Control Statements

Structured Programming Language (CSE-1271)

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Outline

1. Control Statements
2. For loop
3. While loop
4. Do-while loop
5. Loop using goto statement

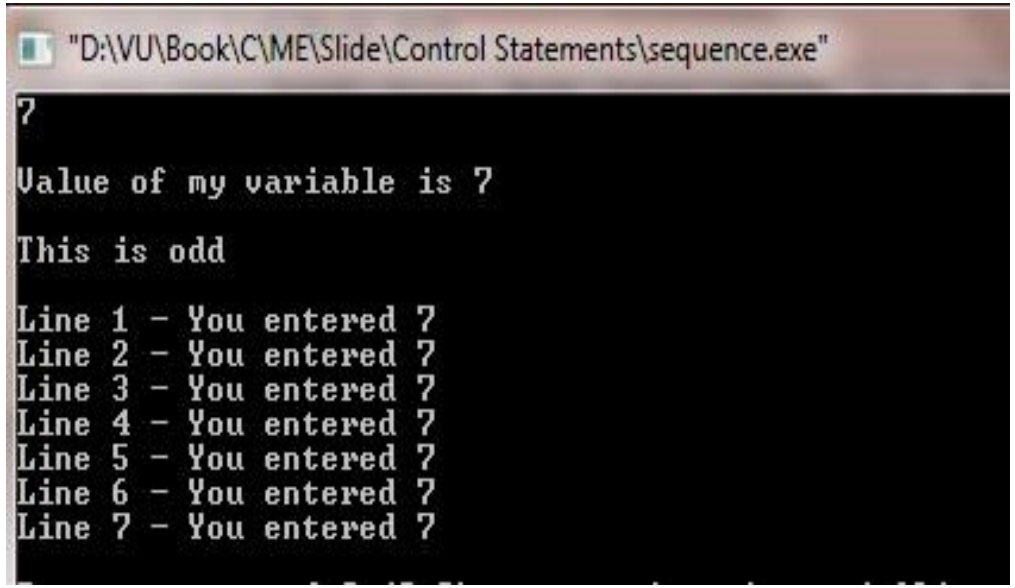
Control Statements

```c
#include<stdio.h>
int main()
{
    int i, myVariable;
    scanf("%d",&myVariable);
    printf("\nValue of my variable is %d\n\n",myVariable);

    if(myVariable%2==0)
    {
        printf("This is even\n\n");
    }
    else
    {
        printf("This is odd\n\n");
    }


    i=1;
    while(i<=myVariable)
    {
        printf("Line %d - You entered %d\n",i,myVariable);
        i=i+1;
    }

    return 0;
}
```



Control Statements

```c
#include<stdio.h>
int main()
{
    int i, myVariable;
    scanf("%d",&myVariable);
    printf("\nValue of my variable is %d\n\n",myVariable);

    if(myVariable%2==0)
    {
        printf("This is even\n\n");
    }
    else
    {
        printf("This is odd\n\n");
    }


    i=1;
    while(i<=myVariable)
    {
        printf("Line %d - You entered %d\n",i,myVariable);
        i=i+1;
    }

    return 0;
}
```

Sequential statements

Selection statements

Loop statements

Control Statements

Control the flow of execution in a program or function.

There are three kinds of execution flow:

- **Sequence**: The execution of the program is sequential.
- **Selection**: A control structure which chooses alternative to execute.
- **Repetition**: A control structure which repeats a group of statements.

Some programing situations!!!

1. Write a C program that will print numbers from 1 through 10 on screen.

2. Write a C program that will print all numbers from 1 through n, where 1<=n<=1000.

3. Write a C program that will print "**Welcome to our CSE family**" 1000 times on screen.

4. Write a C program that will print all even numbers between 1 and 100.

5. Write a C program that will print the value of s where,

   a) s = 1+2+3+ …… +n

   b) s = 2+4+8+ …… up to n^{th} term.

   c) s = l+…… +n+(n+2)+(n+4)+……+u, where l<=n<=u

   d) s = 5+11/2+6+13/2+…… up to n^{th} term.

