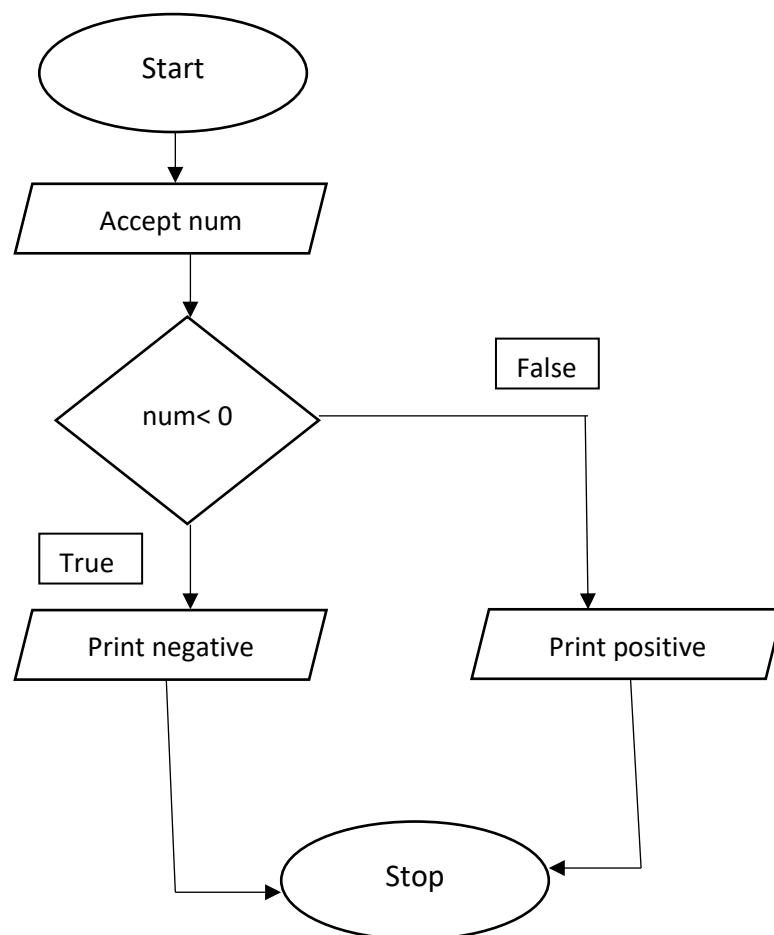
```
import java.util.Scanner;
public class factorecur{
    public static void main(String[] args){
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter a number for factorial = ");
        int num=sc.nextInt();
        long factorial = factor(num);
        System.out.println(" Factorial of " + num + " = " + factorial); }
    public static long factor(int num){
        if (num > 1)
            return num * factor(num-1);
        else
            return 1;
    }
}
```

## 5. Write a program to check if number is positive or negative

### Algorithm:

1. Start
2. accept num
3. Check if  $\text{num} < 0$
4. If true, print negative
5. Else print positive
6. Stop

Flowchart :



### Program:

```
import java.util.Scanner;
class positivenegative{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
```

```

System.out.println("Enter the number ");

int num=sc.nextInt();
    if(num<0){
        System.out.println("Entered number is negative number");
    }
    else{
        System.out.println("Entered number is positive number");
    }
}
}

```

---

## 6. Write a program to check if given year is leap year or not

### Algorithm:

1. Start
2. Accept year
3. Check if (year%400==0), if true print leap year, else check step 4 and 5
4. Check if (year%100==0), if true print not a leap year, else go to step 5
5. Check if (year%4==0), if true print leap year, else print not a leap year
6. Stop

### Program:

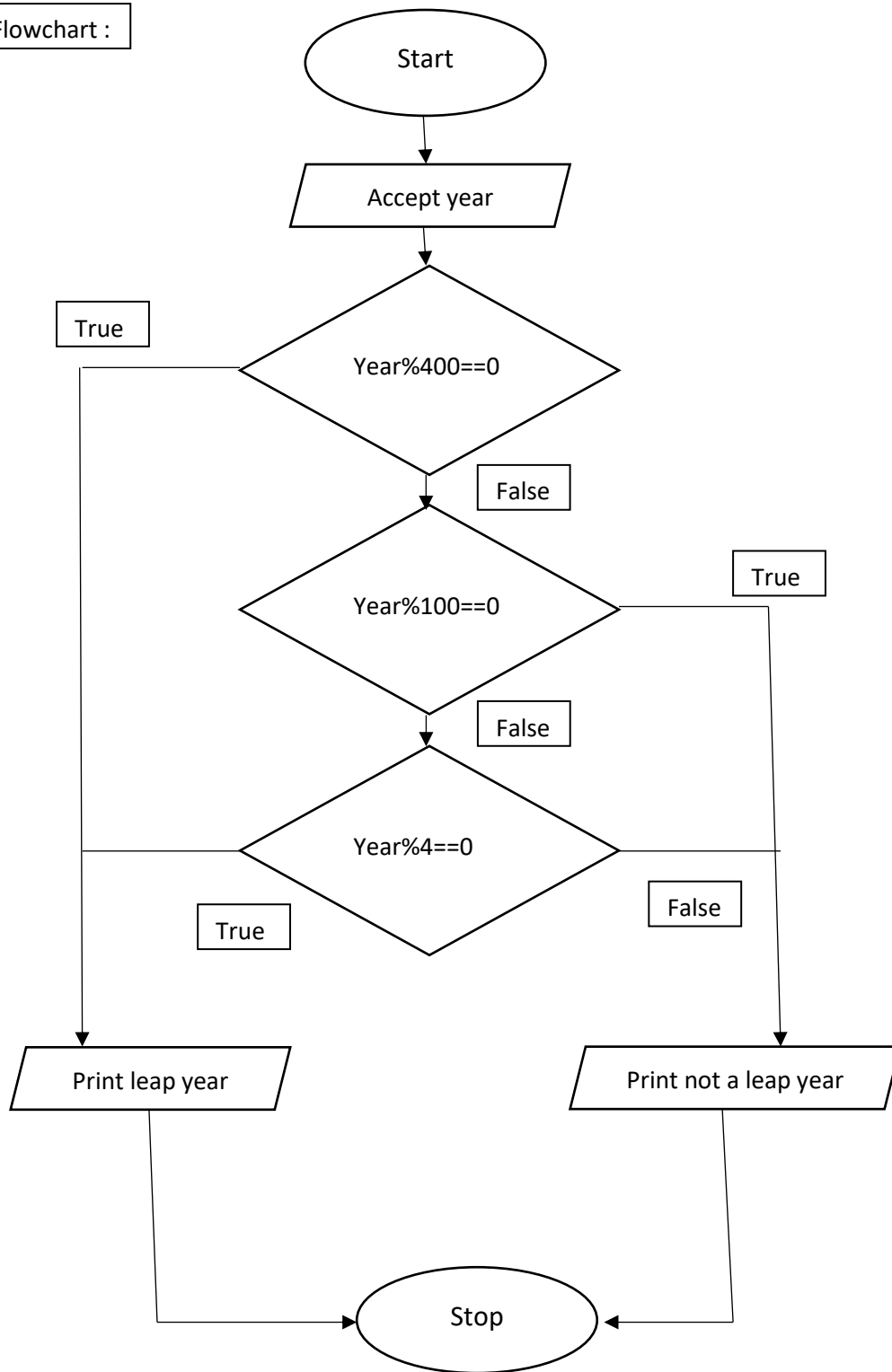
```

import java.util.Scanner;

class leap{
    public static void main(String args[] ){
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the year ");
        int year= sc.nextInt();
        if(year%400==0){
            System.out.println(+year+" is a leap year ");}
        else if(year%100==0)
        {System.out.println(+year+" is not a leap year ");}
        else if(year%4==0){
            System.out.println(+year+" is a leap year ");}
        else{
            System.out.println(+year+" is not a leap year ");}
    }
}

