

Assignment 1 :-

①

P 1

1. Start

2. Input Number

3. Initialize sum = 0, n = number

4. while number > 0;

- Extract digit = number % 10

- sum = sum + digit³

- number = number / 10

5. If sum == n

- Print "Armstrong Number"

- Else : print "Not Armstrong Number"

6. End

Time Complexity :-

while loop iterates once for each digit of n.

For n digits the number proportional to $\log(n)$.

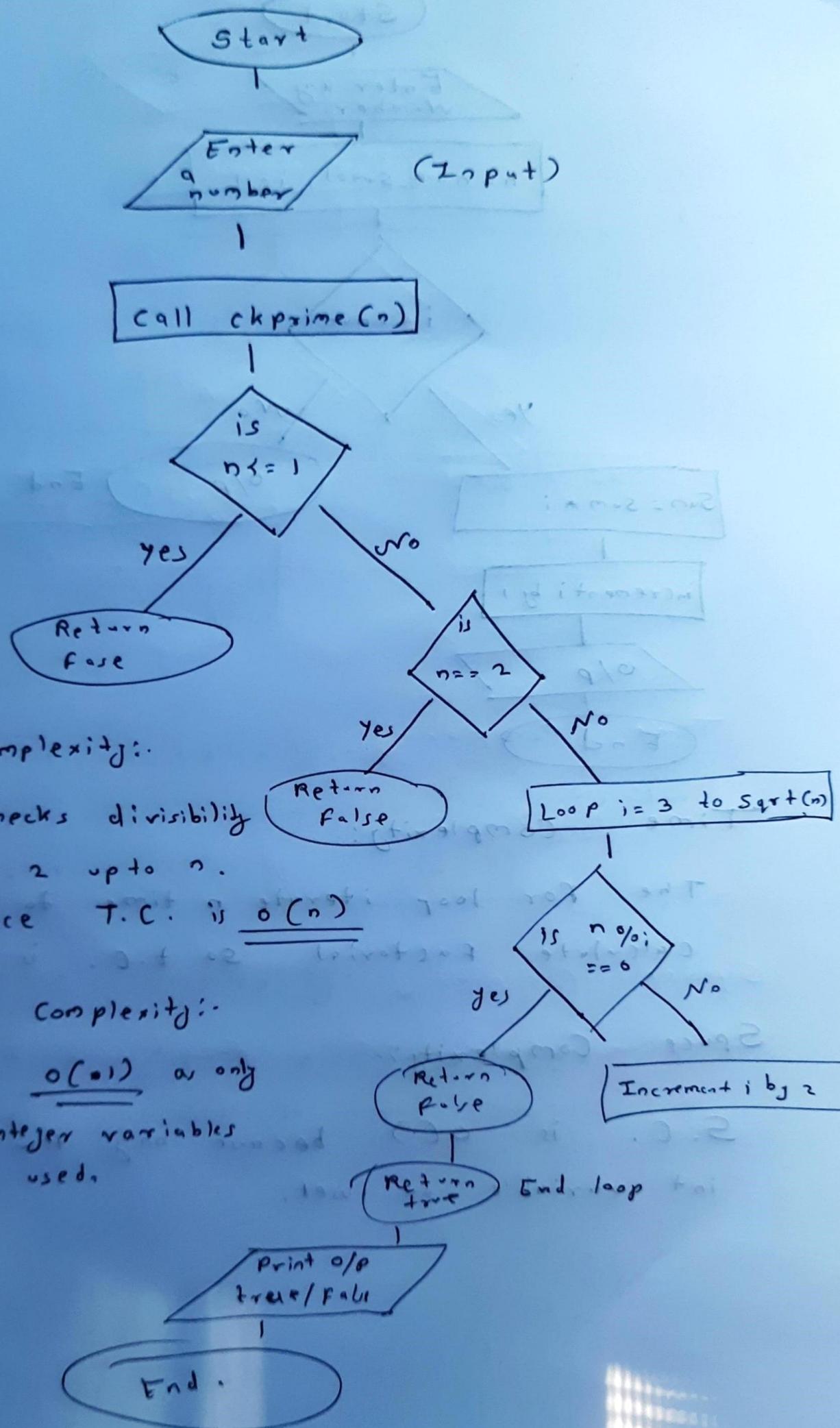
Hence T.C. is $O(\log n)$

Space Complexity :-

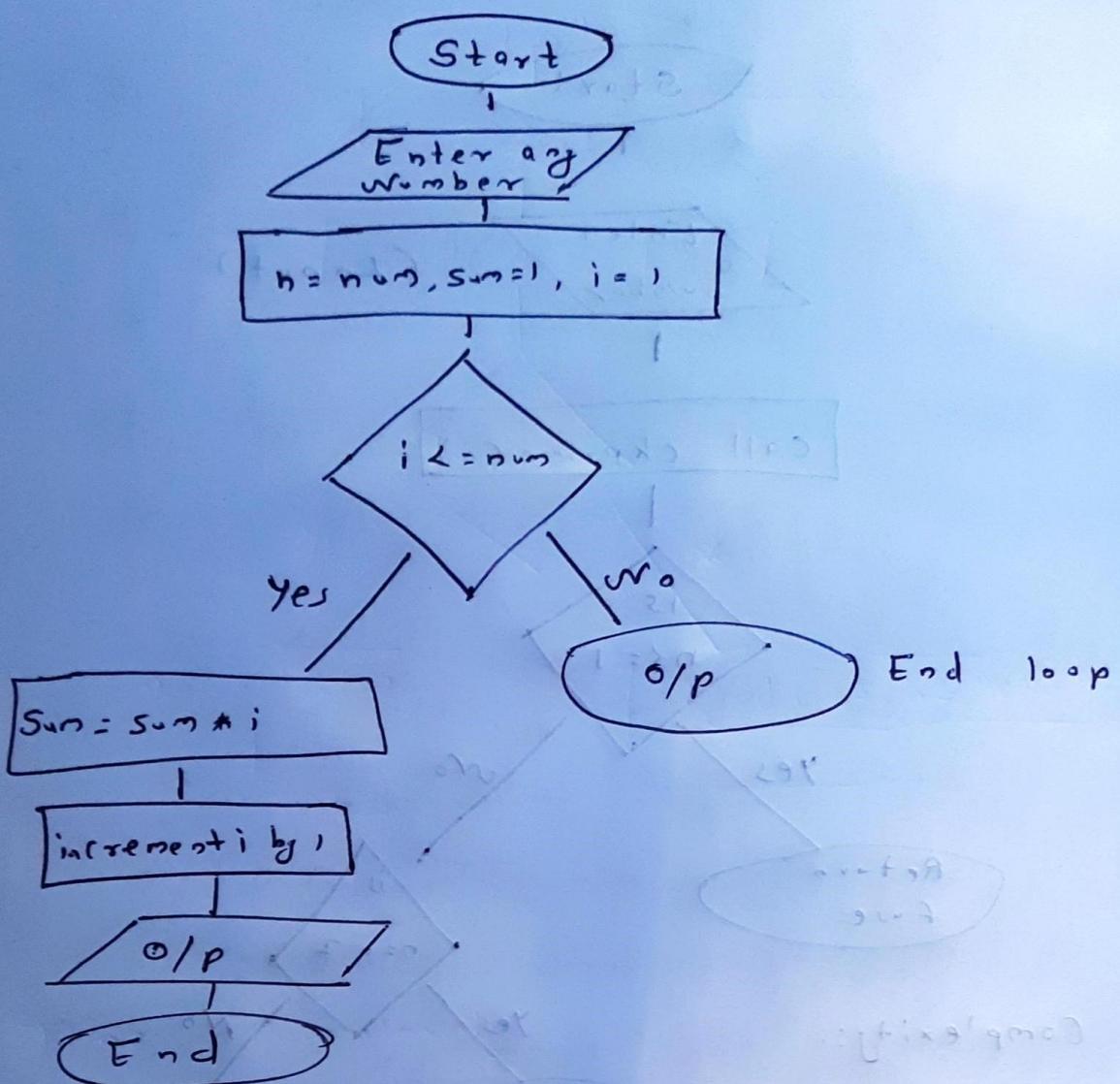
It is $O(1)$ because of fixed number of variables are used.

②

P 2 Prime No.



