

Flow control with LOOPS

For Loop

FOR LOOP-FLOWCHART

Start

Initialization

Test

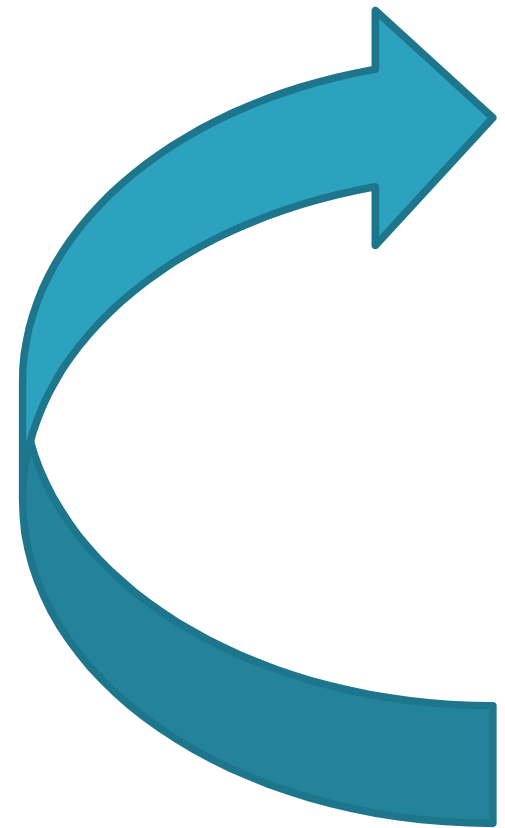
False

True

Body of loop

Increment

Stop



For Loop

- **Syntax**
- **For (i=0; i<10; i=i++)**
{
body of the loop goes here
}

The parentheses contain three expressions

Initialization	(i=0)
Condition	(i<10)
Increment	(i=i++)

Print Number Using FOR Loop

```
void main()
{
clrscr();

int i;

for(i=1; i<=10; i++)
{
cout<<"\t"<<i;

}

getch();
}
```

Print Table Of Given Number Using FOR Loop

```
void main()
{
clrscr();
int a,b,c;
cout<<"Enter a Number:\n";
cin>>a;
cout<<"Table of "<<a<<" is:\n";
```

```
for(b=1;b<=10;b++)
{
c=a*b;
cout<<"\t"<<a<<"x"<<b<<"="<<c;
}
getch();
}
```

Find the Sum of First 10 Positive Integers

```
main()
{
int i, sum=0;
cout<<"Sum of first 5 positive numbers are as\n";
for(i=0; i<=5; i++)
sum = sum + i;
cout<<"Sum = "<<sum;
}
```

Multiplication of First 3 Positive Integers

```
void main()
```

```
{
```

```
clrscr();
```

```
int i,multi=1;
```

```
cout<<"multiply of first 3 positive number are as\n"<<endl;
```

```
for(i=1;i<=3;i++)
```

```
multi=multi*i;
```

```
cout<<"multi="<<multi<<endl;
```

```
getch();
```

```
}
```

Program to Find Factorial

```
void main()
{
int a,i;
double b=1;
cout<<"\n Enter a Number:";
cin>>a;
for (i=1;i<=a; i++)
b= b*i;
cout<<"\n factorial="<<b<<endl;
getch(); }
```

For Loop with Bitwise Operator

```
void main()
{
int i;
cout<< "Shift Right:"<< endl;
for(i=0; i<4; i++)
{
cout<< "20>> "<<i<<" ="<<(20>>i)<<endl;
}
cout<<"Shift Left:" << endl;
for(i=0; i<4; i++)
{
cout<<"20<<"<<i<<"="<<(20<<i)<<endl;
} }
}
```

Shift Right:

20 >> 0 = 20

20 >> 1 = 10

20 >> 2 = 5

20 >> 3 = 2

Shift Left:

20 << 0 = 20

20 << 1 = 40

20 << 2 = 80

20 << 3 =

160

Nested For Loop

Nested for loop

```
Outer_loop
{
    Inner_loop
    {
        // inner loop statements.
    }
    // outer loop statements.
}
```

Nested for Loop

```
for(initialization; condition; update)
{
    for(initialization; condition; update)
    {
        // inner loop statements.
    }
    // outer loop statements.
}
```

Nested for loop - Example

```
void main()
{
int a,b,c;
cout<<"enter the value of b:"; //display the n times tables
cin>>b;
for(a=1;a<=b;a++) //outer for loop
{
    for (c=1;c<=5;c++) //inner for loop
    {
        cout<<(a*c)<<"\t";
    }
cout<<endl;
} getch();
}
```