6. Write a C program that will print all prime numbers between 1 and 100.

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

```c
#include<stdio.h>

int main()
{
    printf("1 ");
    printf("2 ");
    printf("3 ");
    printf("4 ");
    printf("5 ");
    printf("6 ");
    printf("7 ");
    printf("8 ");
    printf("9 ");
    printf("10\n");

    return 0;
}
```

```c
#include<stdio.h>

int main()
{
    printf("1 2 3 4 5 6 7 8 9 10\n");

    return 0;
}
```

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

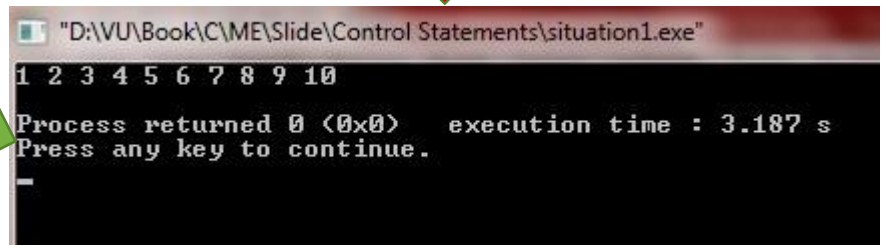
```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

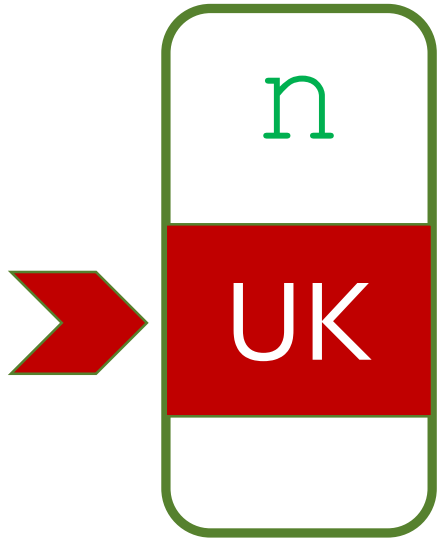
```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Output

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

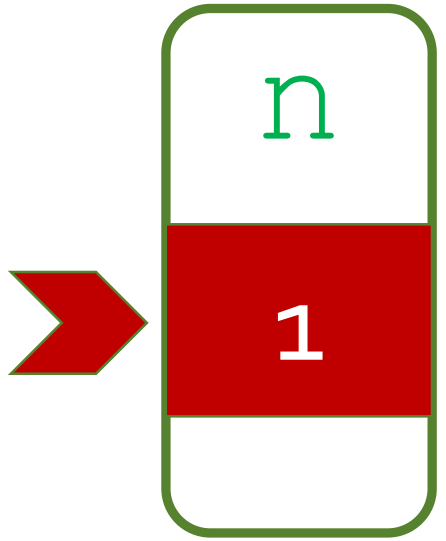
```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Output

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

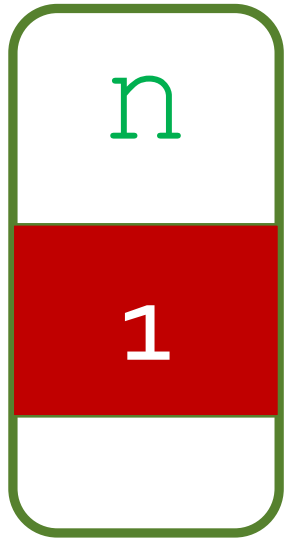
```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Output

1

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

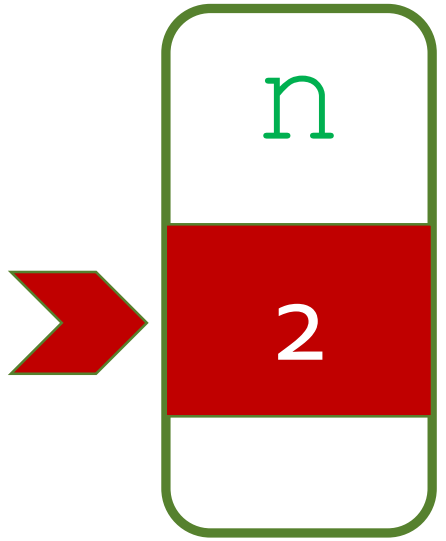
```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Output

1

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

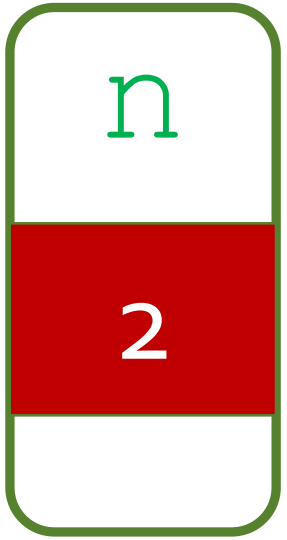
```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Output

