LTCE

EXPERIMENT NO. 5

Aim:- write a C program to check whether a given number is an Armstrong number or not.

Theory:-

The Armstrong number is a number that is equal to the sum of cubes of its digits. for example 0, 1, 153, 370, 371 and 407 are the Armstrong numbers.

Let's try to understand why 153 is an Armstrong Number

1. 153 = (1*1*1)+(5*5*5)+(3*3*3)
2. where
3. (1*1*1) = 1
4. (5*5*5) = 125
5. (3*3*3) = 27
6. So:
7. 1+125+27 = 153

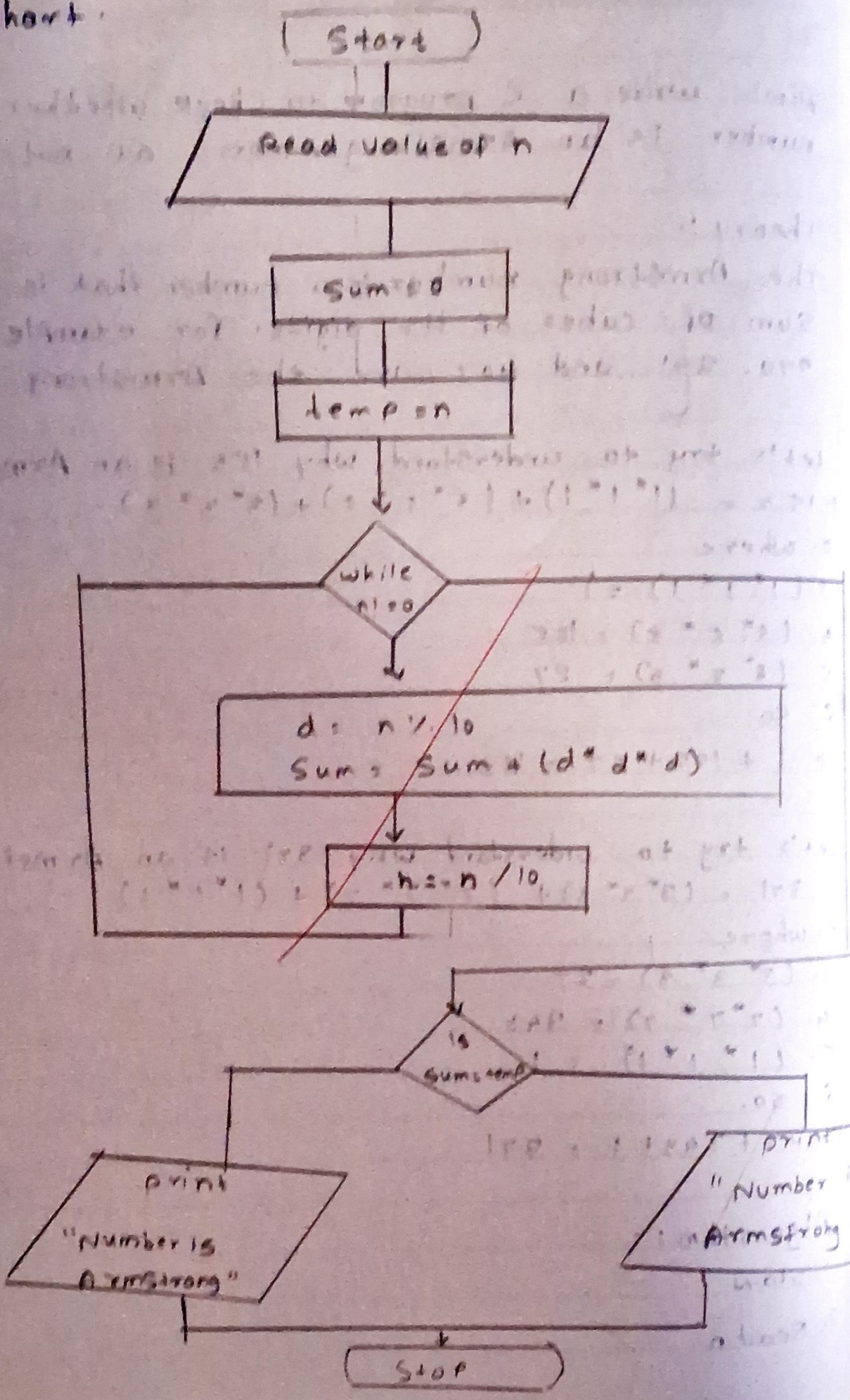
Let's try to understand why 371 is an Armstrong Number

1. 371 = (3*3*3)+(7*7*7)+(1*1*1)
2. where
3. (3*3*3) = 27
4. (7*7*7) = 343
5. (1*1*1) = 1
6. so.
7. 27+343+1 = 371.

Algorithm:-

1. Start
2. Read n

flowchart:


Start
Read value of n
Sum=0
temp=n
while n!=0
d= n%10
Sum= Sum+(d*d*d)
n=n/10
is Sum==temp
print "Number is Armstrong"
print "Number
Armstrong
Stop

3. temp = n
4. while (n! = 0) Calculate
   d = n % 10
   sum = sum + (d * d * d)
   n = n / 10
5. if (sum == temp)
   print " number is an armstrong"
   else
   print " number is not armstrong"
6. stop

Program:-

```
# include < stdio.h >
iht main ()
{
int n, d, Sum=0, temp;
print f ("\n Enter a number: ");
 Scanf ("%d", &n);
 temp = n;
 while (n! =0)
 {
 d= n% 10;
 Sum = Sum + (d* d* d);
 n= n/10;
 }
 if (Sum == temp)
 {
 printf ("-n Number is Armstrong:");
```

```
}
else
printf ("\n Number is not Armstrong:");
}
```

Output

enter the number = 153
Number is Armstrong

enter the number = 5
Number is not Armstrong.