Nested for loop - Example

```
void main()
{
clrscr();
int r,c,sum;
for(r=1;r<=2;r++) \\Outer Loop
{
cout<<"Outer loop is working\n"<<endl;
cout<<"\n\n"<<r;
cout<<"inner loop is strarted";
    for(c=1;c<=2;c++) \\Inner Loop
    {
        sum=r+c;
cout<<"r= "<<r<<"c= "<<c<<"sum= "<<sum<<endl;
    }
} getch(); }
```

outer loop is working

1

inner loop is started

r=1 c=1 sum=2

r=1 c=2 sum=3

outer loop is working

2

inner loop is started

r=2 c=1 sum=3

r=2 c=2 sum=4

While Loop

While loop

- Syntax

initialization

While (condition)

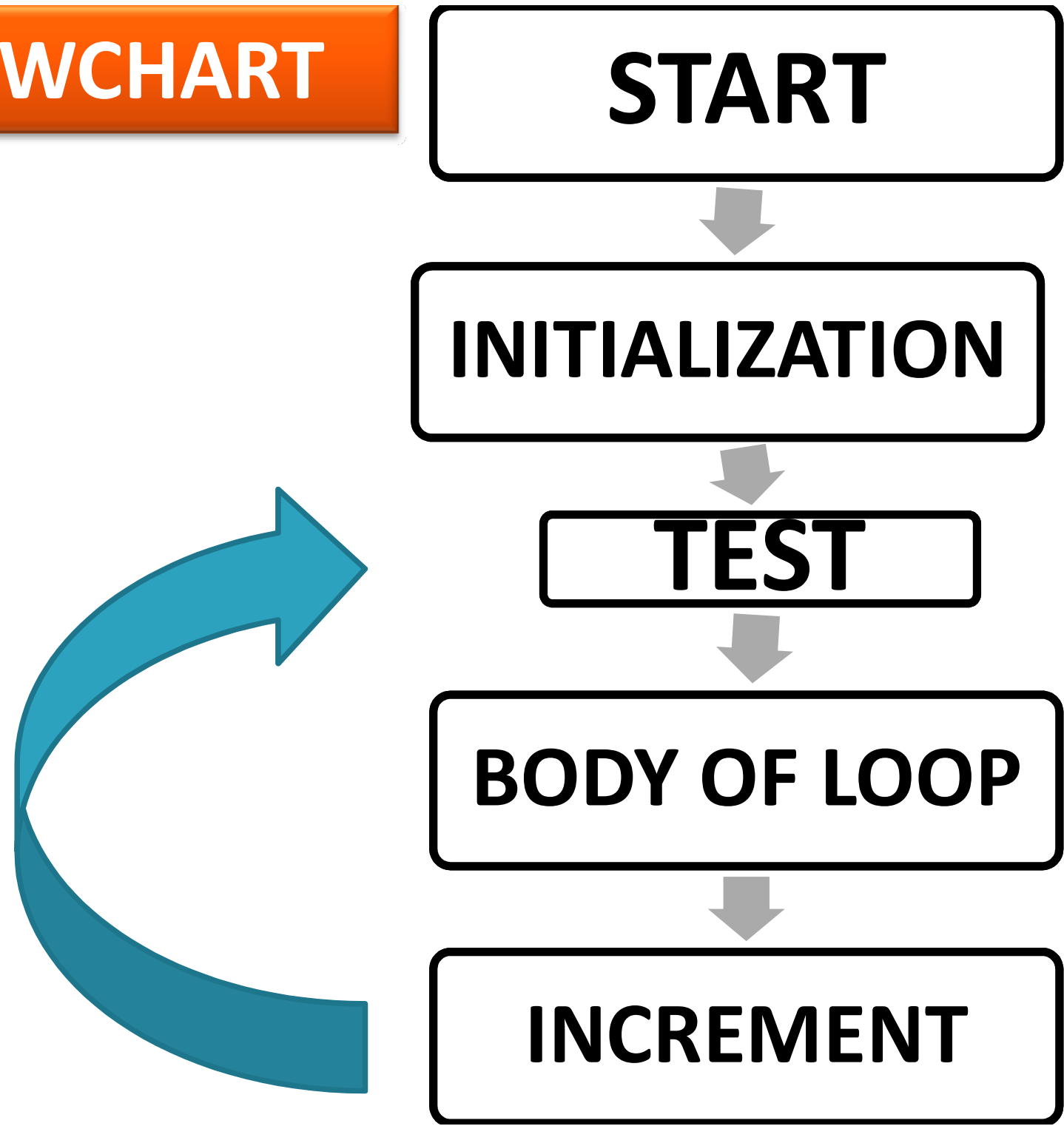
{

do This...

