ASSIGNMENT 1
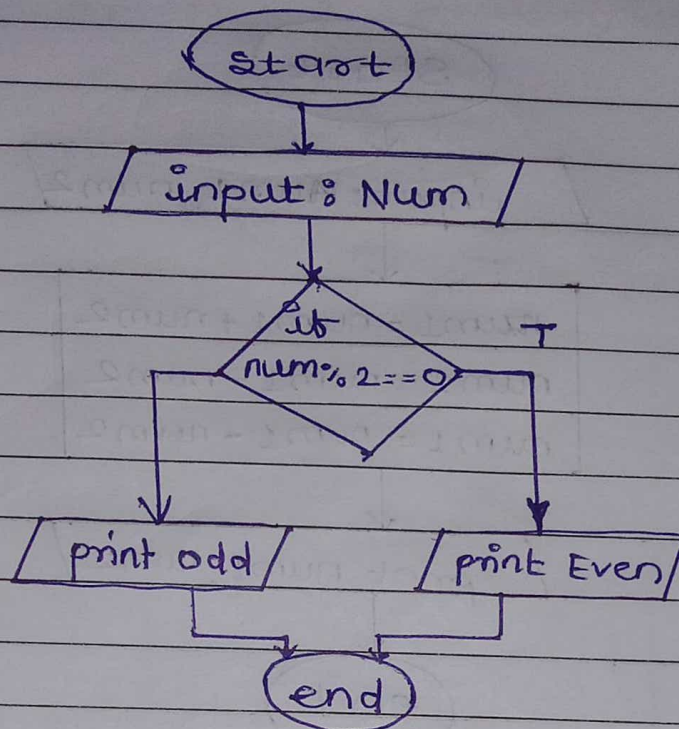
Q.1: check if the given number is Even or Odd.

```
          ( Start )
              |
         / input: Num /
              |
            < if
          num%2==0 >————T
          /         \        |
         /           \       |
   / print odd /      / print Even /
         |                  |
          _____/
              ( end )
```

Q.2: Write java program to find factorial of given number.

```
          ( Start )
              |
       / input: num /
              |
      | i=1; fact=1 |
              |
          < is
          i<=num >————NO————
          /      \              |
         / yes                  |
              |              / print Fact /
   | fact = fact * i |            |
              |              ( end )
          | i++ |
```
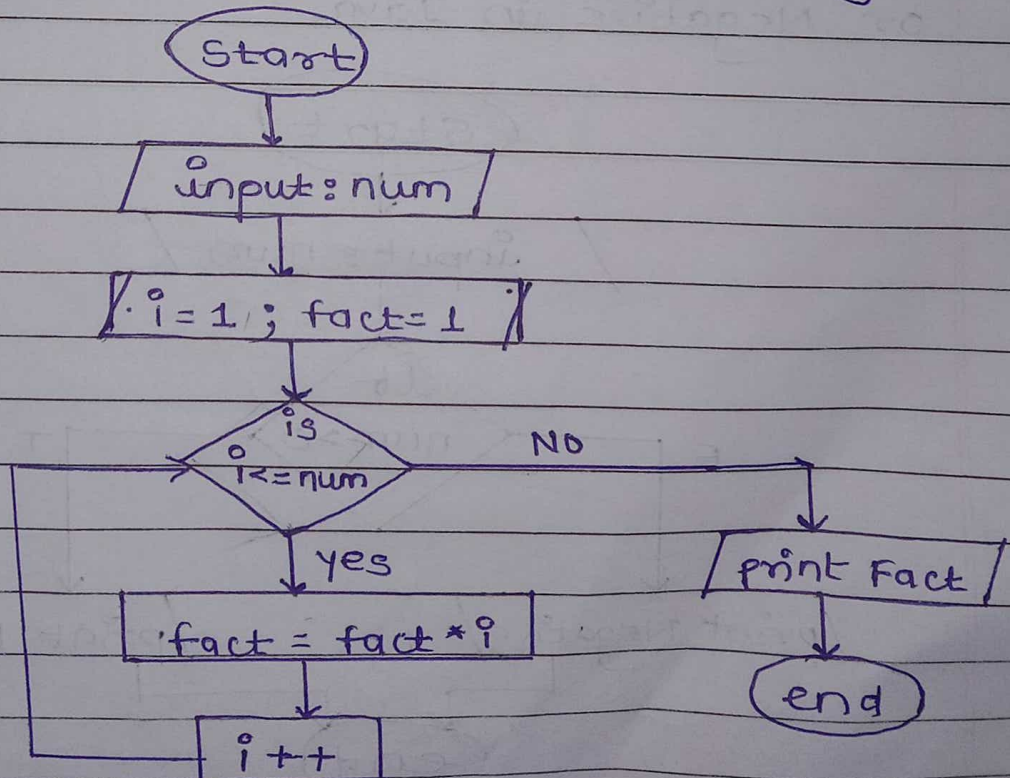
Q.4:→ Swap two numbers without using third variable

```
         ( Start )
             │
             ▼
   / input : num1, num2 /
             │
             ▼
   ┌─────────────────────┐
   │ num1 = num1 + num2  │
   │ num2 = num1 - num2  │
   │ num1 = num1 - num2  │
   └─────────────────────┘
             │
             ▼
   / print num1, num2 /
             │
             ▼
         ( end )
```
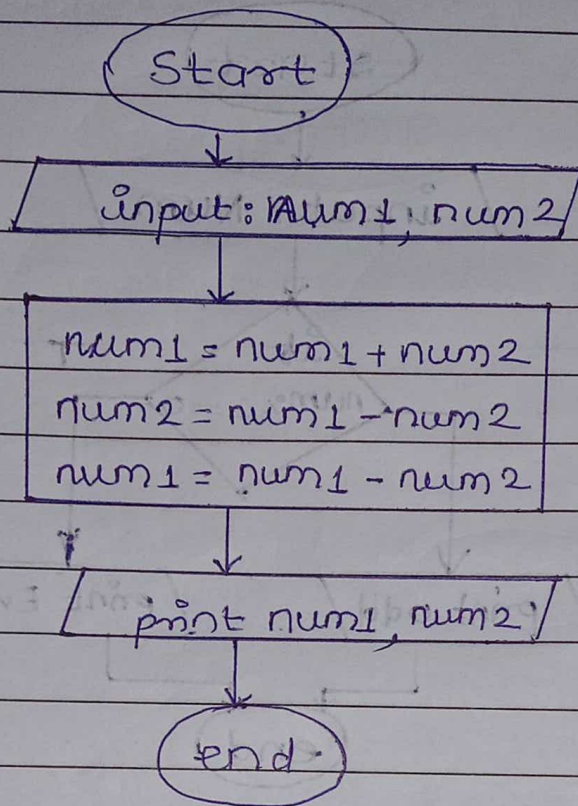
Q.5:→ How to check whether given number is positive or Negative in Java.

```
              ( Start )
                  │
                  ▼
         / input : num /
                  │
                  ▼
               ◇ if
      F ─────◇ num > 0 ◇───── T
       │                      │
       ▼                      ▼
/ print Negative /    / print Positive /
       │                      │
       └──────► ( end ) ◄──────┘
```
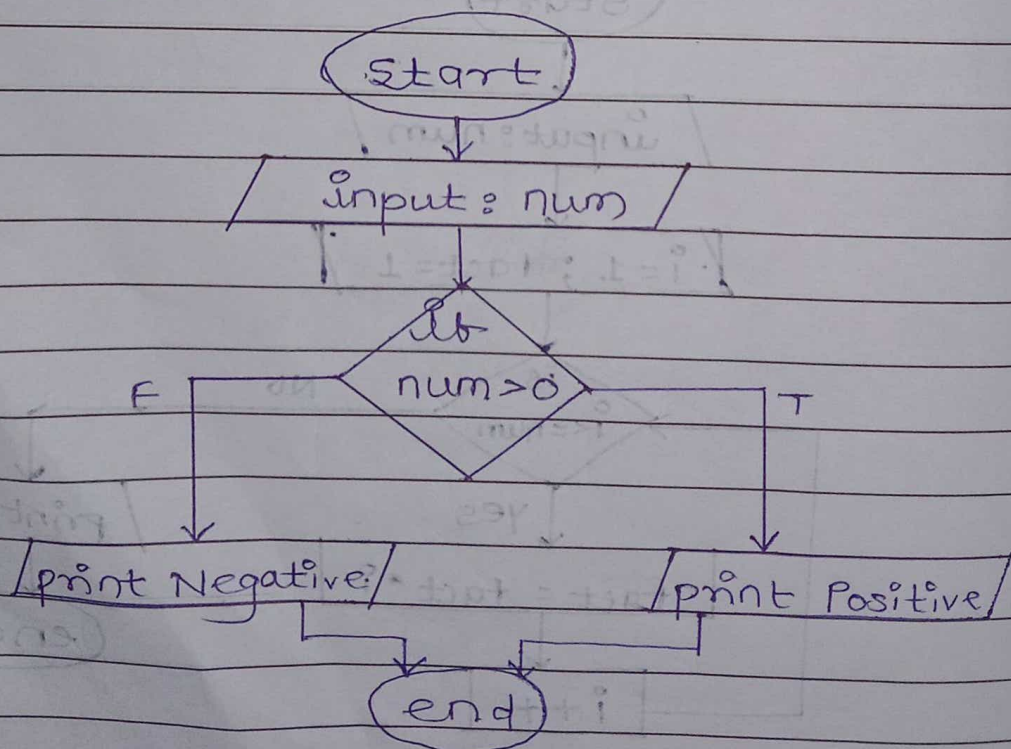
Q.6 :→ Write Java program to find whether given year is Leap year or Not ?

