

# WHILE LOOP

## UNIT-III

# Rules for Determining a Leap Year

- Most years that can be divided evenly by 4 are leap years.  
(For example, 2012 divided by 4 = 503: Leap year)  
**Exception:** Century years are NOT leap years UNLESS they can be evenly divided by 400. (For example, 1700, 1800, and 1900 were not leap years, but 1600 and 2000, which are divisible by 400, were.)
- Similarly, 2100, 2200, 2300, 2500, 2600, 2700, 2900 and 3000 will not be leap years, but 2400 and 2800 will be.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int year;
    clrscr();
    printf("enter year");
    scanf("%d", &year);
    if(year%100==0)
    {
        if(year%400==0)
            printf("leap year");
        else
            printf("not leap year");
    }
    else
```

WAP to find  
whether year is leap  
year or not.

```
{
    if(year%4==0)
        printf("leap year ");
    else
        printf("not leap year");
}
getch();
}
```

# Loops

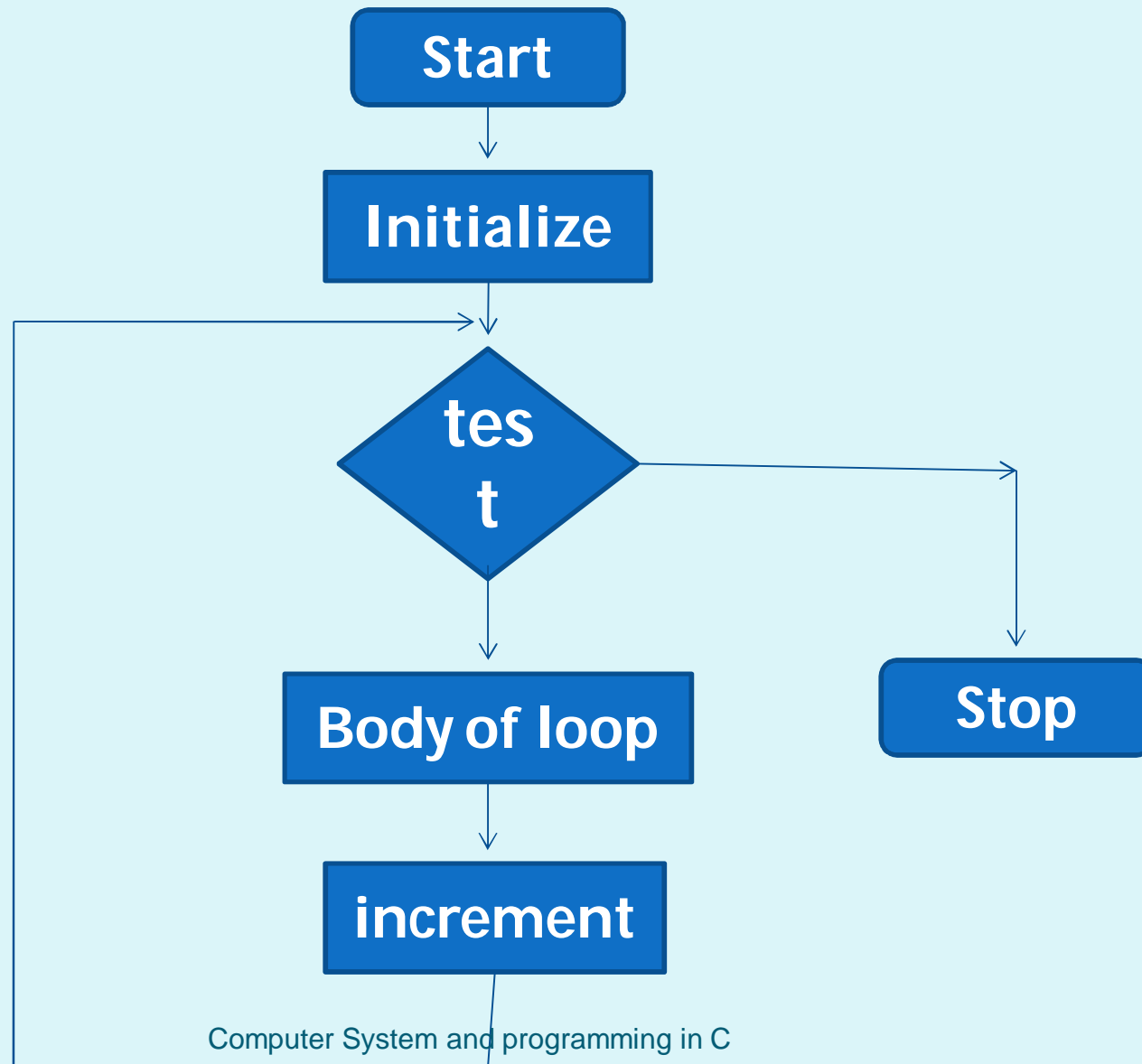
- Loops are used when we want to execute a part of program or block of statements several times.
- For eg.-if we want to print "C is best" 10 times.
- One way to get desired output is –we write 10 printf statements ,which is not preferable.
- Other way out is –use loops.

# While loop

Syntax:

```
initialize loop counter;  
while(test loop condition)  
{  
    do this;  
    and this;  
    increment loop counter;  
}
```

# While loop



# Do while

Syntax:

```
    initialize loop counter;  
do  
{  
    do this;  
    and this;  
    increment loop counter;  
}while(condition);
```

# WAP to print numbers from 1 to 10 using while and do while loop

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i=1;
    while(i<=10)
    {
        printf("%d",i);
        i=i+1;
    }
    getch();
}
```

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i=1;
    do
    {
        printf("%d",i);
        i=i+1;
    }while(i<=10);
    getch();
}
```



# WAP to print numbers in reverse order with a difference of 2.

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i=10;
    while(i>0)
    {
        printf("%d",i);
        i=i-2;
    }
    getch();
}
```

# WAP to print the sum of digits of any number

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int num, sum=0,rem;
    Scanf("%d",&num);
    while(num>0)
    {
        rem=num%10;
        sum=sum+rem;
        num=num/10;
    }
    printf("sum of digits=%d",sum);
    getch();
}
```

For eg:  
Num=2345  
Sum of digit=14

```
#include<stdio.h>
void main()
{
    int num,fact=1;
    printf("enter the number");
    scanf("%d",&num);
    if(num<0)
        printf("no factorial of (-)ve
        number");
    else
    {
        while(n>1)
        {
            fact=fact*n;
            n=n-1;
        }
        printf("factorial:%d",fact);
    }
    getch();
}
```

# WAP to print factorial of any number