Week 0:

ROLL NO.:240801197

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Ex. No.: 1

Date: 26/9/24

Calculate Area and Perimeter
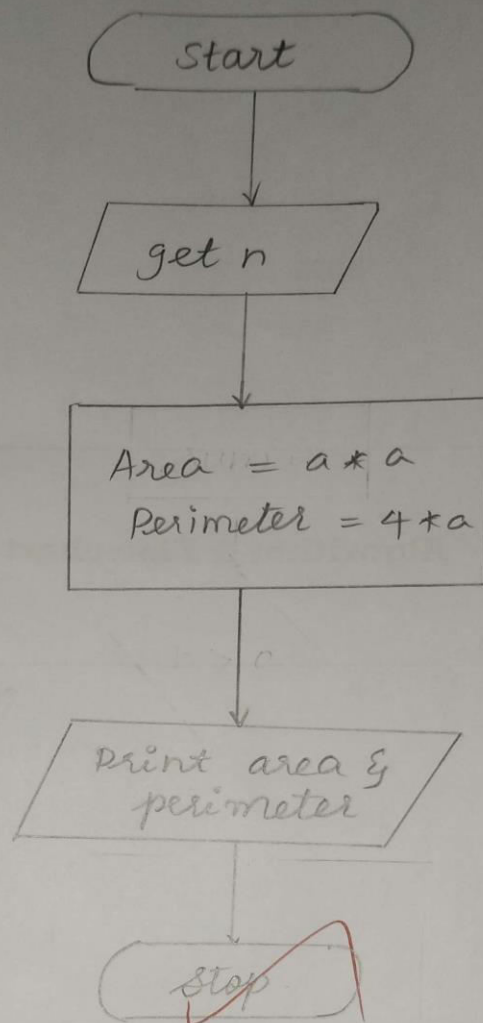
Write an Algorithm and draw a Flowchart to Calculate the area and perimeter of a square.

Algorithm:

Step-1 : Start

Step-2 : Read a

Step-3 : Area = a * a

Step-4 : Perimeter = 4 * a

Step-5 : Print Area & perimeter

Step-6 : Stop.

Flowchart:

```
            ╭─────────────╮
            │    Start     │
            ╰──────┬──────╯
                   │
                   ▼
            ╱─────────────╲
           ╱    get n      ╱
          ╱───────────────╱
                   │
                   ▼
      ┌─────────────────────────┐
      │  Area = a * a           │
      │  Perimeter = 4 * a      │
      └────────────┬────────────┘
                   │
                   ▼
         ╱──────────────────╲
        ╱  Print area &      ╱
       ╱   perimeter        ╱
      ╱────────────────────╱
                   │
                   ▼
            ╭─────────────╮
            │    Stop      │
            ╰─────────────╯
```