→

```
                    ( start )
                        │
                        ▼
                ┌─────────────────┐
                │  input: year    │
                └─────────────────┘
                        │
                        ▼
        NO          ╱ is ╲          yes
    ◄──────────────╱ year%4==0 ╲──────────────►
                   ╲          ╱
                    ╲        ╱
        │                            │
        ▼                            ▼
  ┌──────────┐                   ╱ is ╲
  │ common   │        NO        ╱ year%100==0 ╲      yes
  │ year     │    ◄────────────╱             ╲────────────►
  └──────────┘                 ╲             ╱
        │               │       ╲           ╱
        │               ▼                         │
        │          ┌──────────┐                   ▼
        │          │ Leap     │      NO      ╱ is ╲       yes
        │          │ year     │   ◄─────────╱ year%400 ╲────────►
        │          └──────────┘             ╲  ==0     ╱
        │               │         │          ╲        ╱
        │               │         ▼                        │
        │               │    ┌──────────┐                  ▼
        │               │    │ common   │             ┌──────────┐
        │               │    │ year     │             │ Leap     │
        │               │    └──────────┘             │ year     │
        │               │         │                   └──────────┘
        │               │         │                        │
        ▼               ▼         ▼                         │
              ( end ) ◄───────────────────────────────────┘
```
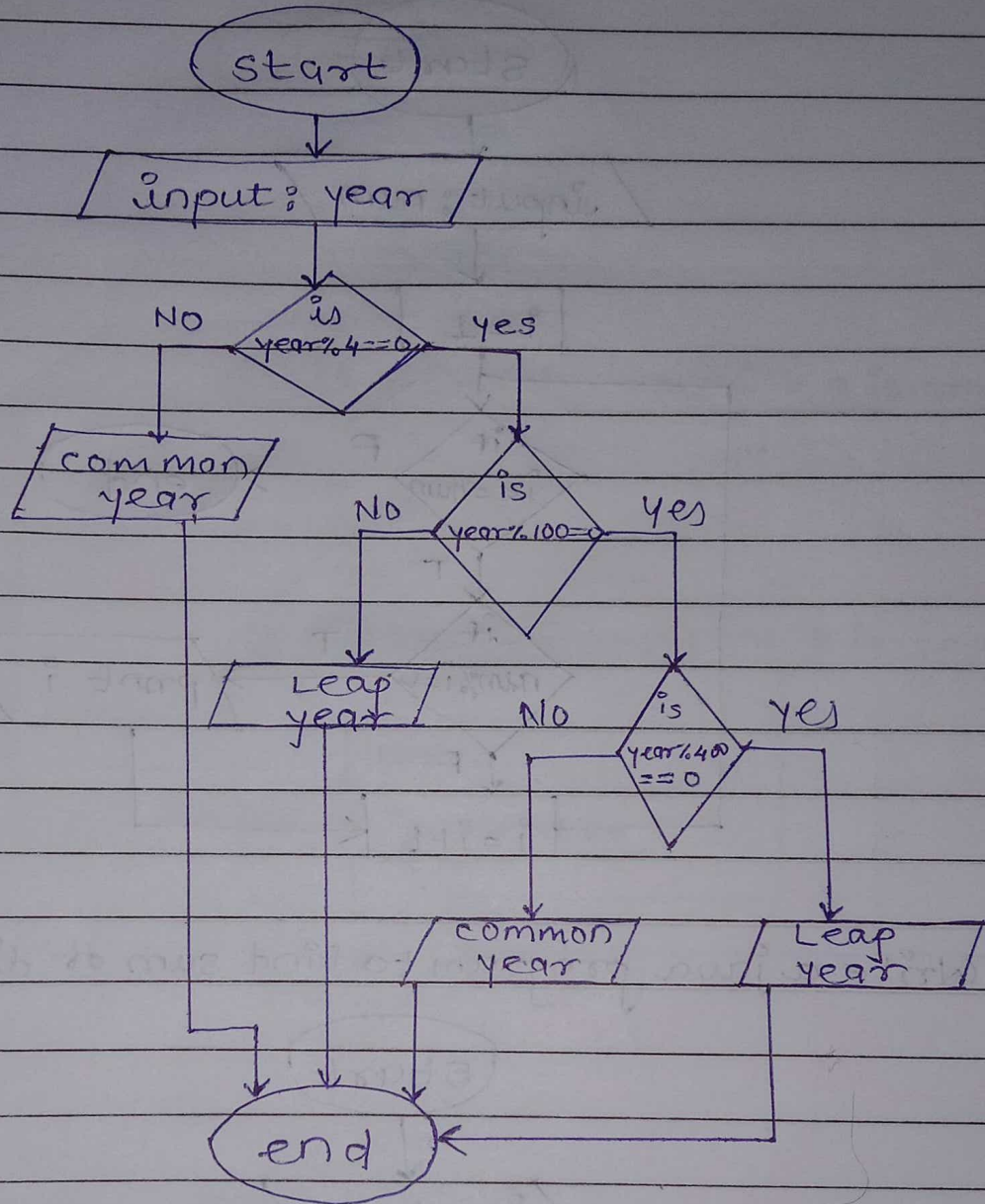
Q-7:→ Write a java program to print 1 to 10 witho
using loop.