```

Flowchart :

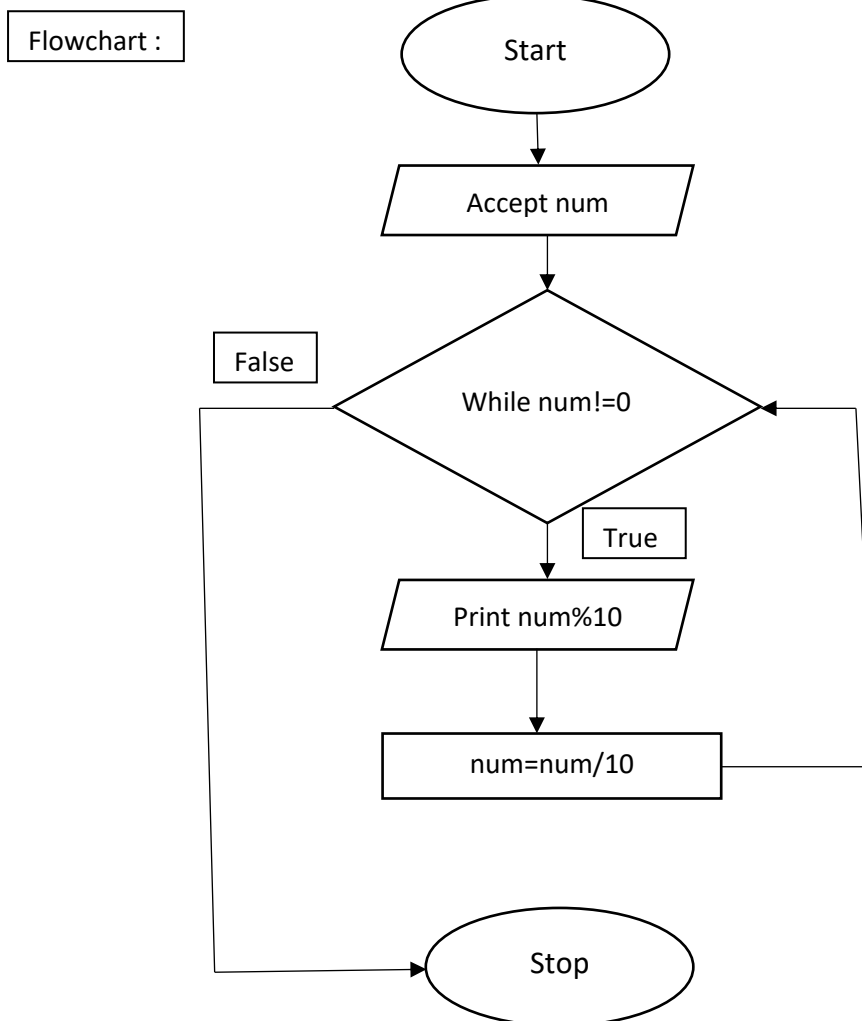




## 7. Write a program to print the digits of given number

### Algorithm:

1. Start
2. Accept num
3. display num%10
4. num=num/10;
5. Repeat step 3 to 4 till num=0
6. Stop



**Program:**

```
import java.util.Scanner;
class digits{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter the number ");
        int num=sc.nextInt();
        System.out.println("Digits of " +num +" are ");
        while( num!=0)
        {
            int c=num%10;
            System.out.println(c);
            num=num/10;
        }
    }
}
```

---

## 8. Write a program to print prime factors of given number

**Algorithm:**

1. Start
2. Accept Num.
3. Declare i=2.
4. for i < num check
  - i. while(num%i== 0), print i
  - ii. num=num/i
  - iii. if (num>2) print num
  - iv. repeat till loop condition is true
5. Stop

**Program:**

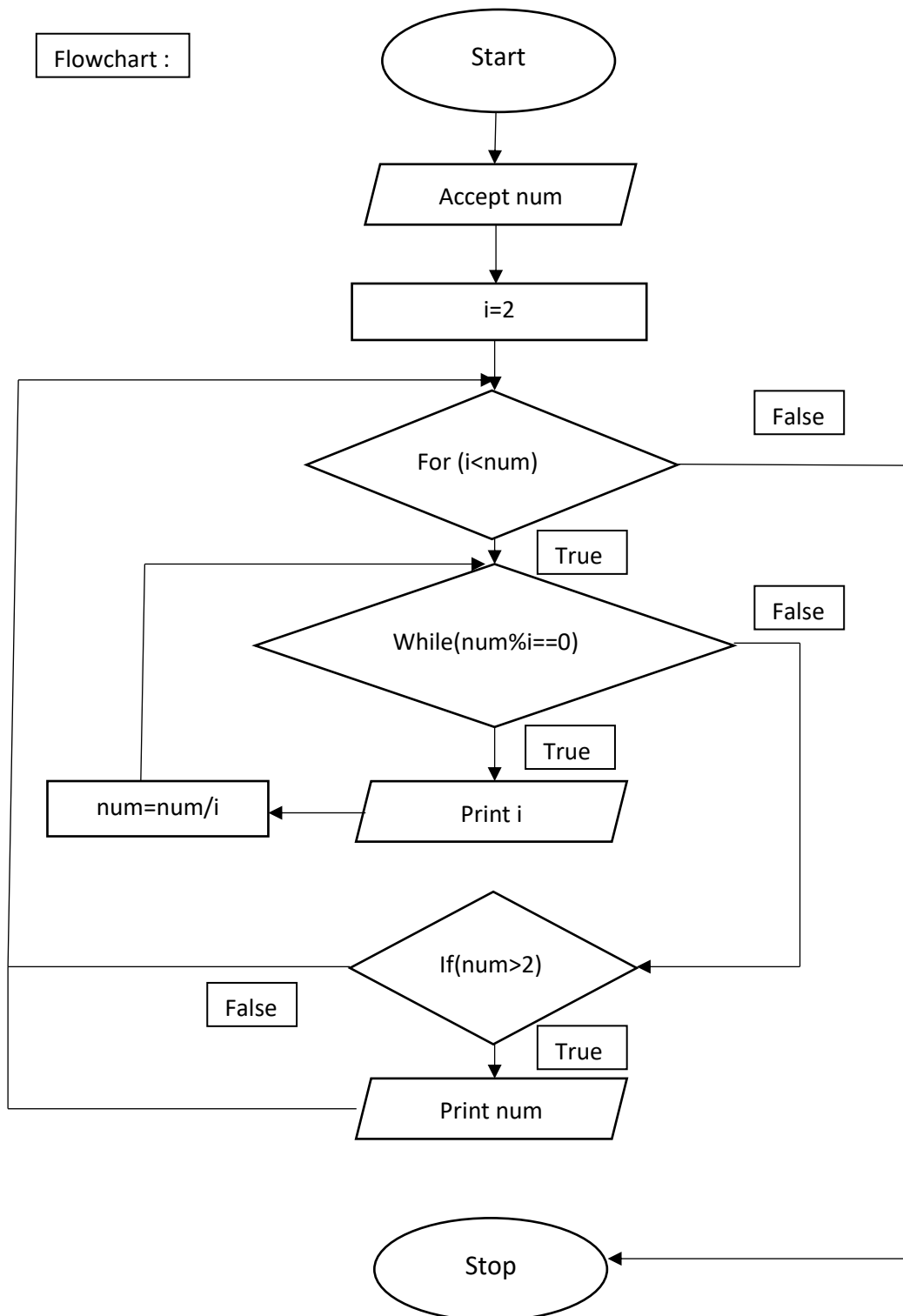
```
import java.util.Scanner;
class primefactors{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter the number ");
        int num=sc.nextInt();
```

```

for(int i = 2; i < num; i++) {
    while(num%i == 0) {
        System.out.println(i+" ");
        num = num/i;    }    }
if(num > 2) {
    System.out.println(num);    } }