③ Factorial Calculator



Time Complexity:-

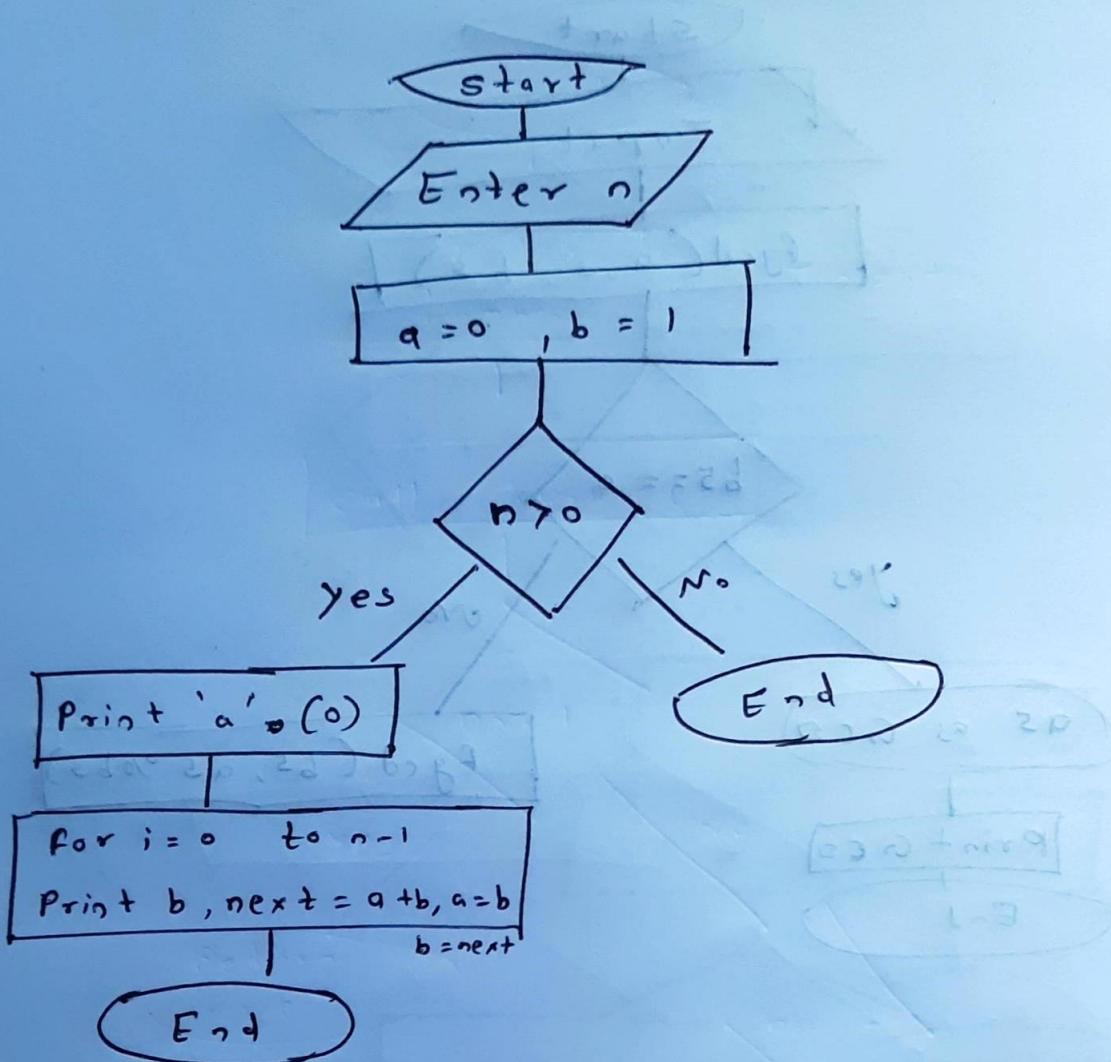
The For loop iterate n time to calculate factorial so t.c. is $O(n)$

Space Complexity:-

S.C. is $O(1)$ because only few int variable are used.