→

```
  ( start )
      ↓
  / print 1 /
      ↓
  / print 2 /
      ↓
  / print 3 /
      ↓
  / print 4 /
      ↓
  / print 5 /
      ↓
  / print 6 /
      ↓
  / print 7 /
      ↓
  / print 8 /
      ↓
  / print 9 /
      ↓
  / print 10 /
      ↓
  ( end )
```

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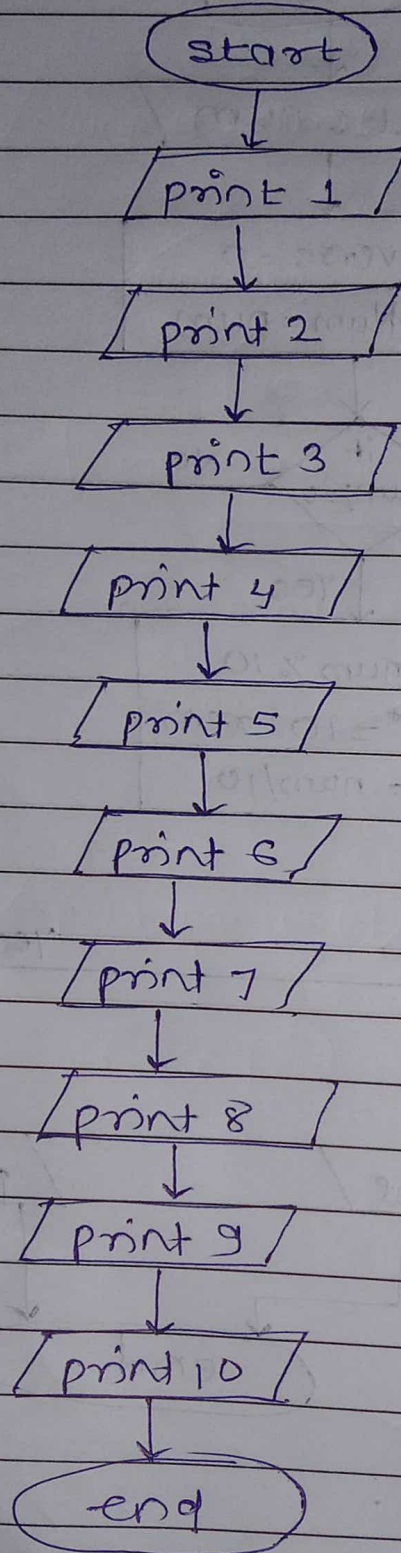
Q.8 :→ Write a java program to print digits of given number.

→

```
         ┌─────────┐
         │  start  │
         └────┬────┘
              │
              ▼
      ╱──────────────╱
     ╱ input : num  ╱
    ╱──────────────╱
              │
              ▼
      ┌───────────────┐
      │  count = 0    │
      └───────┬───────┘
              │
              ▼
           ╱ if ╲          NO
          ╱ n>0  ╲──────────────────►  ┌──────────────┐
          ╲      ╱                     │ print count  │
           ╲    ╱                      └──────┬───────┘
            ╲  ╱                               │
          Yes │                                ▼
              ▼                            ┌────────┐
      ┌─────────────────┐                  │  end   │
      │   count ++       │                 └────────┘
      │   num = num/10   │
      └─────────────────┘
```
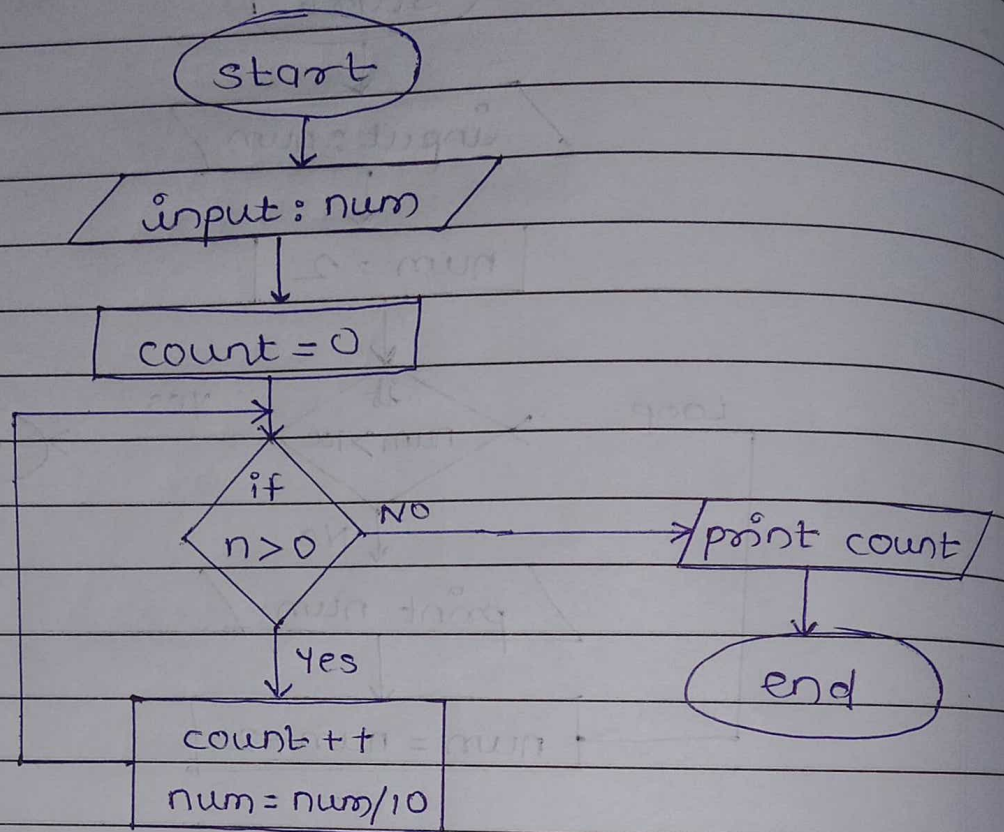
Q.9:→ Write a java program to print all factors of the given numbers.