}

increment

WHILE LOOP-FLOWCHART



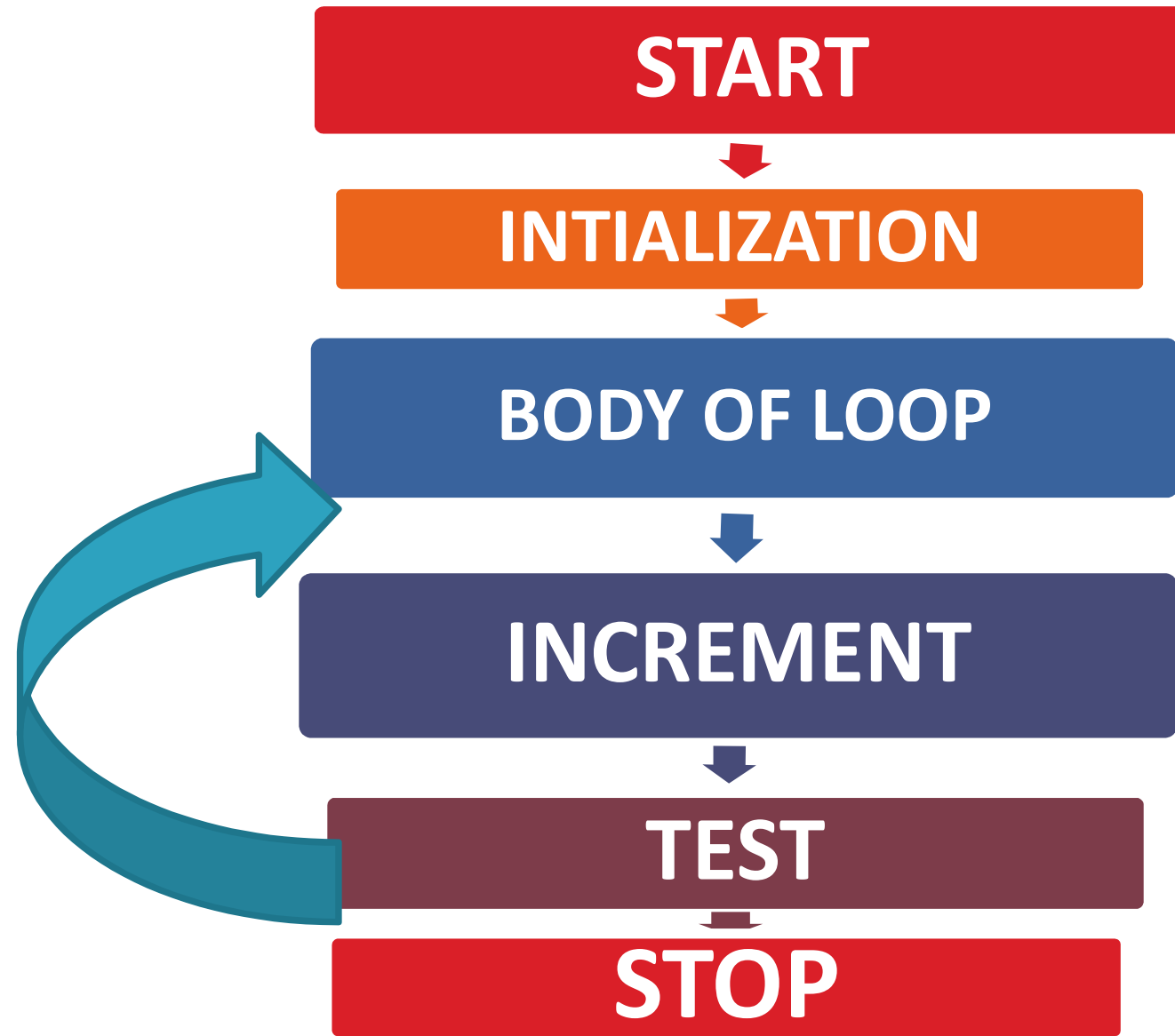
PRINTING TABLE

```
void main()
{
int num, i=1;
cout<<"Enter Any No. "<<endl;
cin>>num;
cout<<" table of "<<num<<endl;
while (i<=10)
{
cout<<num<<" x "<<i<<" = " <<num*i<<endl;
i++;
} }
```

Do While Loop

Do While loop

- **Do while loop**: is similar to while except that the continuation condition is tested at the end of the loop rather than at the beginning.
- It follows that the body of the loop is certain to be **executed at least once**:



Do While loop

Syntax:

```
Do
{
    this ;
    this ;
    and this;
}
```

```
while (condition);
    i++;
```

PROGRAM - Do While loop

```
main()
{
int i = 1;
do
{
cout<<"Hello \n", i;
i = i ++;
}
while ( i<= 10 );
}
```

OUTPUT

Hello 10
Hello 9
Hello 8
Hello 7
Hello 6
Hello 5
Hello 4
Hello 3
Hello 2
Hello 1



Thank You!