④

P4 Fibonacci



Time Complexity :-

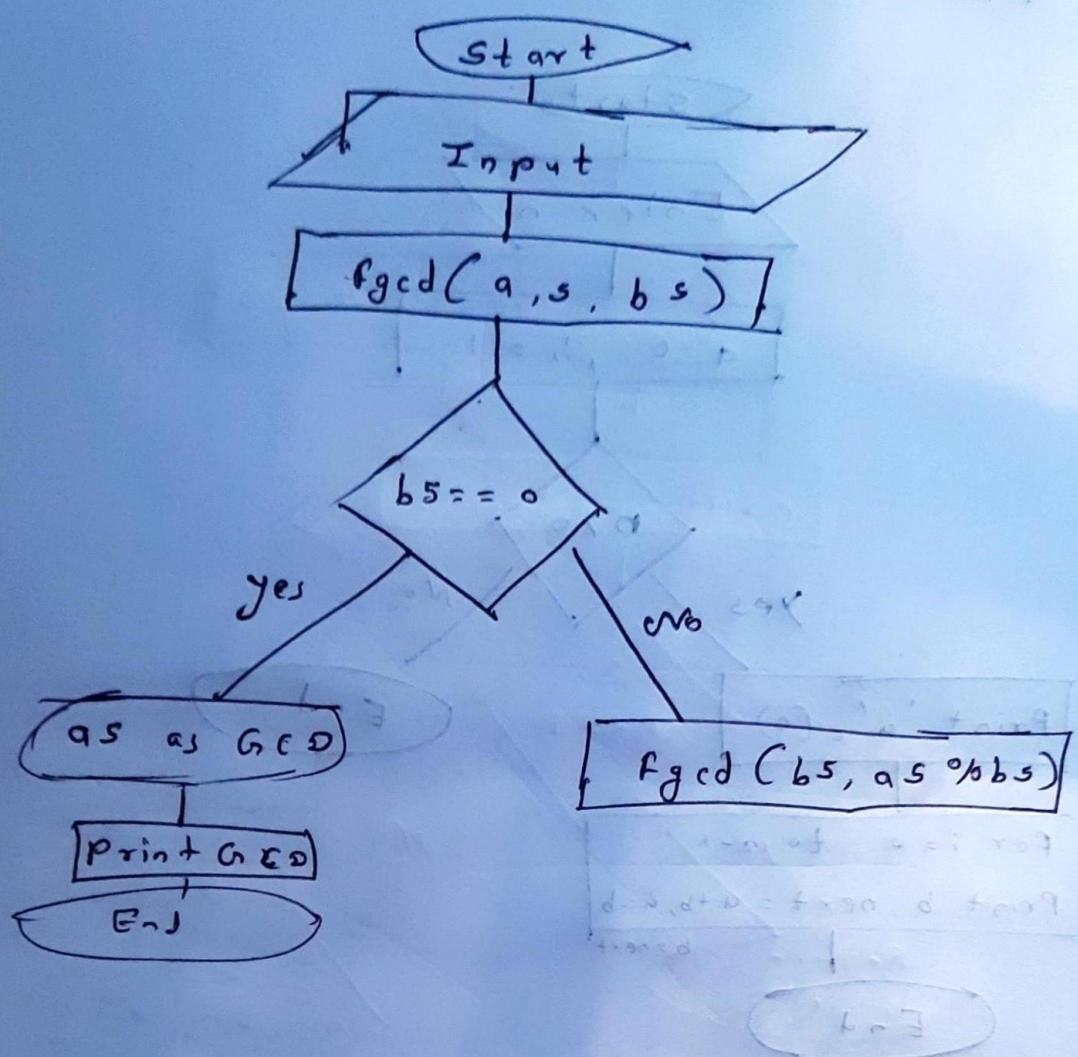
The for loop runs n times, so the time complexity is $O(n)$

Space Complexity :-

It is $O(1)$ since the program uses few variables to store.

