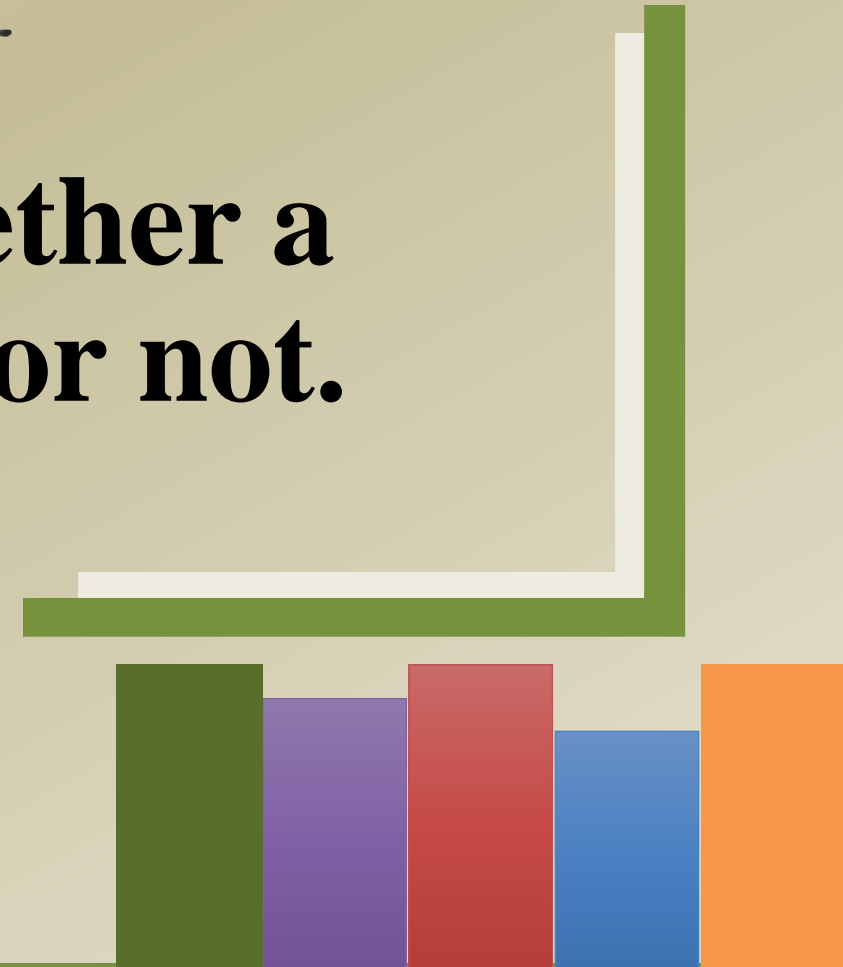




Program to check whether a number is Armstrong or not.



Armstrong Number

- A positive number is called **Armstrong number** if it is equal to the sum of cubes of its digits for example 0, 1, 153, 370, 371, 407 etc.
- $153 = (1*1*1) + (5*5*5) + (3*3*3)$

where:

$$(1*1*1)=1$$

$$(5*5*5)=125$$

$$(3*3*3)=27$$

So:

$$1+125+27=153$$

Logic For Programming

- An Armstrong number: the sum of cube of its digits results in that number itself.
- Example: $153 = (1*1*1)+(5*5*5)+(3*3*3) = 1+125+27 = 153$.
- **d=n%10:** $153\%10$ gives the reminder, that is the number 3 here. The modulus operator is used here to separate the digits.
- **n=n/10:** after a modulus operation we will get the last digit of that number now we have to remove the last digit from the input number so we divide it by 10 and what happens is:
- *$153\%10=3$ (reminder,r=3), then : $sum=0+(3*3*3)$ (sum,s=27), then : $153/10=15$ (number,n=15)*
- The actual answer is 15.3 but since we initialize it as an integer the floating point value isn't considered. So the calculation continues like:
- *$15\%10=5$ (reminder,r=5) => $sum=(3*3*3)+(5*5*5)$ (sum,s=152) => $15/10=1$ (number,n=1)*
- And this continues till the number becomes 0 that is the while condition (n>0) evaluates to false.

Program for Armstrong number

```
class Armstrong
{
    public static void main(String[] Args)
    {
        int n,d,s=0,t;
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter a number");
        n=sc.nextInt();
        t=n;
```

```
        while(t>0)
        {
            d=t%10;
            s=s+(d*d*d);
            t=t/10;
        }
        if(n==s)
        {
            System.out.println("Armstrong Number");
        }
        else
        {
            System.out.println("Not a armstrong
number");
        }
    }
}
```