```

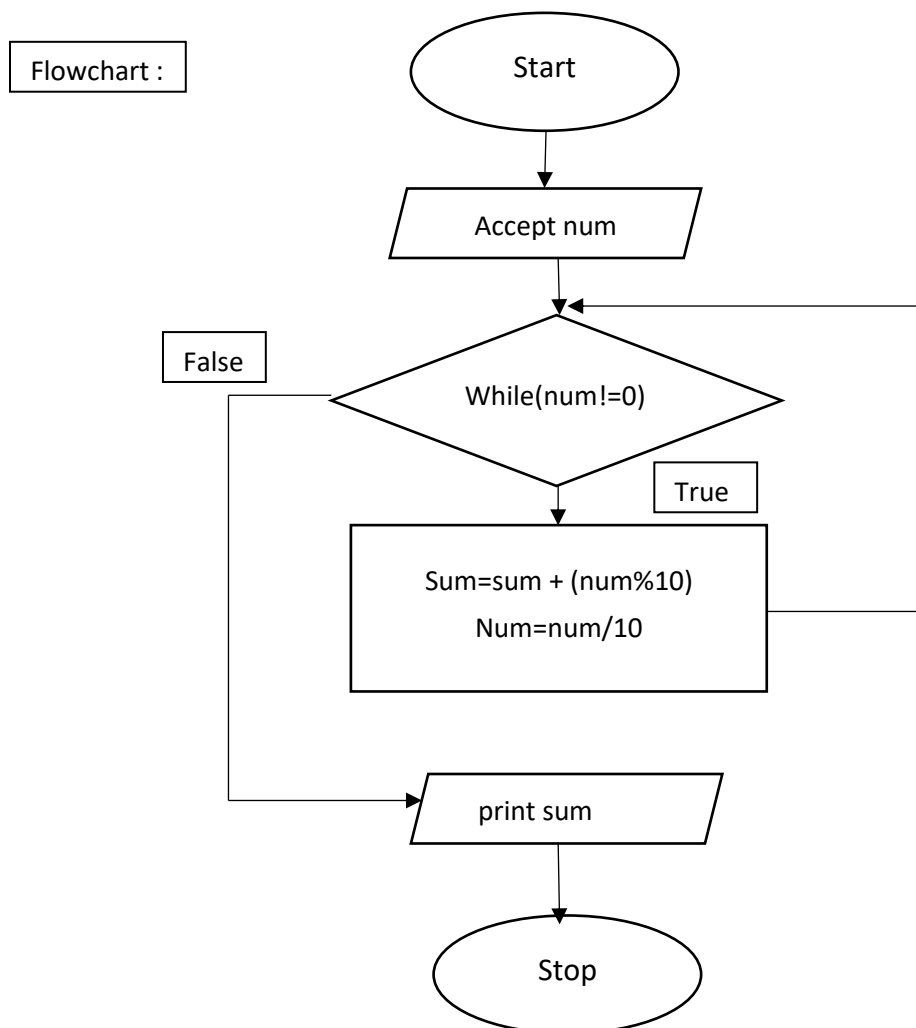
Flowchart :



## 9. Write a program to find the sum of the digits of number

### Algorithm:

1. Start
2. Accept number
3. Declare sum=0
4. While (num!= 0) ,sum=sum+(num%10) and num=num/10
5. Print sum
6. Stop



### Program:

```
import java.util.Scanner;
class digitsum{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
```

```

System.out.println("Enter the number ");
int num=sc.nextInt();
int sum=0;
System.out.println("Sum of digits of " +num +" is ");
while( num!=0)
{
sum=sum+(num%10);
    num=num/10;
}
System.out.println(sum);
}

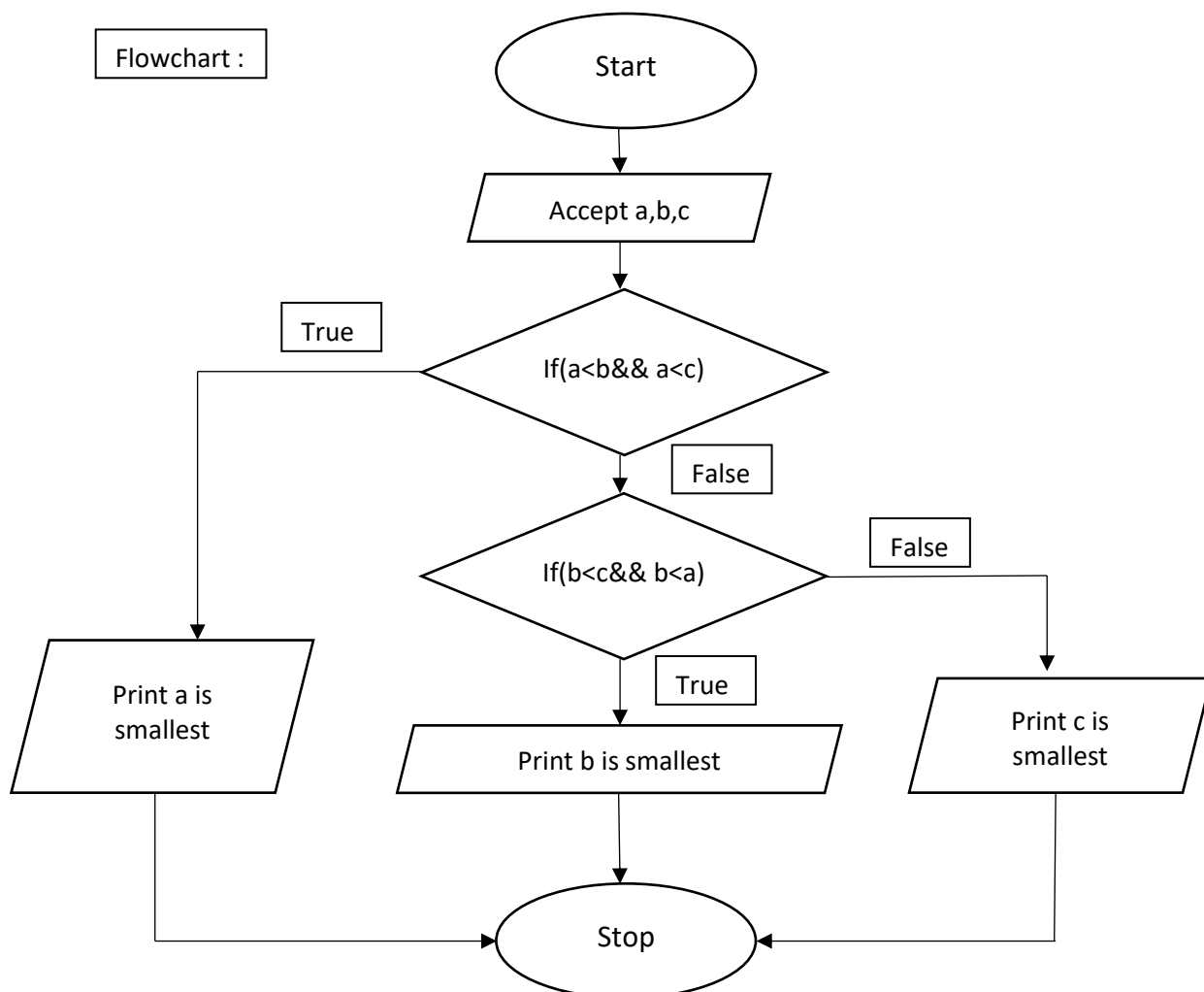
```