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GCD



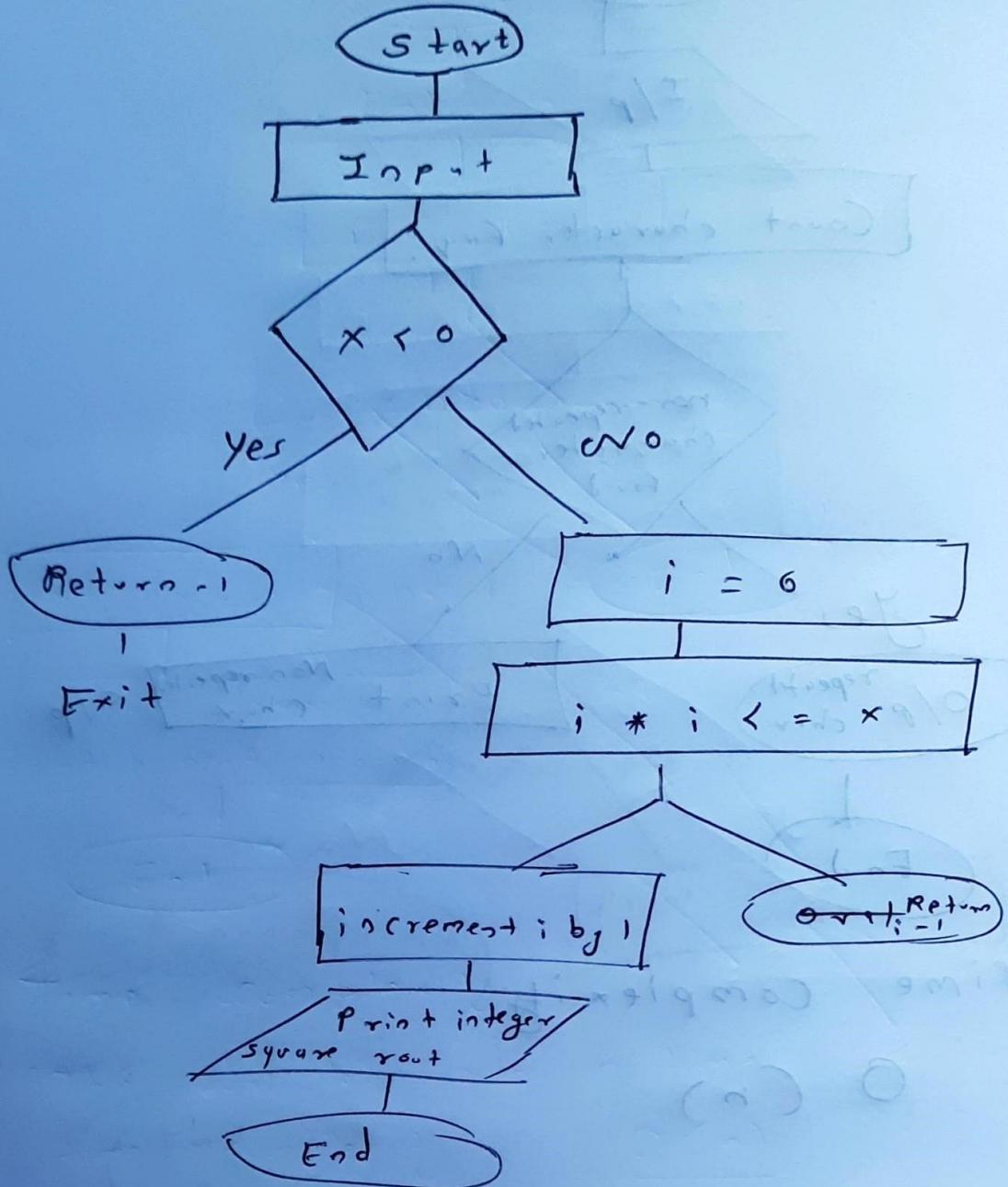
Time Complexity:-

 $O(\log n)$

Space Complexity:-

 $O(1)$ as it only uses a few variables to compute the GCD.