Ex. No.: 2   Date: 26/9/24

Days to Year Conversion

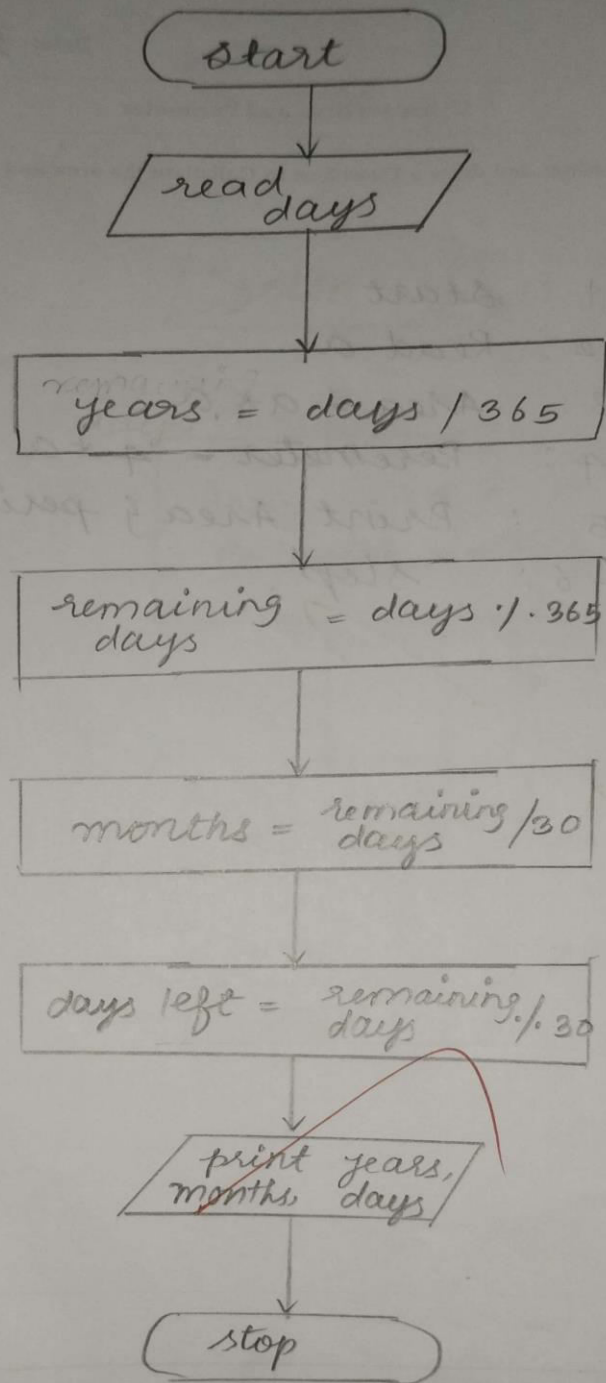Write an Algorithm and draw a Flowchart to convert the given days into years & months.

Algorithm:

step -1: start
step -2: Input number of days.
step -3: compute years = total days /365

step -4: compute remaing days = total days ./. 365

~~Flowchart:~~

step - 5: compute months = remaing day /30

step - 6: compute days left = remaining days ./. 30

step - 7:- Print years, months, days

step - 8:- stop.

```
                    ┌─────────────┐
                    │    start    │
                    └─────────────┘
                           │
                           ▼
                    ╱──────────────╱
                   ╱  read days   ╱
                  ╱──────────────╱
                           │
                           ▼
              ┌────────────────────────────┐
              │  years = days / 365        │
              └────────────────────────────┘
                           │
                           ▼
              ┌────────────────────────────┐
              │  remaining                 │
              │  days      = days ./ 365   │
              └────────────────────────────┘
                           │
                           ▼
              ┌────────────────────────────┐
              │  months = remaining /30    │
              │           days             │
              └────────────────────────────┘
                           │
                           ▼
              ┌────────────────────────────┐
              │  days left = remaining ./ 30│
              │              days          │
              └────────────────────────────┘
                           │
                           ▼
                 ╱──────────────────────╱
                ╱  print years,        ╱
               ╱  months  days        ╱
              ╱──────────────────────╱
                           │
                           ▼
                    ┌─────────────┐
                    │    stop     │
                    └─────────────┘
```