## 10. Write a program to find smallest of 3 numbers

### Algorithm:

1. Start
2. accept three numbers
3. Check if  $b > a$  and  $a < c$ , if true print a is smallest and exit
4. Check if  $b < a$  and  $b < c$ , if true print b is smallest and exit else print c is smallest
5. Stop

Flowchart :



**Program:**

```
import java.util.Scanner;

class smallest{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter three numbers ");
        int a=sc.nextInt();
        int b=sc.nextInt();
        int c=sc.nextInt();
        if(a<b && a<c){
            System.out.println("The smallest number is" +a);
        }
        else if (b<c && b<a) {
            System.out.println("The smallest number is " +b);
        }
        else {
            System.out.println("The smallest number is " +c);
        }
    }
}
```

---

**11. Write a program to find addition without using arithmetic operator****Algorithm:**

1. Start
2. accept two number a,b
3. declare c=a
4. For(i=1;i<=b;i++) c++
5. Print c
6. Stop

**Program:**

```
import java.util.Scanner;

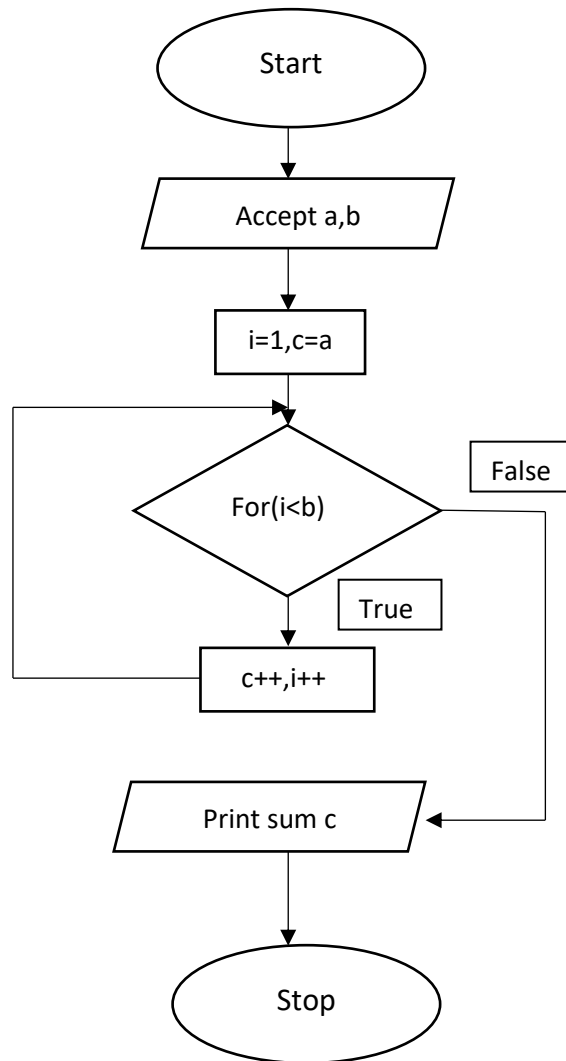
class add {
    public static void main(String[] args)    {
        Scanner sc = new Scanner(System.in);
        System.out.println(" Enter numbers to be added = ");
        int a = sc.nextInt();
```

```

int b = sc.nextInt();
int c=a;
for(int i = 1; i <= b; i++) c++;
System.out.println("Sum of "+a+" and "+b+" = "+c);
}
}

```

Flowchart :



## 12. Write a program to find reverse of given number

### Algorithm:

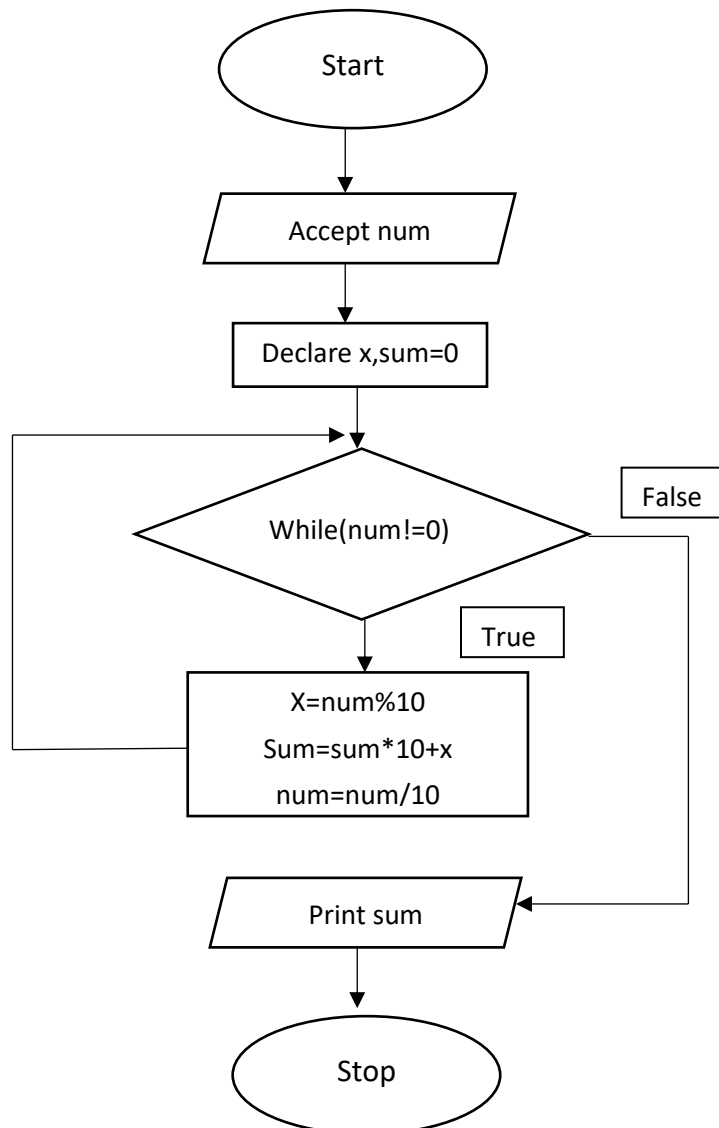
1. Start
2. accept number
3. x, sum=0
4. While(num!=0)
  - x = num % 10
  - sum= sum \* 10 + x

num = num / 10

5. Print sum

6. Stop

Flowchart :