(6) Integer Square Root



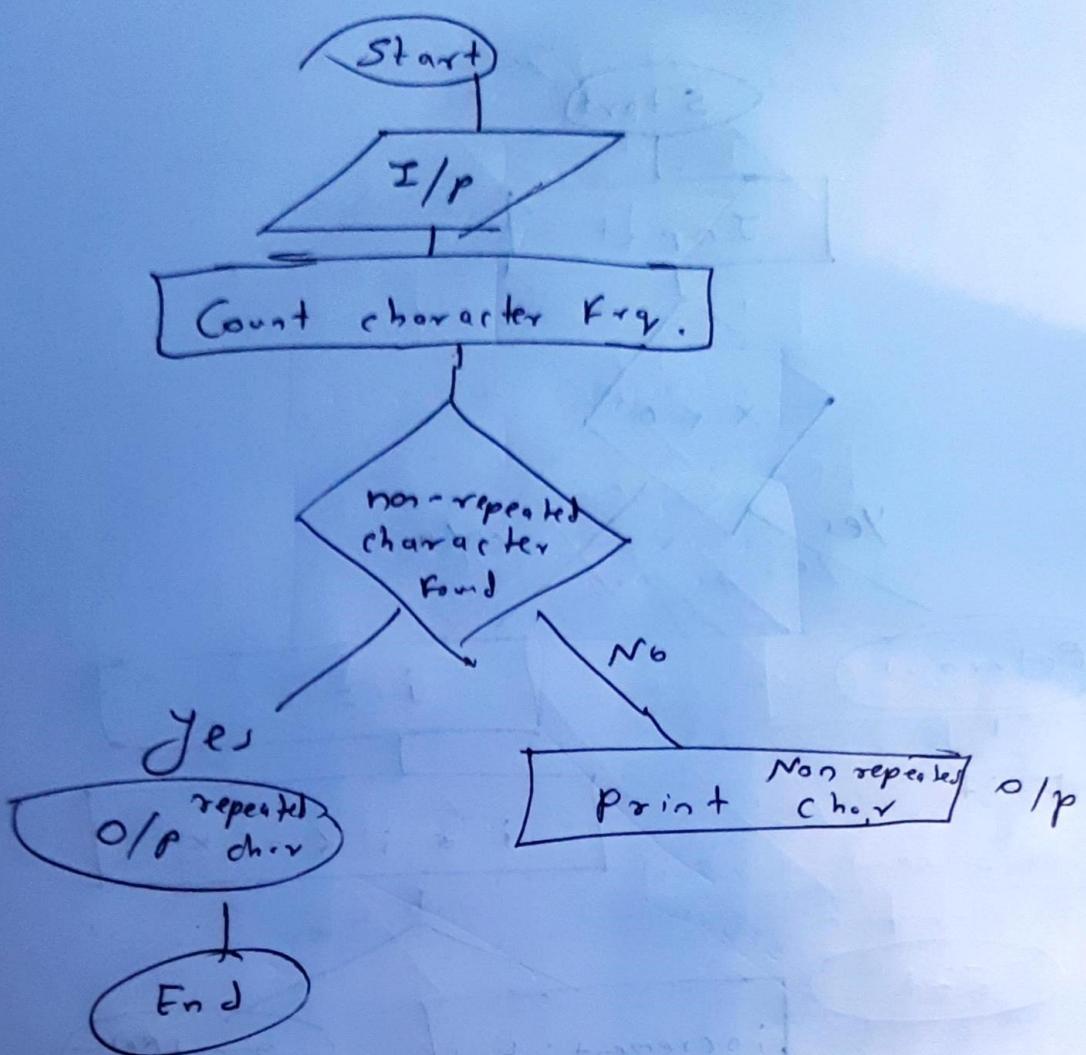
Q. Time complexity :-

Space Complexity :-

$O(1)$ since only a few variables are used.