→

```
        ┌─────────┐
        │  Start  │
        └────┬────┘
             ▼
     ╱─────────────╲
    ╱ input : num   ╱
   ╱───────────────╱
             │
             ▼
        ┌─────────┐
        │  i = 1  │
        └────┬────┘
             ▼
        ╱╲
   if  ╱    ╲    F
      ╱ i<=num ╲ ──────→  ( end )
       ╲      ╱
        ╲    ╱
         ╲ ╱
          │ T
          ▼
        ╱╲
   if  ╱    ╲      T        ╱───────────╱
      ╱num% i=0╲ ──────→   ╱  print i  ╱
       ╲      ╱            ╱───────────╱
        ╲    ╱
         ╲ ╱
          │ F
          ▼
      ┌─────────┐
      │ i = i+1 │◄─────
      └─────────┘
```
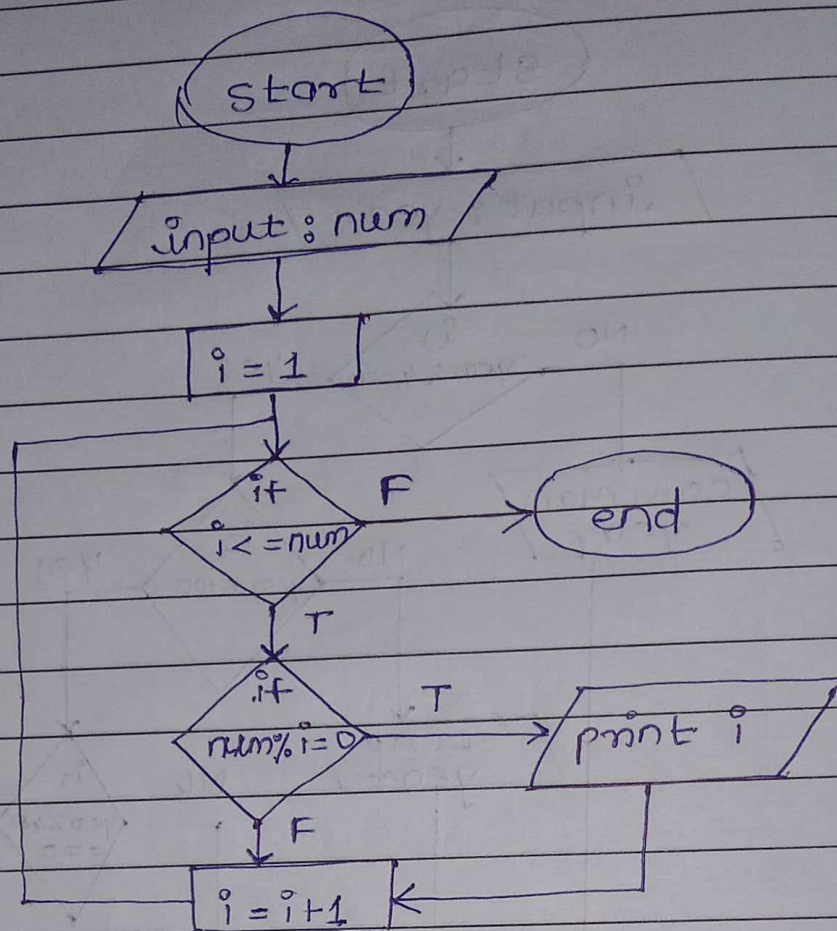
Q.10:→ Write a java program to find sum of digits of given n

→

```
        ┌─────────┐
        │  Start  │
        └────┬────┘
             ▼
      ╱───────────╱
     ╱  input : n ╱
    ╱───────────╱
             │
             ▼
      ┌─────────┐
      │ Sum = 0 │
      └────┬────┘
             ▼
        ╱╲
    is ╱    ╲     NO
      ╱  n>0  ╲ ──────────────┐
       ╲      ╱                │
        ╲    ╱                 ▼
         ╲ ╱            ╱───────────╱
          │           ╱ print Sum  ╱
          ▼           ╱───────────╱
┌──────────────────┐       │
│ Sum=Sum +n%10    │       ▼
│ n = n/10         │   ( end )
└──────────────────┘
```

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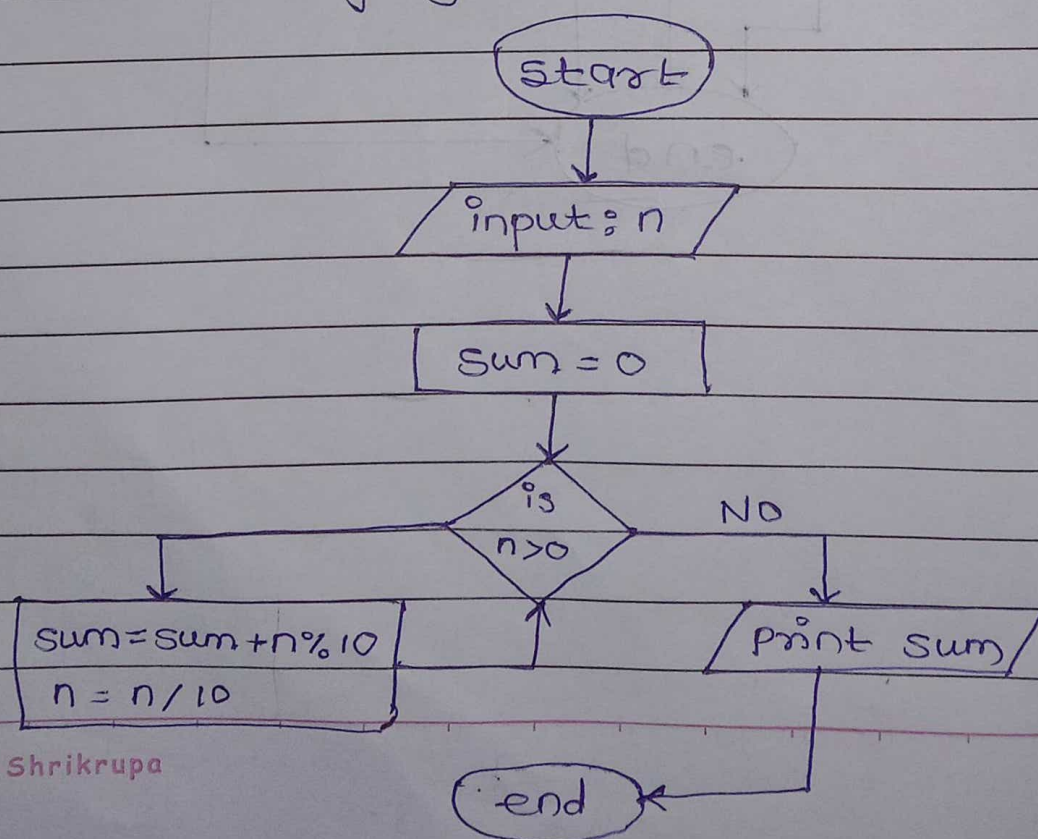
Q.11:- Write a Java program to find smallest of 3 number (a,b,c)