### **Program:**

```
import java.util.Scanner;
public class reversenum
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the number:");
        int num = sc.nextInt();
        int x,sum = 0;
```



```

while(num != 0)    {
    x = num % 10;
    sum = sum * 10 + x;
    num = num / 10;    }
System.out.println("Reverse of number:"+sum);
}
}

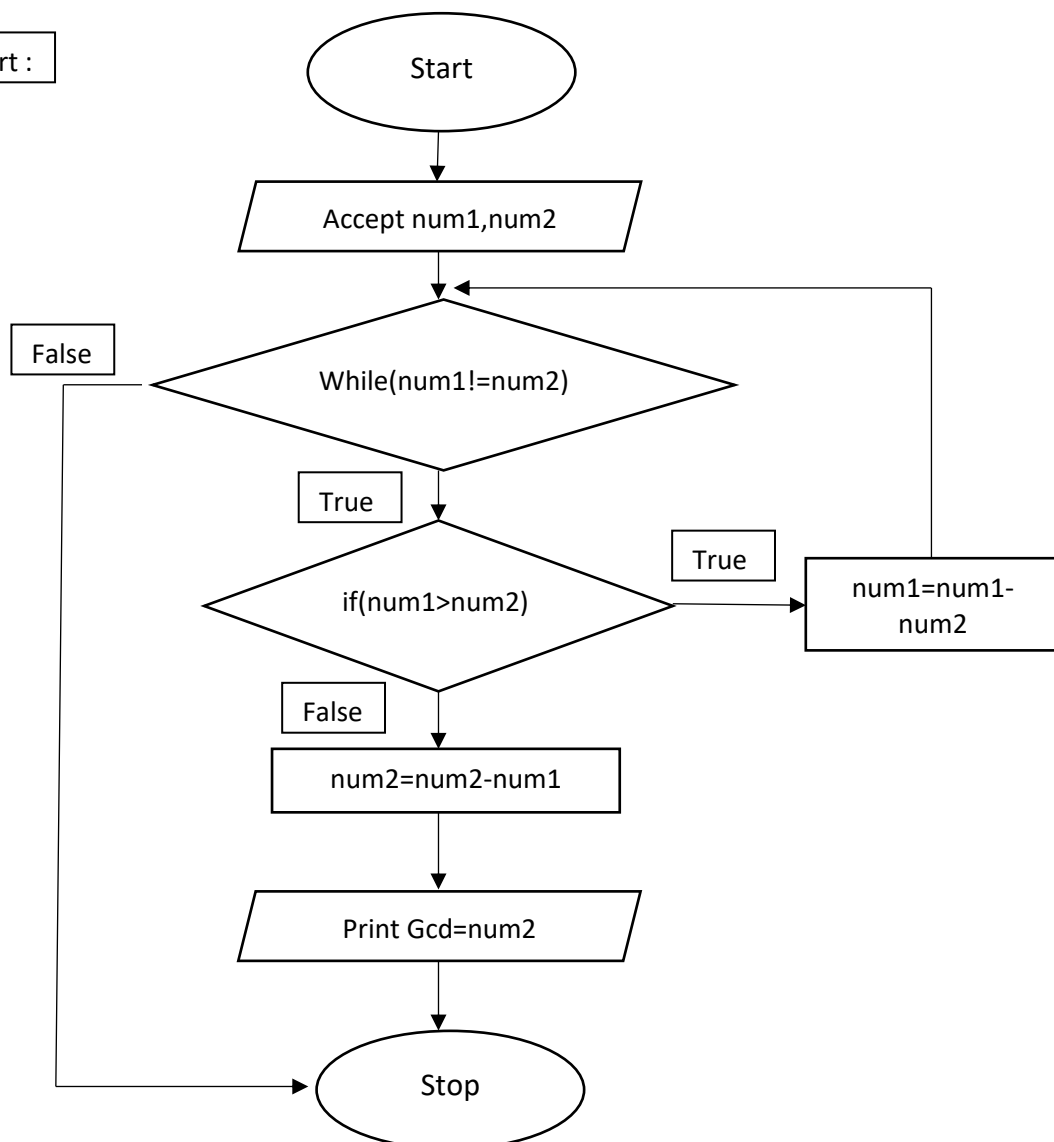
```

### 13. Write a program to find gcd of given numbers

#### Algorithm:

1. Start
2. accept two number num1& num2
3. while(num1!=num2) if (num1>num2) ,then put num1=num1-num2  
else num2=num2-num1
4. Print GCD=num2
5. Stop

Flowchart :



**Program:**

```
import java.util.Scanner;
class gcd{
public static void main(String[] args){
Scanner sc = new Scanner(System.in);
System.out.println("Enter the number:");
int num1 = sc.nextInt();
int num2 = sc.nextInt();

    while(num1!=num2){
if(num1>num2)
num1=num1-num2;
else
num2=num2-num1;
}
System.out.printf("GCD of num1 and num2 is: " +num2);
}
}
```

---

**14. Write a program to check if given numbers is palindrome or not****Algorithm:**

1. Start
2. Accept num
3. declare reverse=0 and n=num
4. while n!=0  
reverse =reverse\*10  
reverse =reverse+(n%10)  
n=n/10
5. check if num== reverse ,if true print entered number is palindrome and vice versa
6. stop

**Program:**

```
import java.util.Scanner;

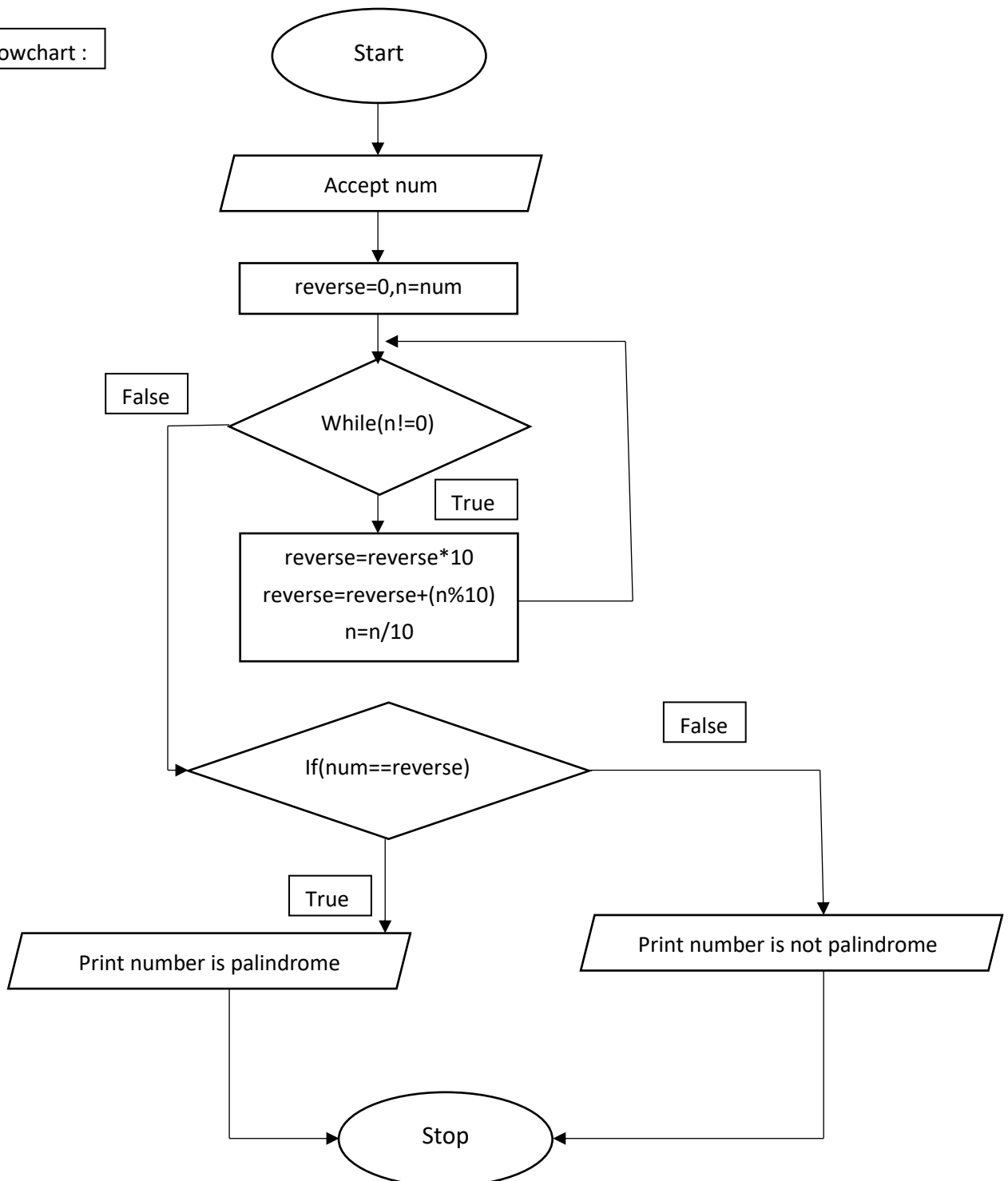
class palindrome{
public static void main(String args[]) {
Scanner sc= new Scanner(System.in);
System.out.println("Enter the number ");
```

```

int num=sc.nextInt();
int n,reverse=0;
n=num;
while(n!=0){
reverse=reverse*10;
reverse=reverse+n%10;
n=n/10;}
if(num==reverse){
System.out.println("Entered number is palindrome ");}
else{
System.out.println("Entered number is not a palindrome ");}
}