1

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

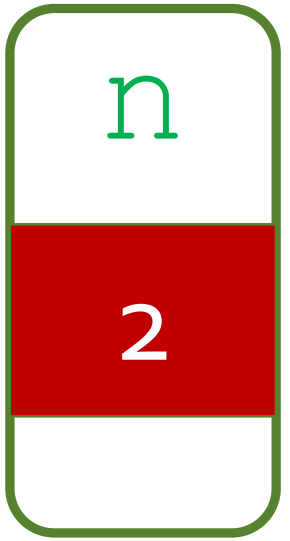
```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Output

1 2

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

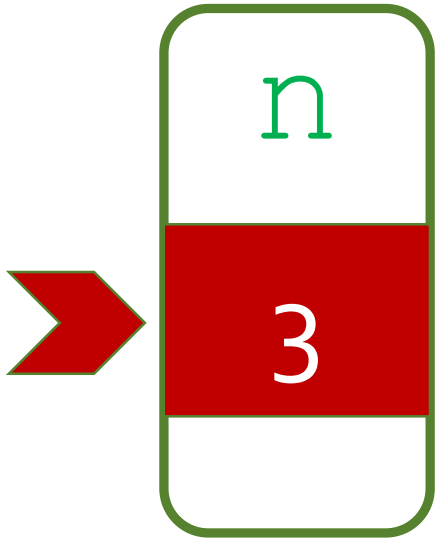
```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Output

1 2

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```
int main
{
    int
    n=1;
    prin
    n=n+
    prin
    n=n+
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

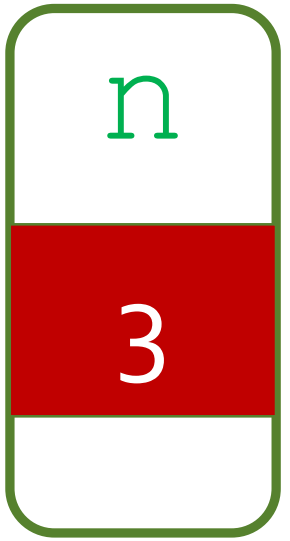
Continue this process…

```
o.h>

again:
    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Output

1 2 3

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
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    printf("%d\n",n);
    return 0;
}
```

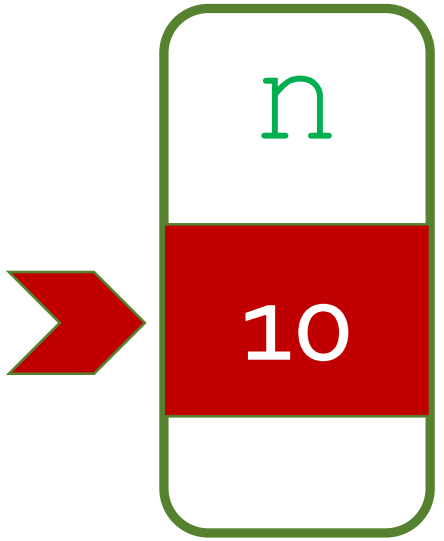
```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Output

1 2 3 4 5 6 7 8 9

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

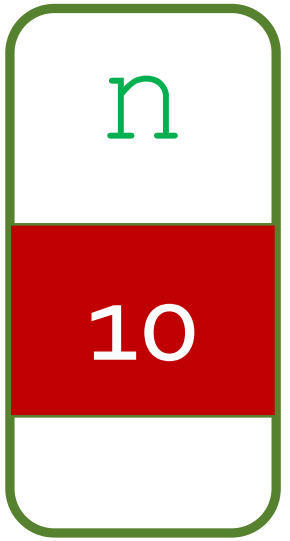
```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Output