Ex. No.: 3   Date: 26/9/24

Prime Number

Write an Algorithm and draw a Flowchart to check whether the given number is Prime or not.
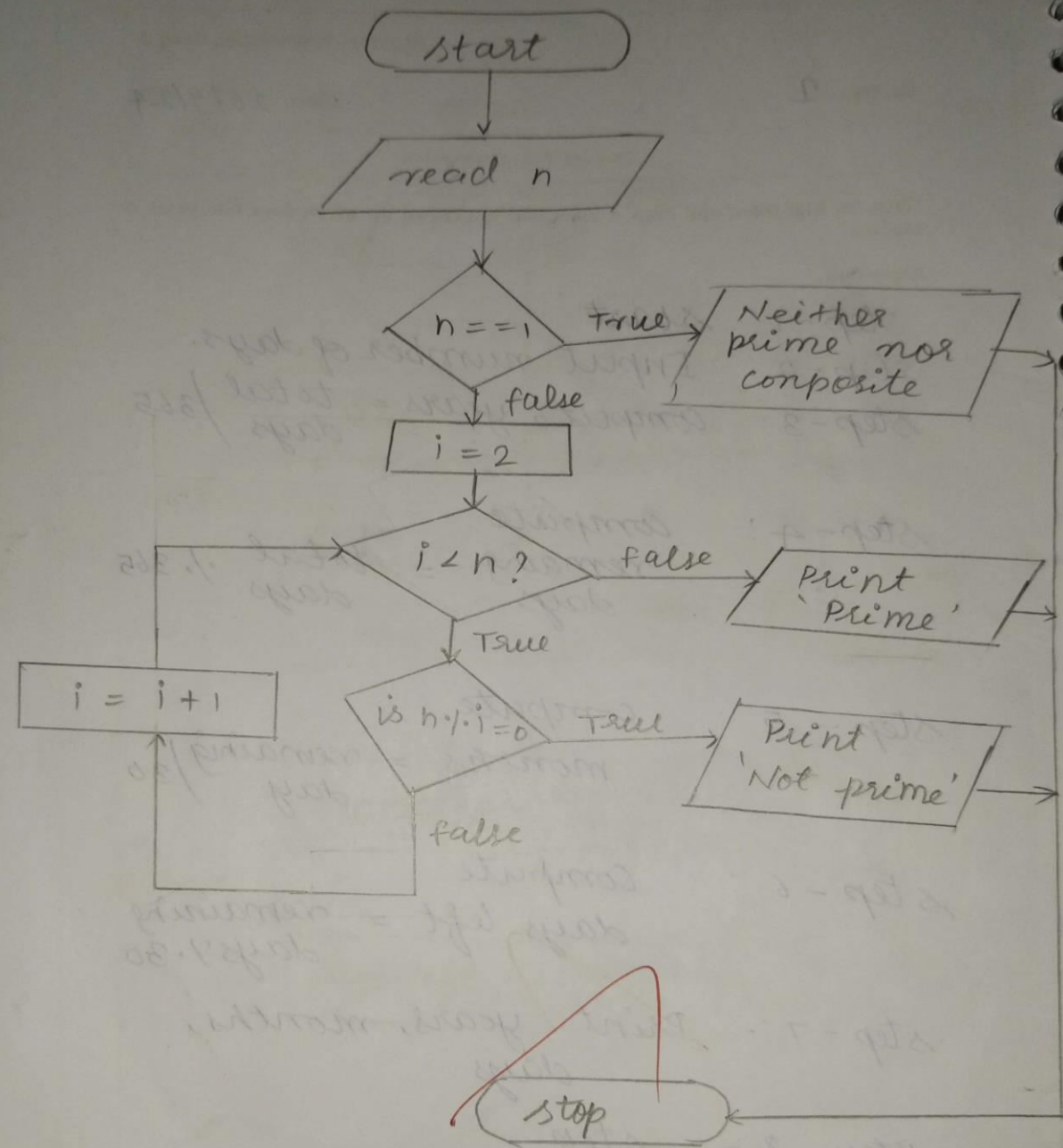
Algorithm:

step-1 : start

step-2 : read n

step-3 : set f = 1

step-4 :- If 'n' = = 1 then
print "n" is not prime
number
goto step 8

Flowchart:

step-5 :- for i = 2 to n-1

step-6 :- If n% i == 0 then
set f = 0 break
else goto step 5

step-7 :- If f == 0 then
Print ("n is not prime
number")
else
Print "n is prime
number"

step-8 : stop.

```
              start

                │
                ▼
            read n

                │
                ▼
            n == 1  ──True──▶  Neither
                                prime nor
                │               composite
              false                │
                ▼                   │
             i = 2                  │
                │                   │
                ▼                   │
            i < n?  ──false──▶  print            │
                                 'Prime'         │
              True                  │            │
                ▼                   │            │
  i = i+1    is n%i=0  ──True──▶  print          │
                                  'Not prime'    │
              false                 │            │
                                    │            │
                                    ▼            │
                                  stop  ◀────────┘
```

Ex. No.: 4

Date: 28/9/24

Leap Year

Write an Algorithm and draw a Flowchart to check whether the given year is Leap year or not.

Algorithm:

Step - 1 : start

step - 2 : read year, rem1, rem2, rem3.

step - 3 : rem1 = year % 4

step - 4 : If rem1 == 0

step - 5 : rem 2 = year % 100

step - 6 : If rem 2 == 0 goto step 7 else print "Not Leap year"

Flowchart:

step - 7 : rem 3 = year % 400

step - 8 :- If rem 3 == 0 print "Leap year"

step - 9 :- stop.