```

Flowchart :

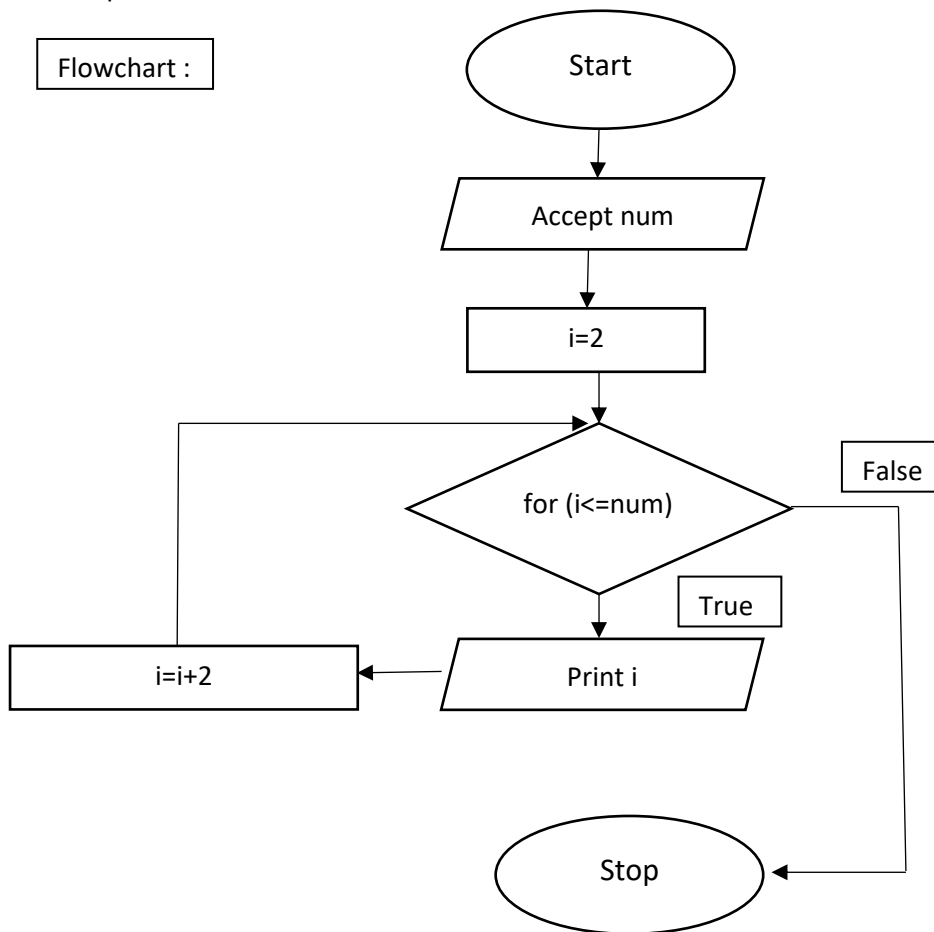


## 15. Write a program to print EVEN number series

### Algorithm:

1. Start
2. Accept endpoint of series
3. Declare  $i=2$
4. For  $i \leq \text{num}$ ,  
    print  $i$   
     $i=i+2$
5. Stop

Flowchart :



### Program:

```
import java.util.Scanner;
class evennum{
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the endpoint number :");
        int num = sc.nextInt();
        System.out.println("Even numbers from 1 to "+num+" are: ");
    }
}
```

```
for (int i = 2; i <= num; i+=2 ) {  
    System.out.println(i);  
}  
}
```

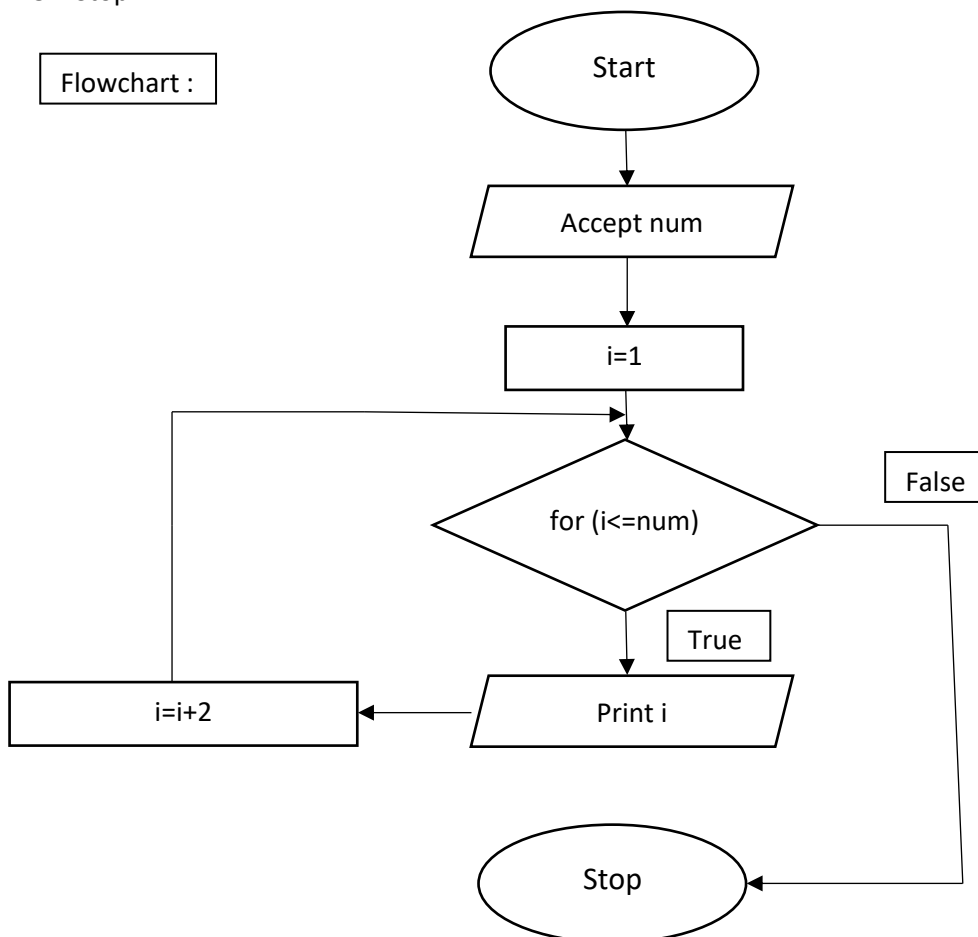
---

## 16. Write a program to print ODD number series

### Algorithm:

1. Start
2. Accept endpoint of series
3. Declare  $i=1$
4. For  $i \leq \text{num}$ ,  
print  $i$   
 $i=i+2$
5. Stop

Flowchart :



**Program:**

```
import java.util.Scanner;
class oddnum{
    public static void main(String args[]) {
        Scanner sc = new Scanner(System.in);
        System.out.print("Enter the endpoint number :");
        int num = sc.nextInt();
        System.out.println("ODD numbers from 1 to "+num+" are: ");
        for (int i = 1; i <= num;i+=2 ) {
            System.out.println(i);
        }
    }
}
```