1 2 3 4 5 6 7 8 9 10

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
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    int n;
    n=1;
    printf("%d ",n);
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    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```
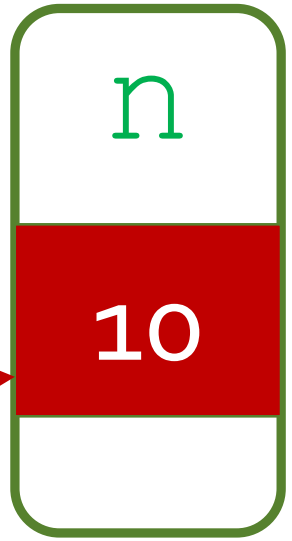

Terminate this program

```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Output

1 2 3 4 5 6 7 8 9 10

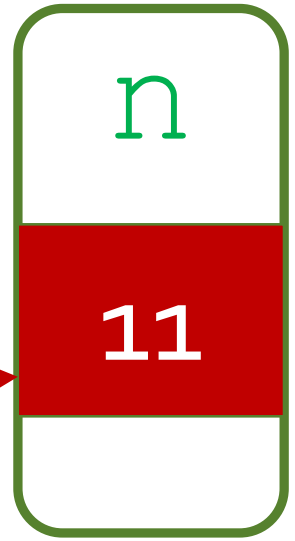
Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

Terminate this program

```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



Output

1 2 3 4 5 6 7 8 9 10

Some programing situations!!!

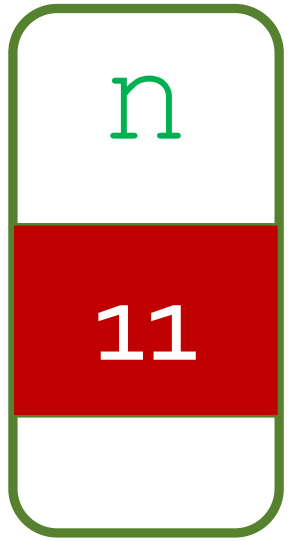
1. Write a C program that will print numbers 1 through 10 on screen.

```
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

Terminate this program

Continue…

```
    again:
    printf("%d ",n);
    n=n+1;
    goto again;
    return 0;
}
```



Output

1 2 3 4 5 6 7 8 9 10 11

Some programing situations!!!

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```

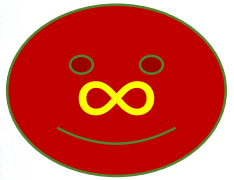
```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    if(n<=10)
      goto again;

    printf("\n");
    return 0;
}
```

Some programing situations!!!

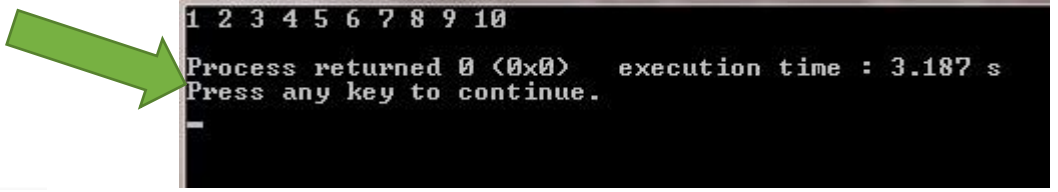
1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    goto again;

    return 0;
}
```



```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    if(n<=10)
      goto again;

    printf("\n");
    return 0;
}
```



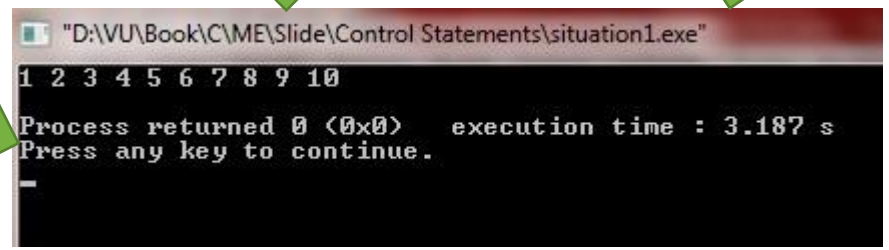
Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
int main()
{
    int n;
    n=1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d ",n);
    n=n+1;
    printf("%d\n",n);
    return 0;
}
```