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Repeated characters



Time complexity

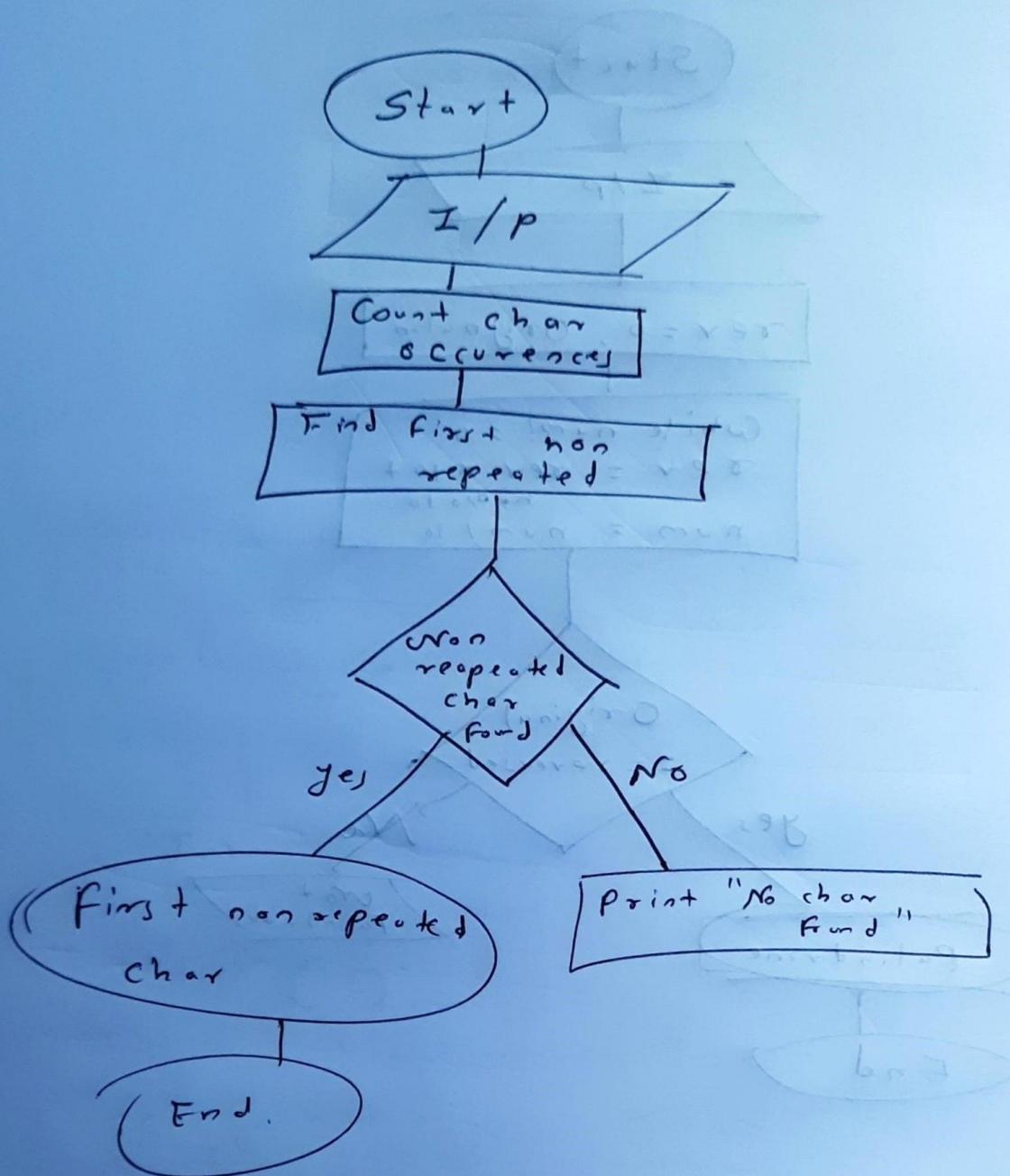
$O(n)$

Space complexity

$O(1)$

8

First Non-Repeated Char



