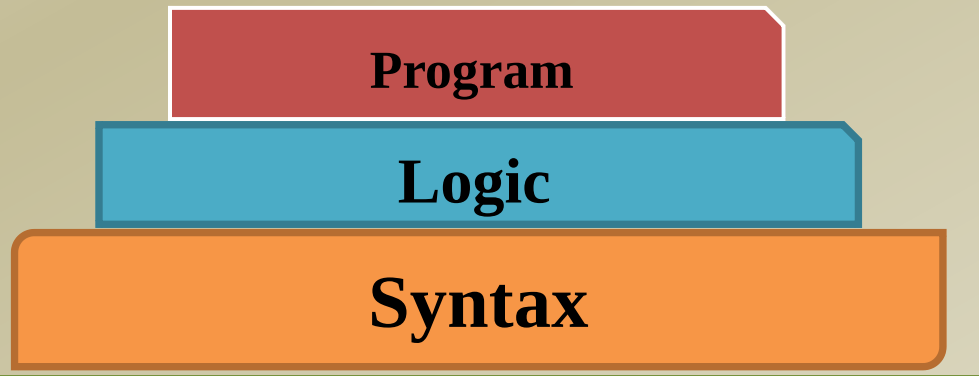
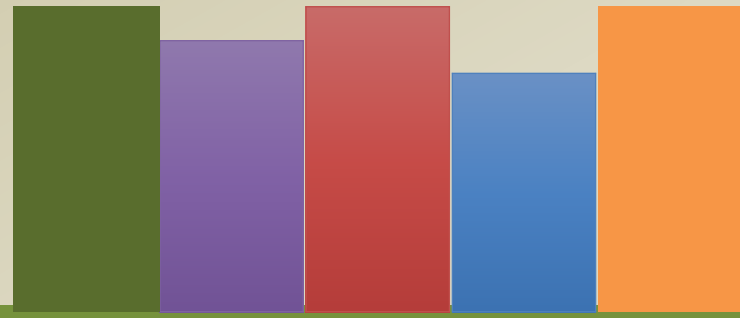
Code at Random (OPC) PVT. LTD.

# How to Reverse a Number Using While Loop



# What to do?

- Let a user enters n=1234
- After this input
- Output should be 4321

# Logic For Programming

In this program, while loop is used to reverse a number as given in the following steps:

- First, the remainder of the num divided by 10 is stored in the variable digit. Now, the digit contains the last digit of num, i.e. 4.
- This digit is then added to the variable **reversed** after multiplying it by 10. Multiplication by 10 adds a new place in the reversed number.
- One-th place multiplied by 10 gives you tenth place, tenth gives you hundredth, and so on. In this case, reversed contains 0 * 10 + 4 = 4.
- Now, num is then divided by 10 so that now it only contains the first three digits: 123.
- After second iteration, digit equals 3, reversed equals 4 * 10 + 3 = 43 and num = 12
- After third iteration, digit equals 2, reversed equals 43 * 10 + 2 = 432 and num = 1
- After fourth iteration, digit equals 1, reversed equals 432 * 10 + 1 = 4321 and num = 0
- Now num = 0, so the test expression num != 0 fails and while loop exits. reversed already contains the reversed number 4321.

# Final Program

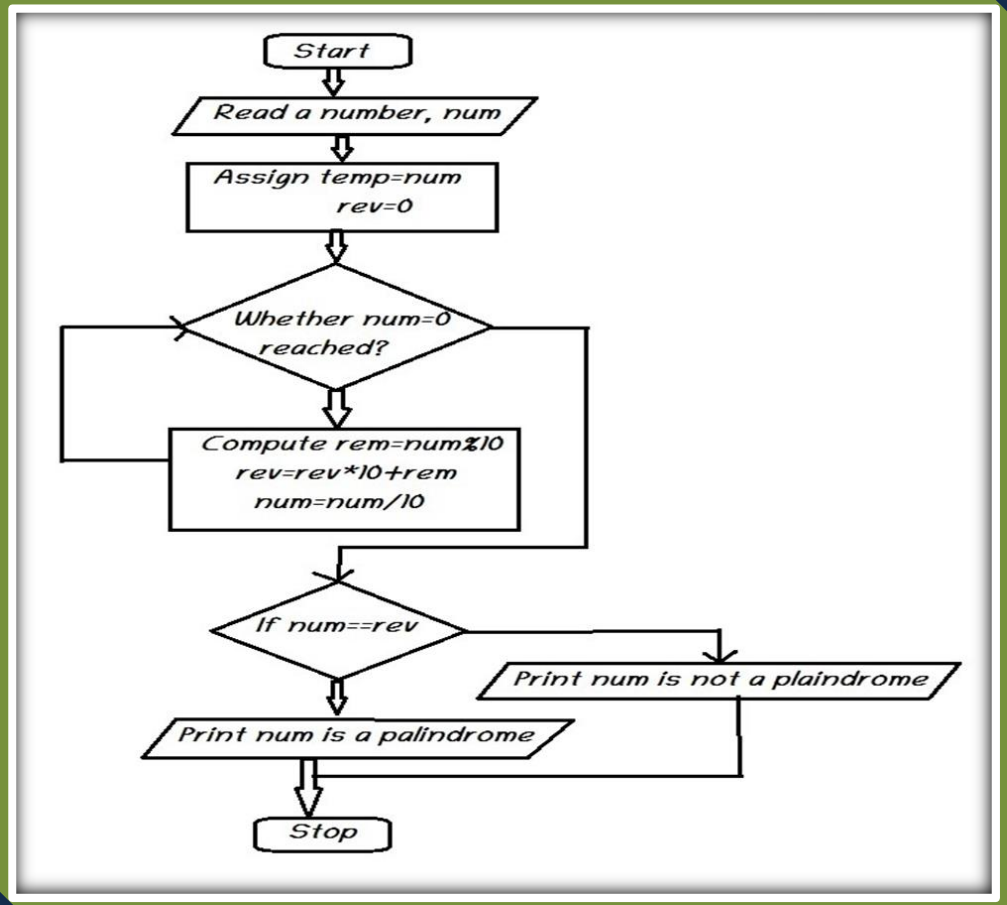
```
int n,d,r=0;
  Scanner sc= new Scanner(System.in);
  System.out.println("Enter a number");
  n=sc.nextInt();
  while(n>0)
  {
     d=n%10;
     r=r*10+d;
     n=n/10;
  }


     System.out.println(r);
```

**Application of finding the reverse of a number !!**

**→ Program to check whether a number is palindrome or not ?**

# Algorithm For Palindrome Number

- Get the number from user
- Hold the number in temporary variable
- Reverse the number
- Compare the temporary number with reversed number
- If both numbers are same, print palindrome number
- Else print not palindrome number




Flowchart of checking a number palindrome or not.

# Palindrome No

- An integer is a palindrome if the reverse of that number is equal to the original number.

or

- A **palindrome number** is a **number** that remains the same when its digits are reversed.
- For Example :- 121, 34543, 343, 131, 48984 are the palindrome numbers.

# Final Program

```
class palindrome
{
    public static void main(String[] Args)
    {
        int n,d,r=0,t;
        Scanner sc= new Scanner(System.in);
        System.out.println("Enter a number");
        n=sc.nextInt();
        t=n;
        while(n>0)
        {
            d=n%10;
            r=r*10+d;
            n=n/10;
        }
 if(t==r)
        {
            System.out.println("Palindrome Number");
        }
        else
        {
            System.out.println("Not a Palindrome
Number");
        }

    }
}
```