Start

read year

is year % 4 = 0 — false → Not leap year

true

is year % 100 = 0 — false → Leap year

true

is year % 400 = 0 — false → Not leap year

true

Leap year

Stop
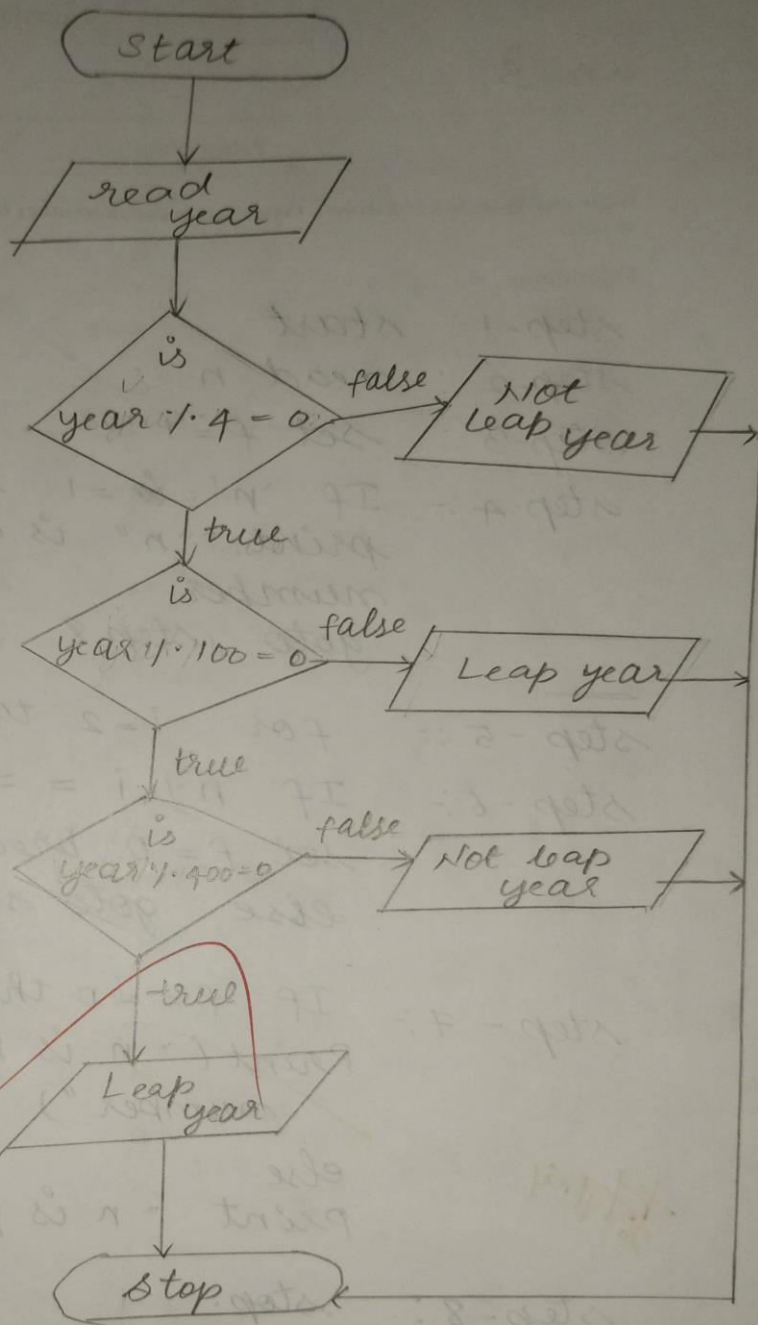
Ex. No.: 5   Date: 28/ 9/24

Palindrome Number

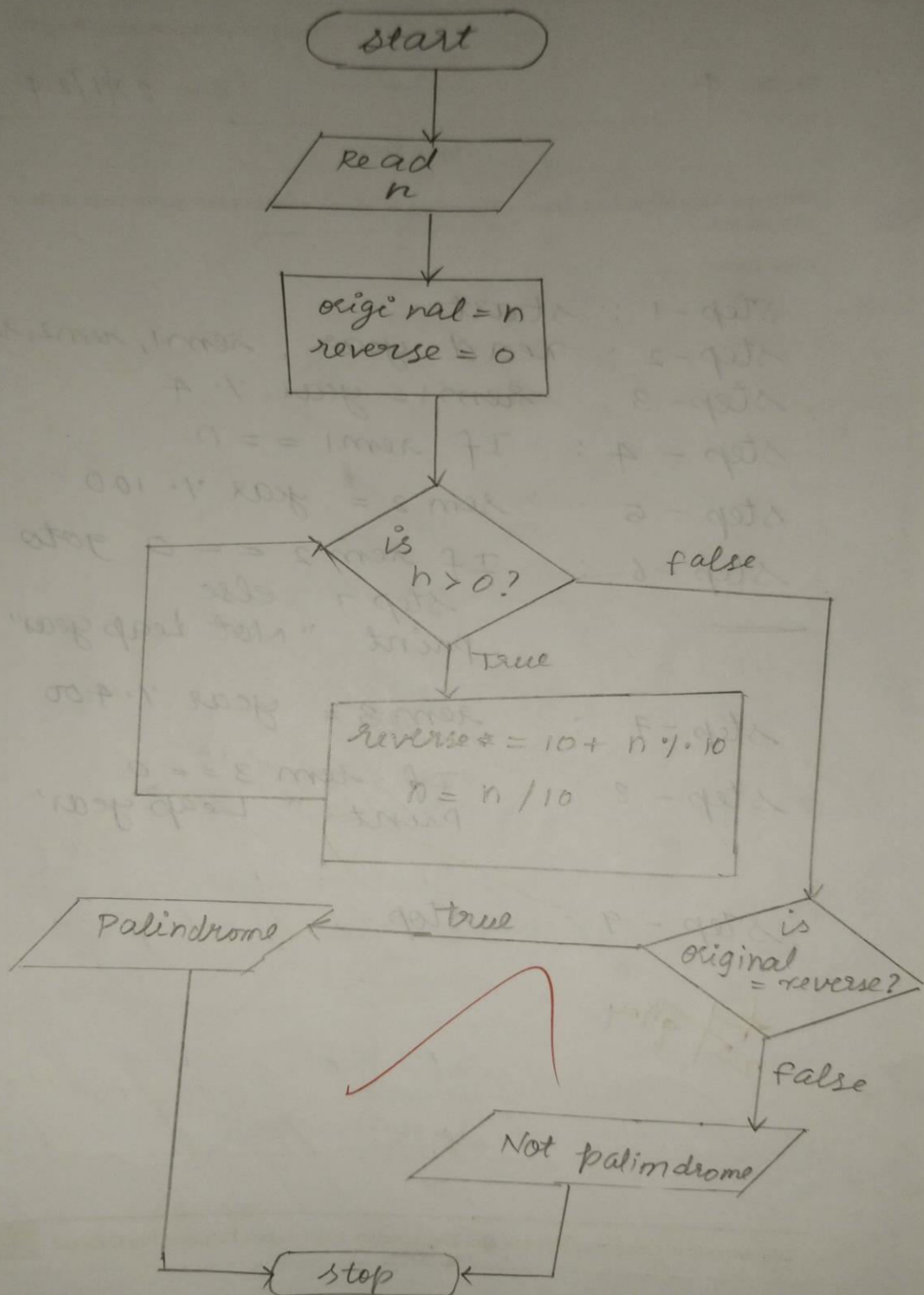Write an Algorithm and draw a Flowchart to check whether the given number is palindrome number or not.

Algorithm:

step -1 :   start
step - 2 :   read n
step - 3 :   initialize elements
             original = n, reversed = 0

step - 4 :   while n > 0
             reverse * = 10 + n %.10

Flowchart:

             update   n = n /10 ~~goto~~

step - 5 :   If original == revese
                  Print " palindrome"

step - 6 :   else
                  Print "Not palindrome"

step - 7 :   Stop.

Ex. No.: 6

Sum of Digits

Write an Algorithm and draw a Flowchart to calculate the sum of digits in the given number.

Algorithm:

step - 1 :   start

step - 2 :   read n

step - 3 :   initialize sum = 0

step - 4 :   while n > 0 if
              true goto step 5 or
              else goto step 7

~~Flowchart:~~

step - 5 :   sum + = n % 10

step - 6 :   n = n / 10 goto
              step - 4

step - 7 :   print "sum"

step - 8 :   ~~stop.~~