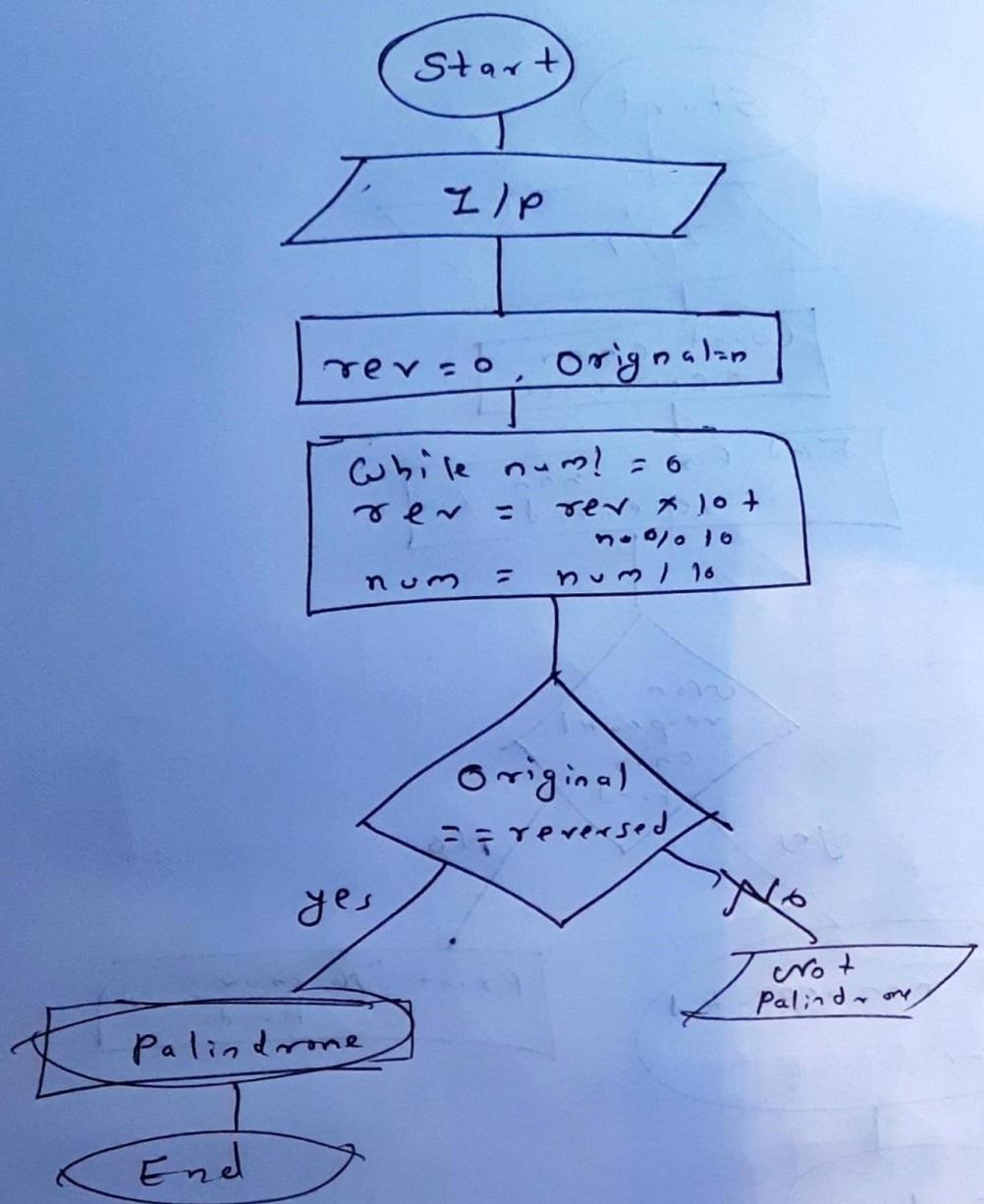
T.C

$O(n)$

S.C

$O(1)$

⑨ Palindrome P,



T. C

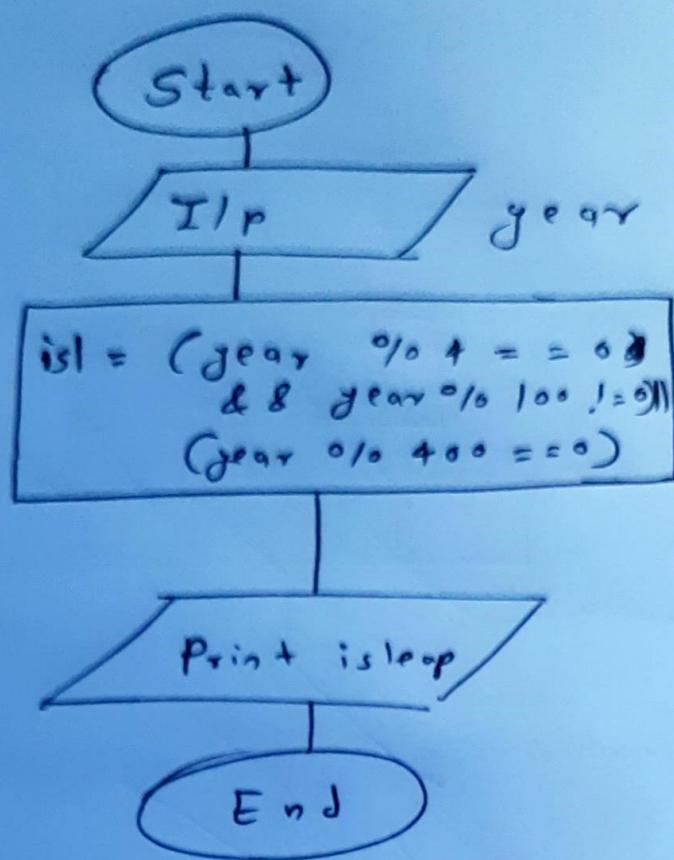
$O(\log n)$

S. P.C

$O(1)$

10

P 10 leap year



T. C

O(1)

S. C.

O(1)