→

```
           ( start )
               |
               v
      / input : a, b, c /
               |
               v
            /  if  \
           < a<b && a<c >  --Yes-->  / Print a is smaller /
            \       /
               |
              NO
               |
               v
            /  if  \
           < b<c && b<a >  --Yes-->  / print b is smaller /
            \       /
               |
              No
               |
               v
      / print c is greater /
               |
               v
           ( end )
```
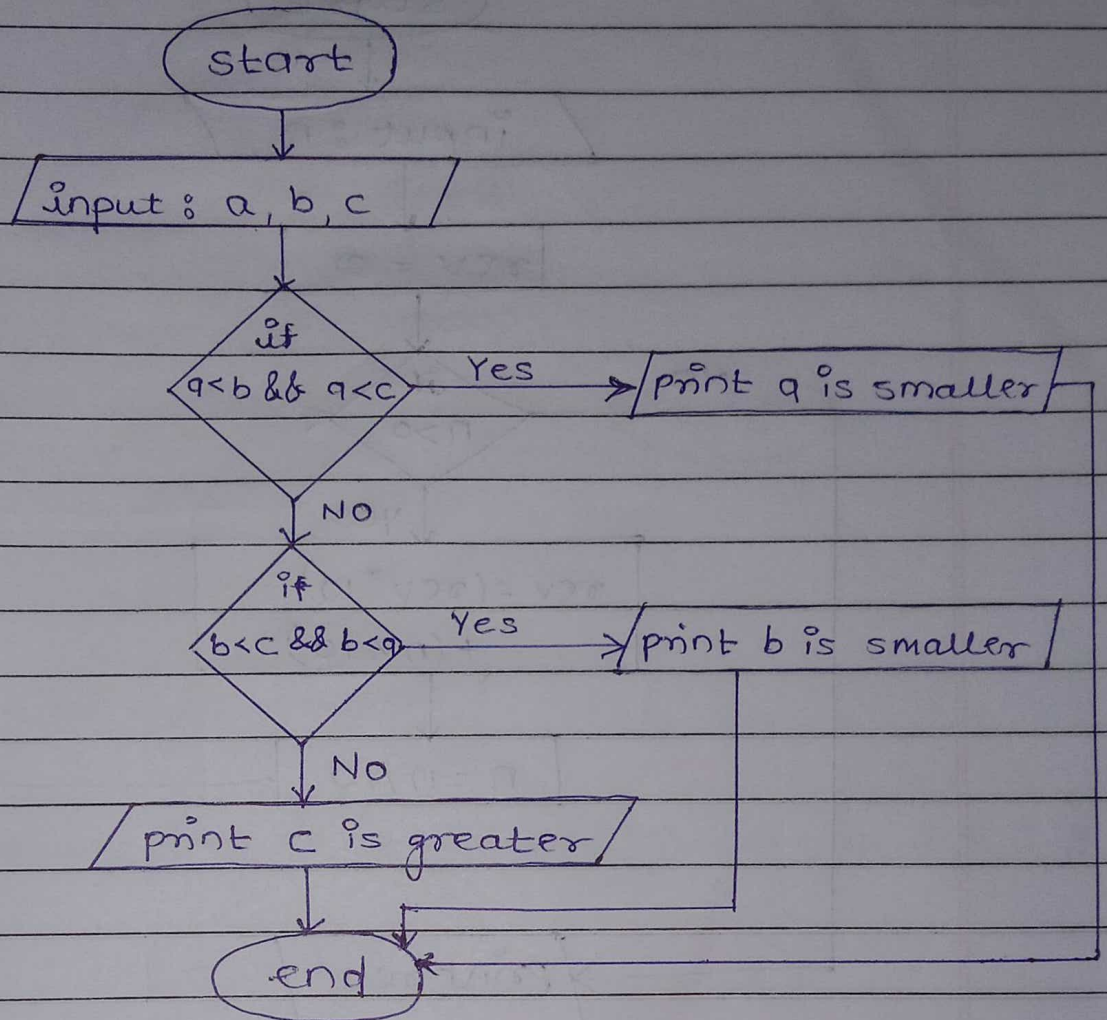
Q.12:→ Add two number without using arithmatic operator

```
                        ╭─────────╮
                        │  start  │
                        ╰─────────╯
                             │
                             ▼
                      ╱─────────────╲
                     ╱ input: a, b   ╱
                     ╲───────────────╱
                             │
                             ▼
                      ┌──────────────┐
                      │   int i = 0  │
                      └──────────────┘
                             │
                             ▼
        True              ╱ if  ╲              False
  ┌───────────────────────  i<b  ───────────────────────┐
  │                       ╲      ╱                       │
  │                        ╲    ╱                        │
  ▼                           ▲                          │
┌─────────┐                   │                          │
│  a++;   │───────────────────┘                          │
│  i++;   │                                              ▼
└─────────┘                                        ╭─────────╮
                                                   │   end   │
                                                   ╰─────────╯
```
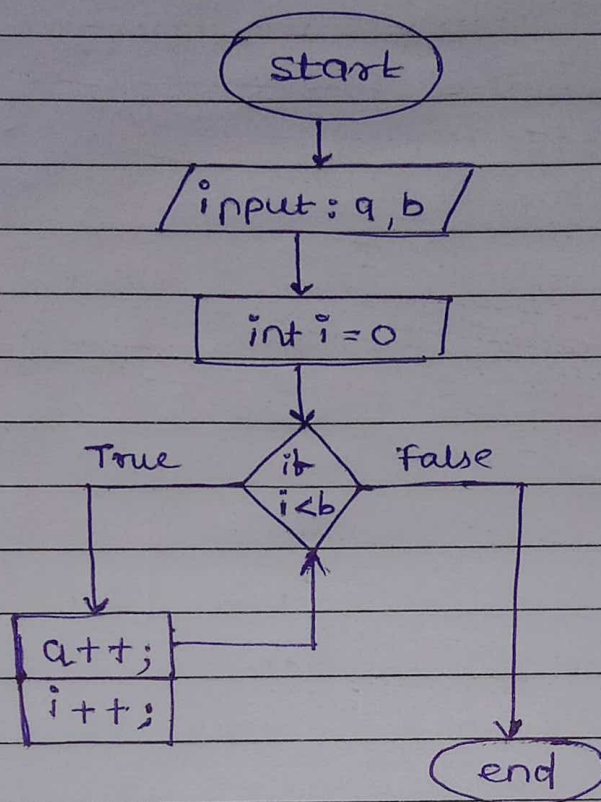
Q.13:→ Write a Java Program to Reverse given numb