---

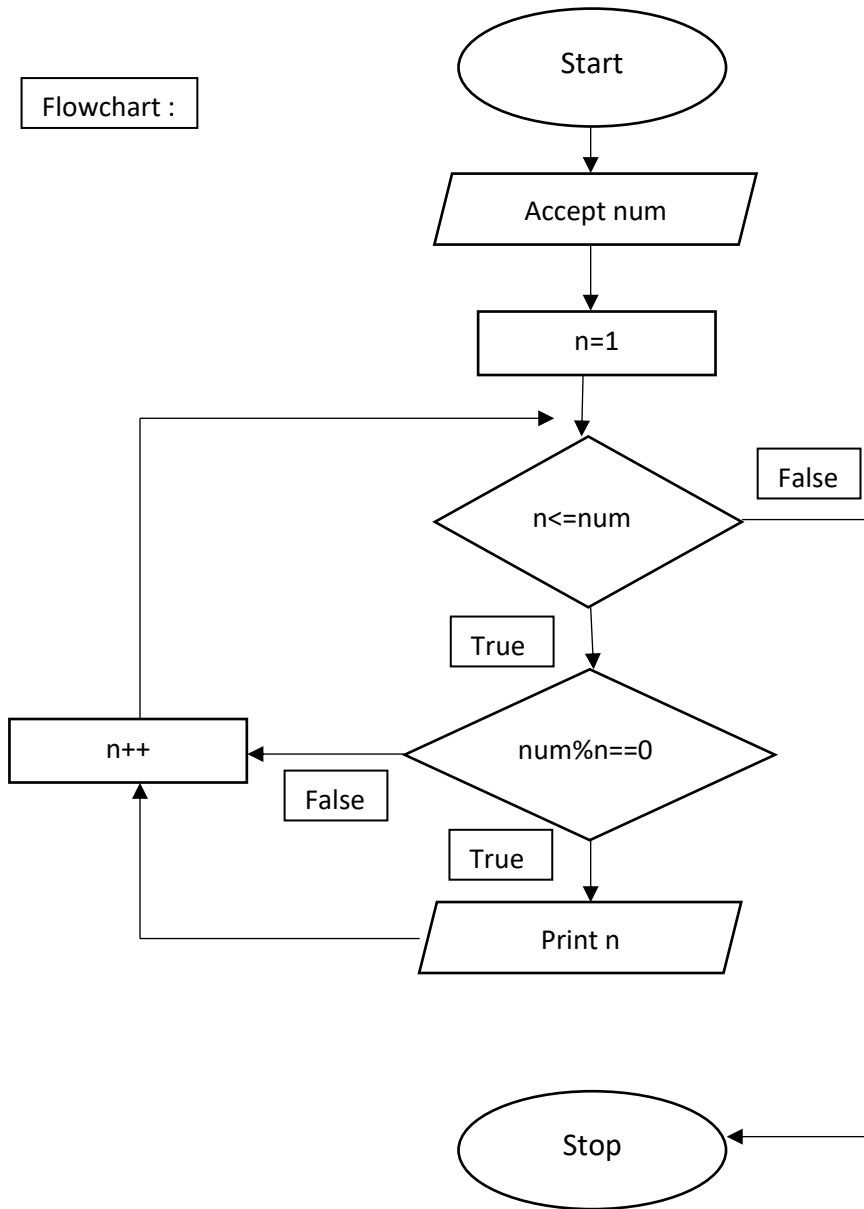
**17. Write a program to print factors of number****Algorithm:**

1. Start
2. Accept number
3. Declare n=1
4. Check for ( n<num )
  - if true check if(num%n==0)
  - if true print n
5. Stop

**Program:**

```
import java.util.Scanner;
class factors{
    public static void main(String args[] ){
        Scanner sc=new Scanner(System.in);
        System.out.println("Enter the number ");
        int num= sc.nextInt();
        System.out.println("Factors of "+num+" are");
        for(int n=1;n<num;n++){
            if(num%n==0){
                System.out.println(n);
            }
        }
    }
}
```

Flowchart :



---

## 18. Write a program to print factors of number

### Algorithm:

1. Start
2. Call printnum method
3. Define (num<=10) if true print num and recursively call print method with (num+1), else exit
4. Stop

### Program:

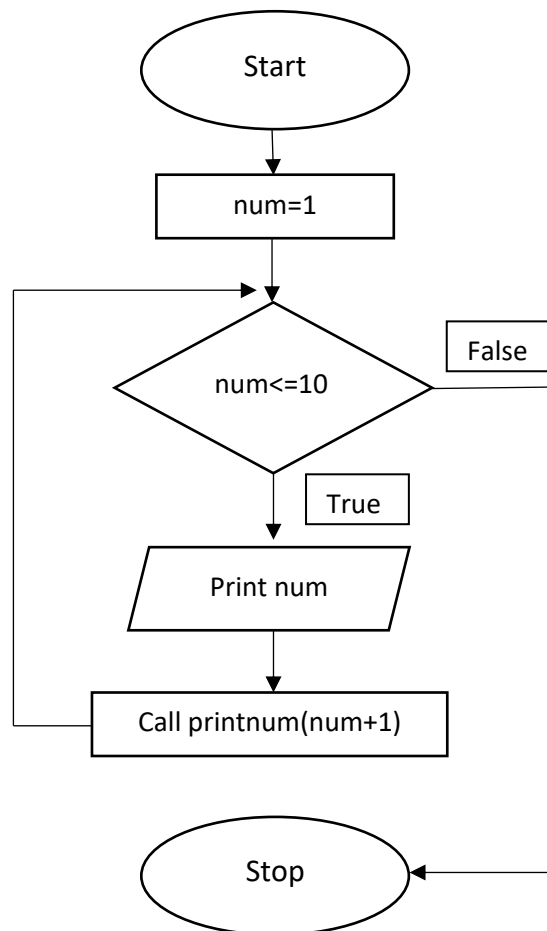
```
class printnum{  
    public static void main(String args[]) {  
        printNum(1);  
    }  
}
```

```

public static void printNum(int num)
{
    if (num <= 10)
    {
        System.out.println(num);
        printNum(num+1);
    }
}

```

Flowchart :



## 19. Write a program to find LCM of given two numbers

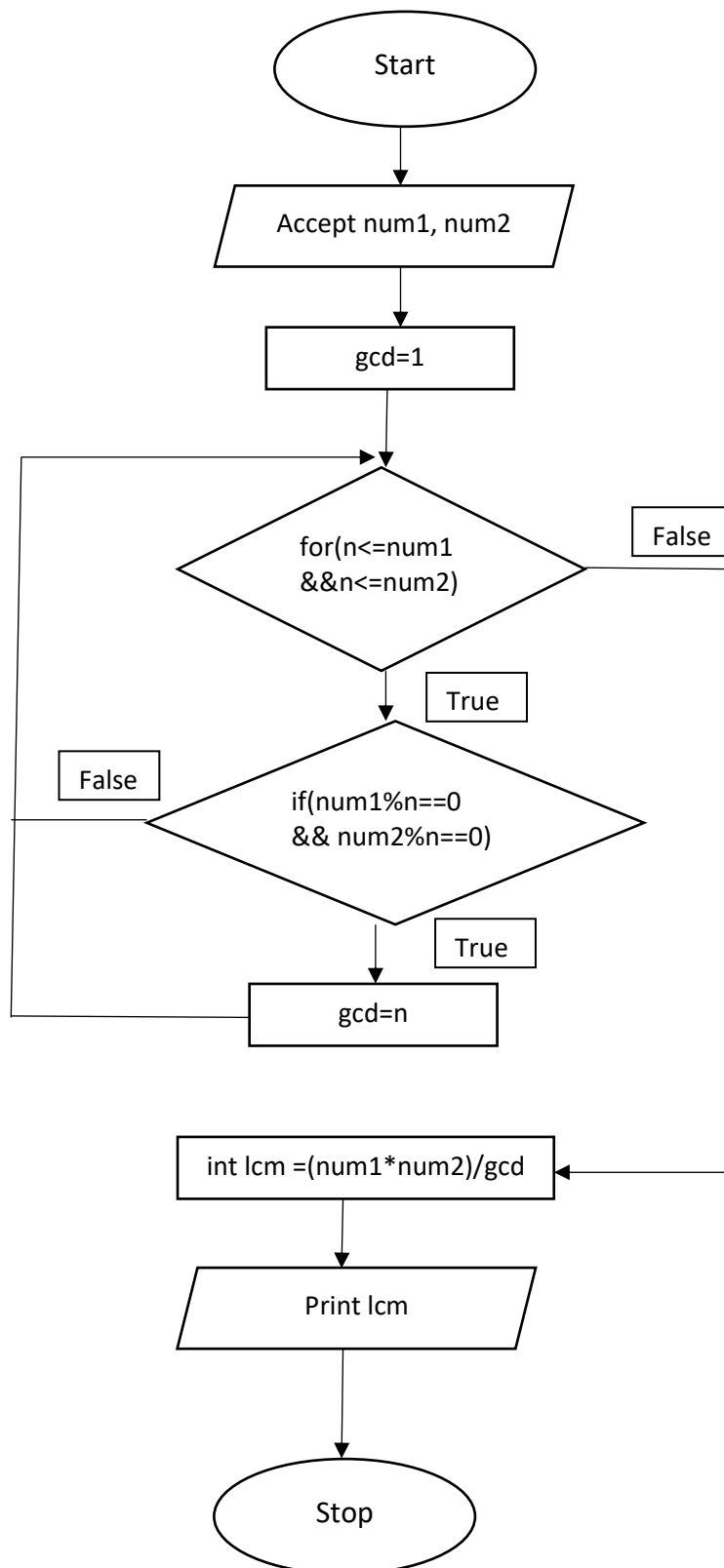
### Algorithm:

- 1) Start
- 2) Accept two number num1,num2
- 3) Declare gcd=1
- 4) for(int n=1; i<= num1 && n<= num2; ++n)



if(num1%n==0 && num2%n==0)  
set gcd=n  
5) lcm=(num1\*num2)/gcd  
6) print LCM  
7) Stop

Flowchart :



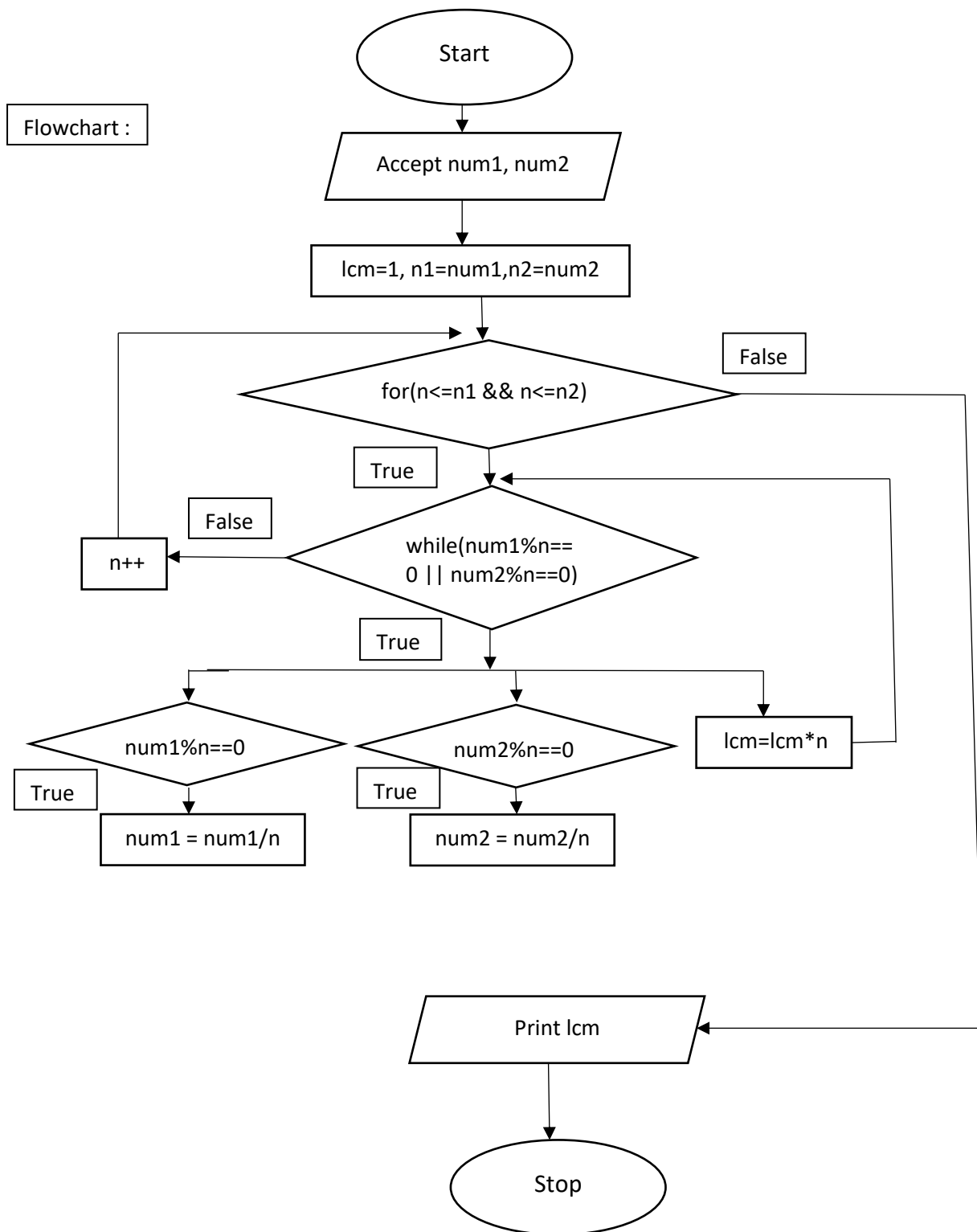
**Program:**

```
import java.util.Scanner;
class lcm
{
    public static void main(String[] args)
    {
        Scanner sc = new Scanner(System.in);
        System.out.println(" Enter two number = ");
        int num1 = sc.nextInt();
        int num2 = sc.nextInt();
        int gcd = 1;
        for(int n=1; n<= num1 && n<= num2; ++n)
        {
            if(num1%n==0 && num2%n==0)
            {
                gcd = n;
            }
        }
        int lcm = (num1*num2) / gcd;
        System.out.println("The LCM of "+num1+" and "+num2+" is "+lcm);
    }
}
```

---

**20. Write a program to find LCM of two numbers using prime factors method****Algorithm:**

1. Start
2. Accept two number num1, num2
3. Declare lcm =1, n=2
4. for (n<= n1 && n<= n2) if true follow step 5 else follow step 10
5. Check condition (num1%n==0 || num2%n==0) if true follow step 6 else follow step 9
6. Check if (num1%n==0) if true do {num1 = num1/n} else follow step 7
7. Check if (num2%n==0) if true do {num2 = num2/n} else follow step 8
8. lcm =lcm\*n
9. Calculate ++n and follow step 4 till condition results false
10. Print lcm
11. Stop



### Program:

```

import java.util.Scanner;
class lcmprime{
    public static void main(String args[])
    {
        Scanner sc= new Scanner(System.in);
        int lcm=1;
    }
}
  
```

```
System.out.println("Enter the numbers ");
int num1=sc.nextInt();
int num2=sc.nextInt();
    int n1=num1,n2=num2;
for(int n=2; n<= n1 && n<= n2; ++n) {
    while(num1%n==0 || num2%n==0) {
        if(num1%n==0) {num1 = num1/n;}
        if(num2%n==0) {num2 = num2/n;}
        lcm=lcm*n;
    }
}
System.out.println("The LCM of "+n1+" and "+n2+" is "+lcm);

}
}
```

---