→

```
                    ( Start )
                        |
                        v
                /  input : n  /
                        |
                        v
                  | rev = 0 |
                        |
                        v
   NO ←          /\  if   /\
          ←─────<   n > 0   >─────────────────┐
          |       \/       \/                 |
          |            | yes                 loop
          |            v                      |
          |    | rev = (rev * 10)  |          |
          |    |     + (n % 10)    |          |
          |            |                      |
          |            v                      |
          |     | n = n / 10 |────────────────┘
          |
          └──→ / print rev /
                        |
                        v
                    ( end )
```
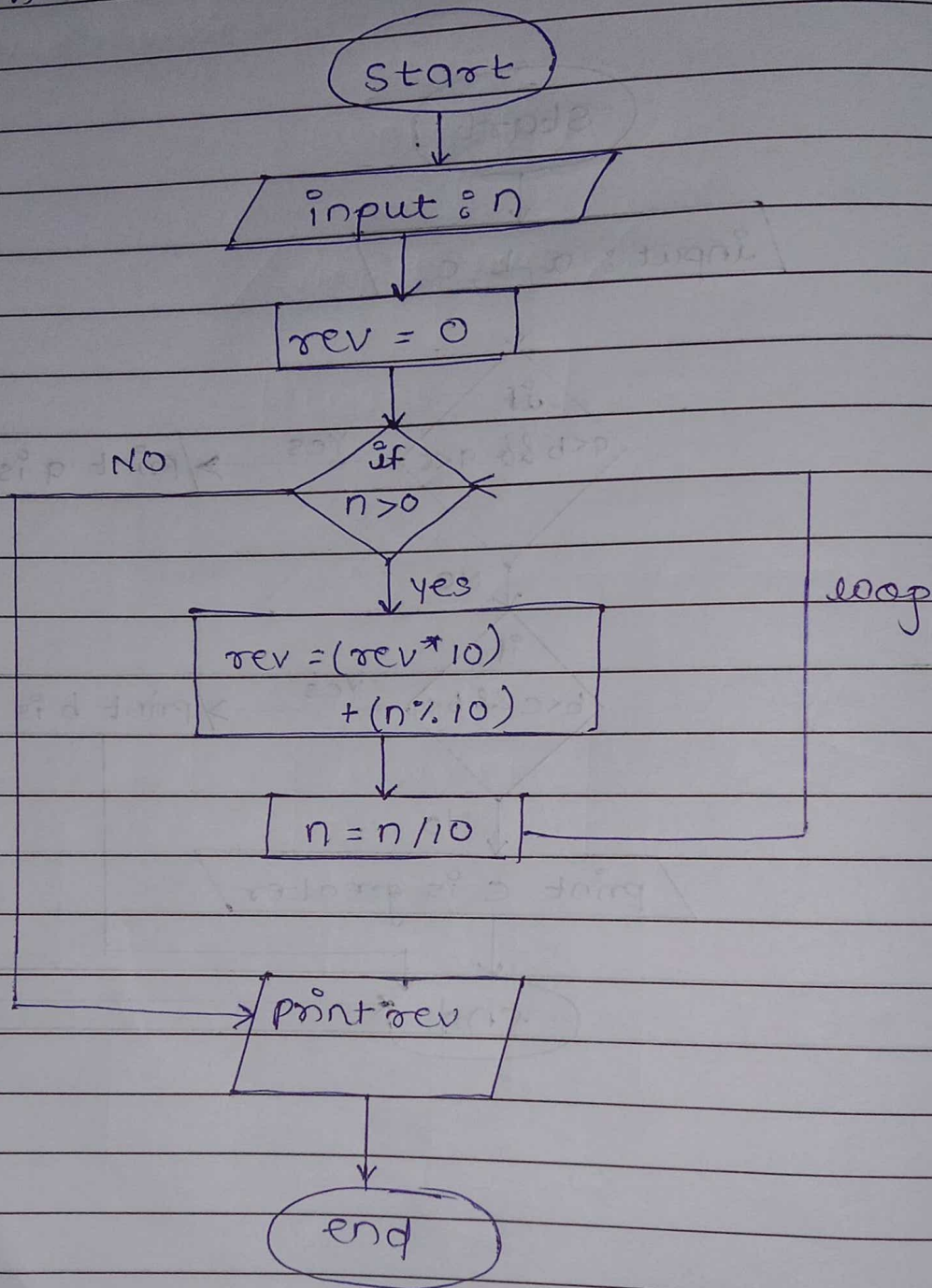
Q.14:→ Write a java program to find GCD of two given
→ number

```
                    ┌─────────┐
                    │  start  │
                    └─────────┘
                         │
                         ▼
                  ╱─────────────╲
                 ╱  input: a, b  ╲
                ╱─────────────────╲
                         │
                         ▼
┌────────────┐    Yes    ╱◇╲
│dividend = b │◄────────╱ if ╲
│divisor = a  │         ╲a<b╱
└────────────┘          ╲◇╱
      │                  │ No
      │                  ▼
      │         ┌──────────────┐
      │         │ dividend = a  │
      │         │ divisor = b   │
      │         └──────────────┘
      │                  │
      └────────►┌──────────────────────────┐
                │ rem = dividend % divisor  │
                └──────────────────────────┘
                         │
                         ▼
                      ╱◇╲        NO      ┌──────────────────┐
                     ╱ if ╲──────────────►│ dividend = divisor│
                     ╲rem=0╱              │ divisor = rem     │
                      ╲◇╱                 └──────────────────┘
                         │ yes
                         ▼
                 ╱──────────────────╲
                ╱ print "divisor" is ╲
               ╱       GCD            ╲
              ╱───────────────────────╲
                         │
                         ▼
                    ┌─────────┐
                    │   end   │
                    └─────────┘
```
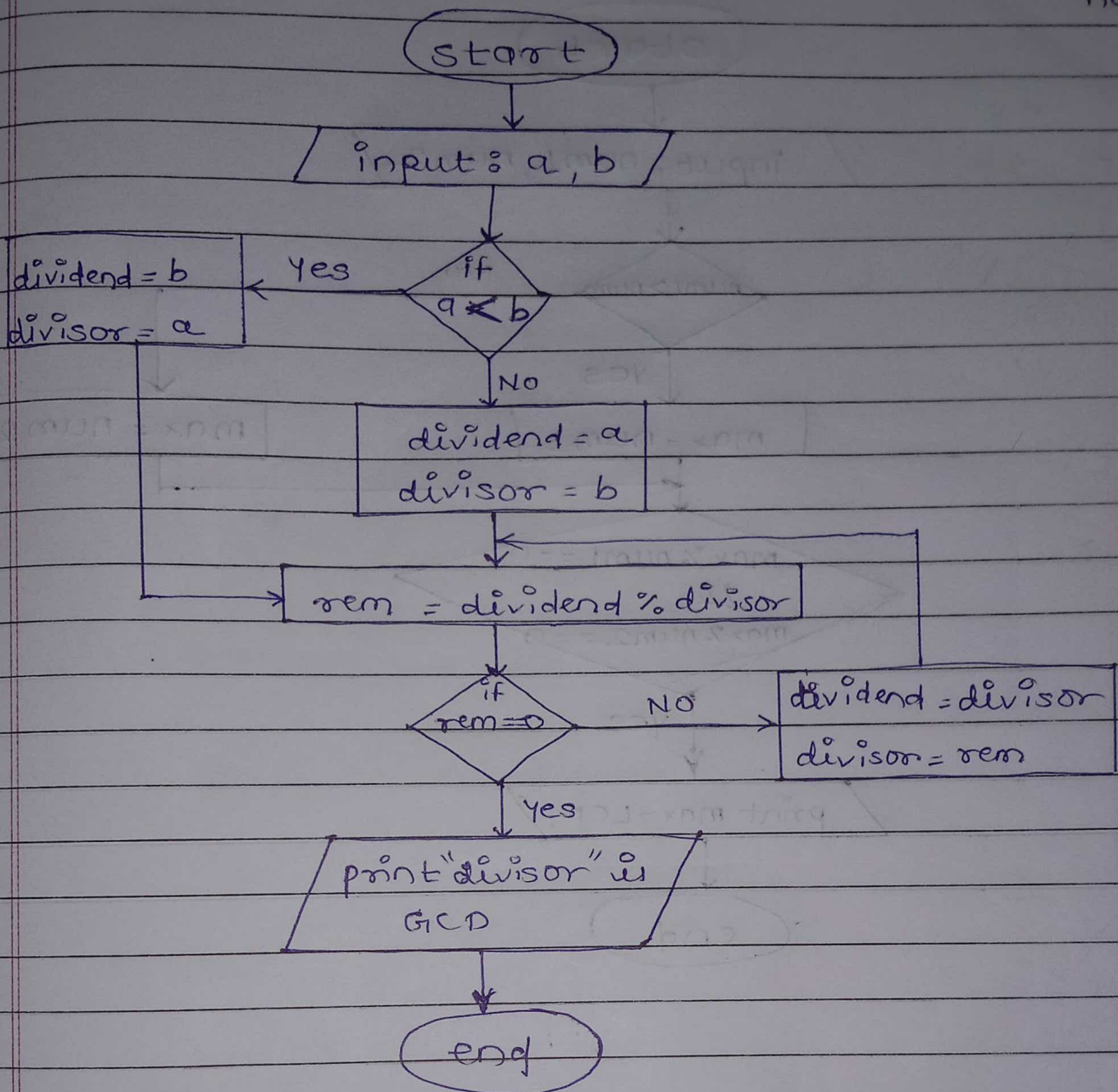
Q.15:→ Write a java program to find LCM of two give
num

```
                    ( start )
                        │
                        ▼
          / input: num1, num2 /
                        │
                        ▼
                 < num1 > num2 >──── No ────┐
                        │                    │
                       yes                   ▼
                        │            ┌─────────────────┐
              ┌──────────────┐      │  max = num 2    │
              │  max = num 1 │      └─────────────────┘
              └──────────────┘              │
                        │◄───────────────────┘
                        ▼
              < max % num1 == 0
                     &&
                max % num2 == 0 >
                        │
                       yes
                        ▼
            / print max = LCM /
                        │
                        ▼
                   ( end. )
```
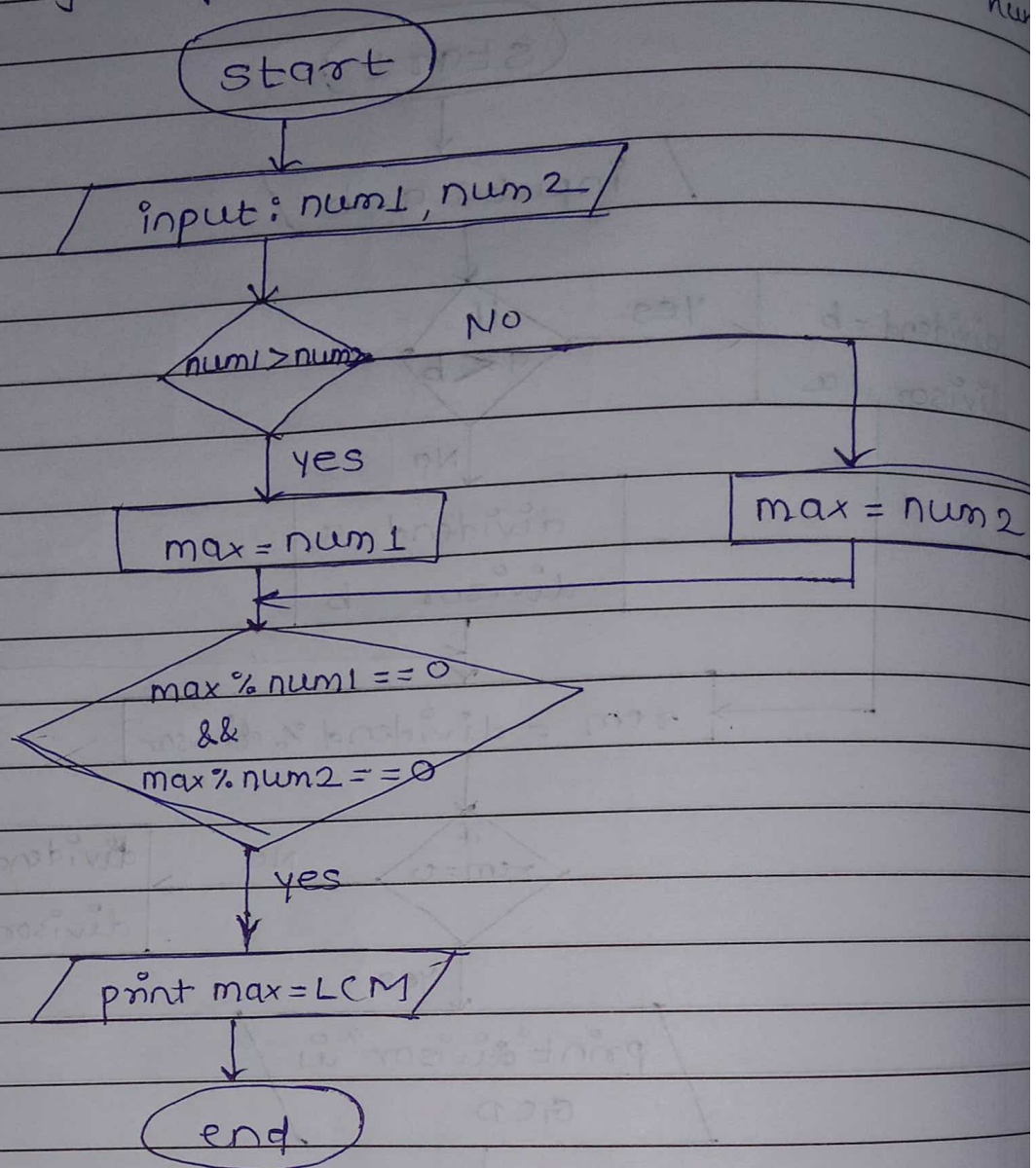
Q.17:> check whether the given ~~pror~~ number is Palindrome or not.

→

```
                        ( start )
                           |
                           ↓
                  / input : num /
                           |
                           ↓
              |  reverse = 0          |
              |  tempNum = num)       |
                           |
                           ↓
                      /  if  \        NO
                 ×───<  num!=0 >──────────────→
                      \      /
                           |
                          Yes
                           ↓
              |  rem = num % 10        |
              |  reverse* = 10 + rem   |
              |  num = num/10          |
```

```
                                      / reverse \
                        Yes           <          >
                ┌─────────────────────< = tempnum >
                |                      \          /
                |                           |
                ↓                          NO
      / print palindrome /                  ↓
                |                 / print Not Palindrome /
                |                           |
                └──────────┐   ┌────────────┘
                           ↓   ↓
                        ( end )
```
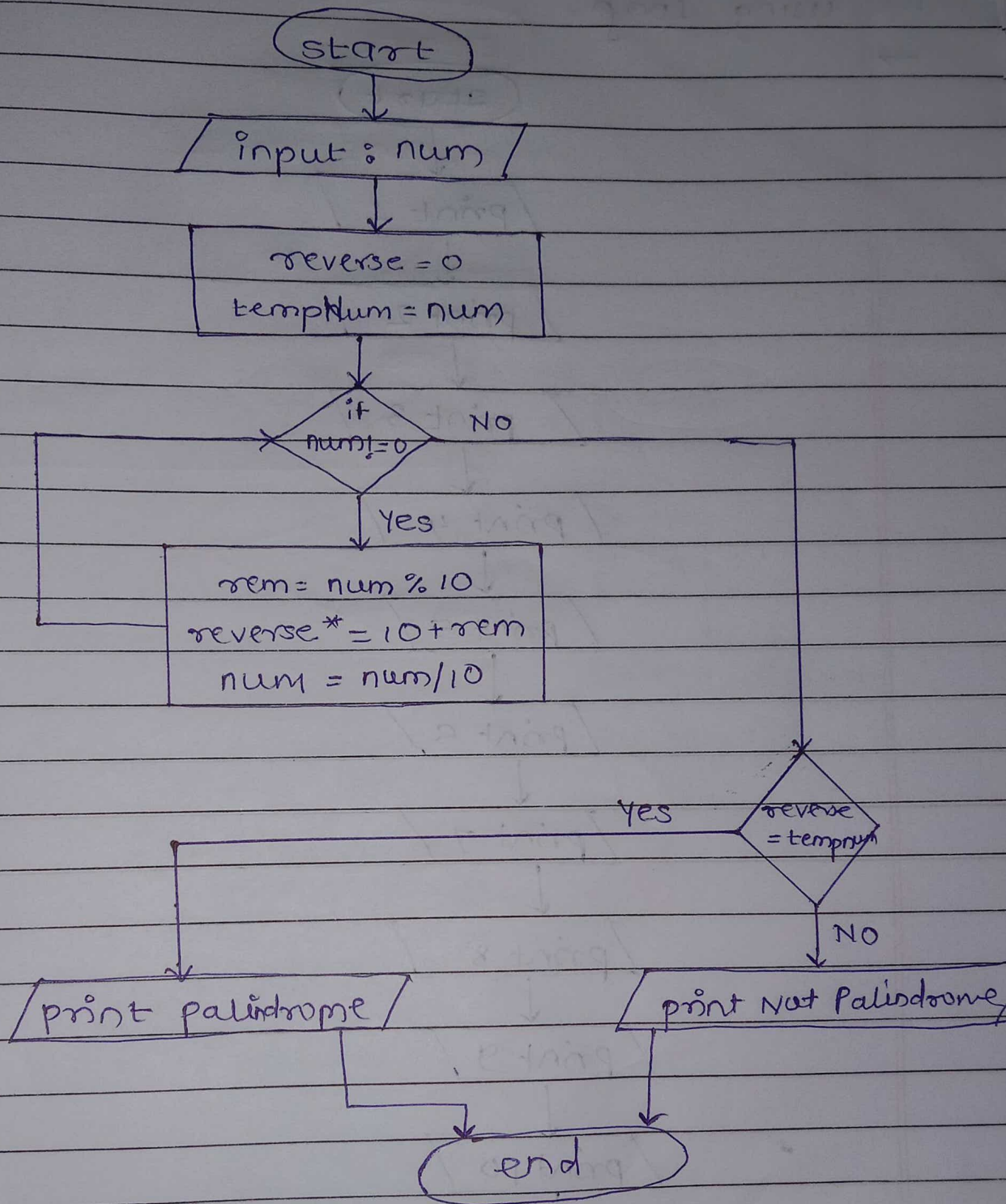
Q.19:- To print following series of Even number, 2,4,6,8,10, 12,14,16,......

→

Start

input : num

num = 2

if num>100 — yes → end

Loop

NO

print num

num = num + 2
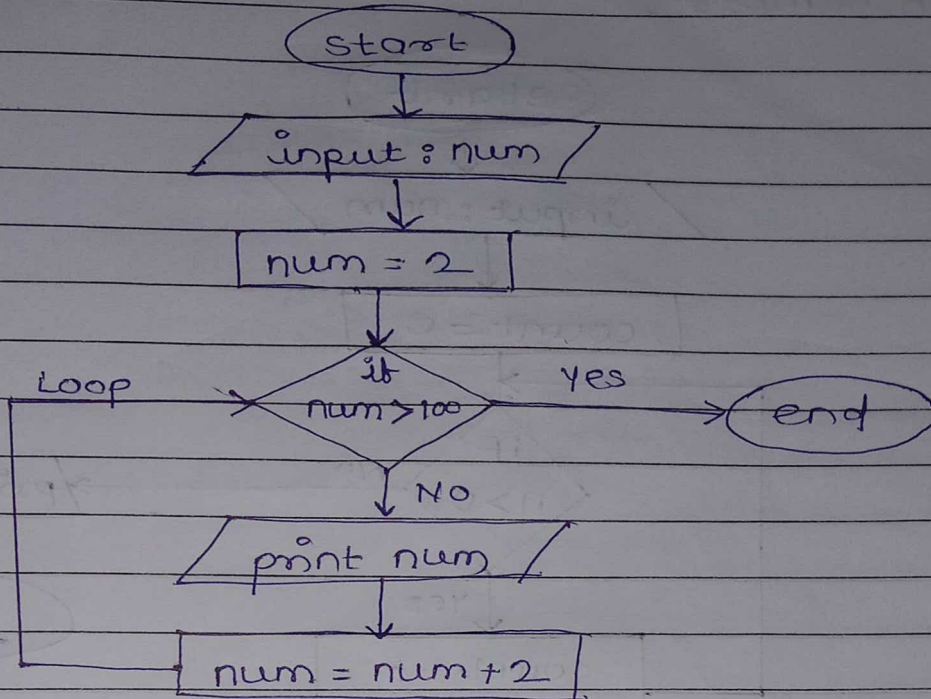
Q.20:→ To print following series of Odd number, 1,3,5,7,9, 11,13, ...

→

start

input : num

num = 1

if num>100 — yes → end

LOOP

NO

print num

num = num + 2

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