```c
#include<stdio.h>
int main()
{
    int n;
    n=1;

    again:

    printf("%d ",n);
    n=n+1;

    if(n<=10)
      goto again;

    printf("\n");
    return 0;
}
```

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }


    return 0;
}
```



Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }


    return 0;
}
```

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```
#include<stdio.h>
int main()
{
    int
    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    return 0;
}
```

Start (Step-0)

Check? (Step-1)

Increment/ Decrement (Step-3)

True(step-1) (Step-2)

If check False(step-1)

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```
#include<stdio.h>
int main()
{
    int n;
    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    return 0;
}
```

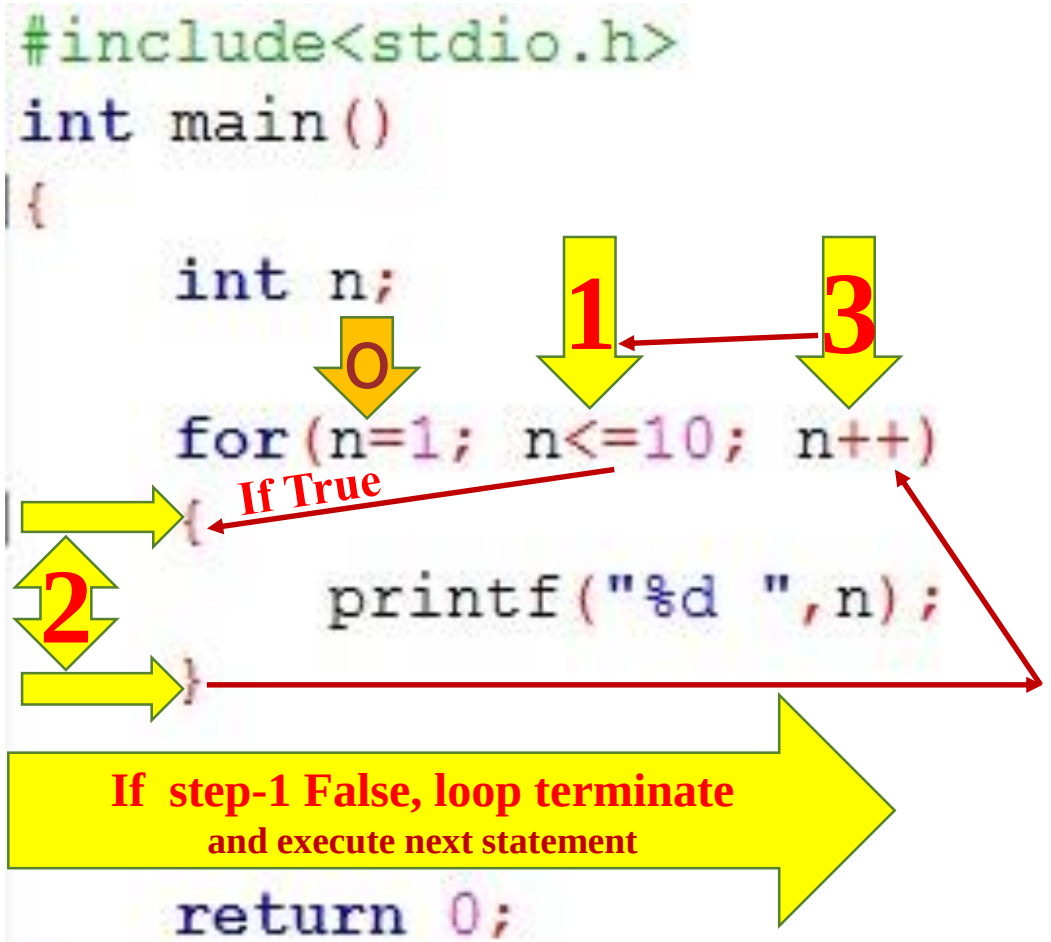
Start (Step-0)

Check? (Step-1)

Increment/ Decrement (Step-3)

True(step-1) (Step-2)

If check False(step-1)

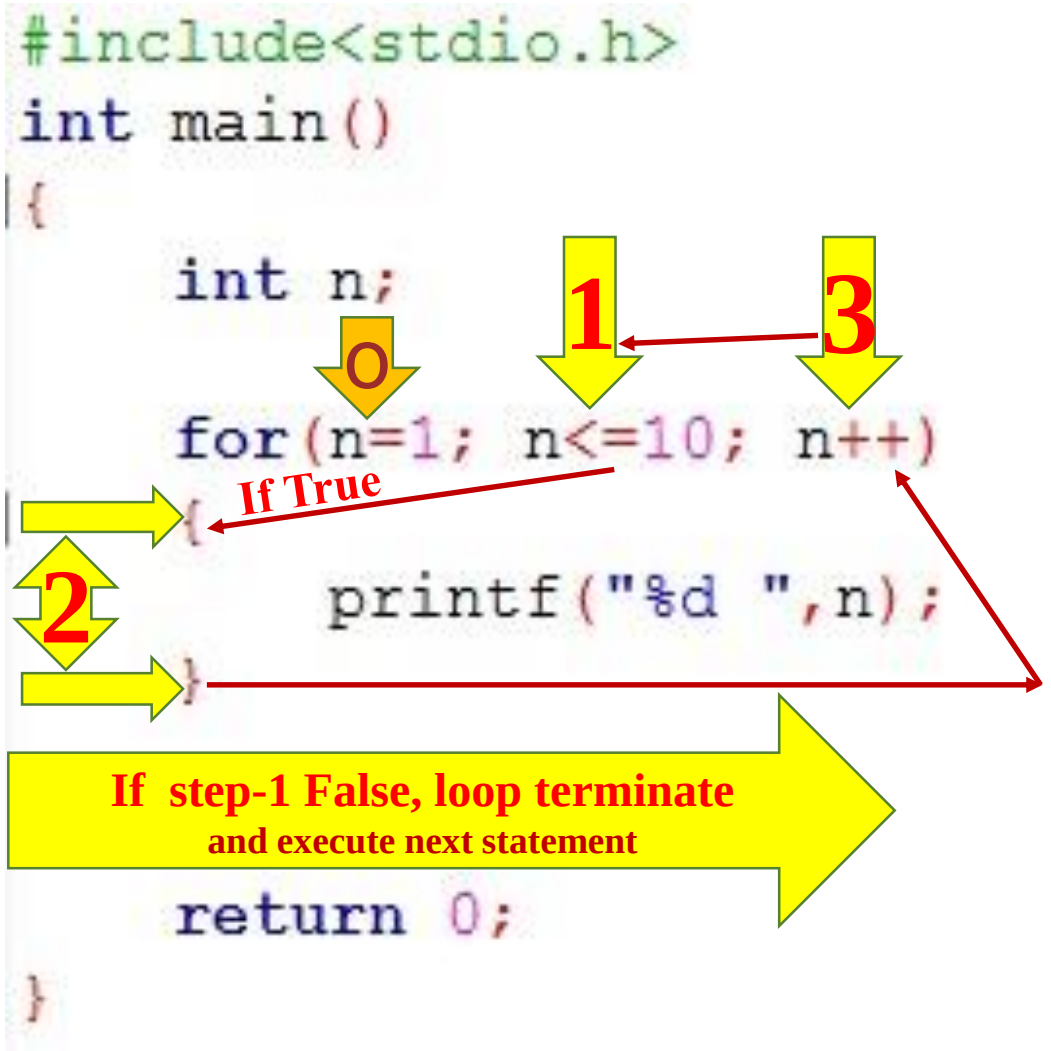


Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

Step-1 will be true or false.

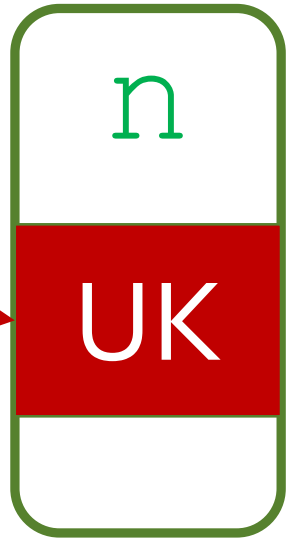
- **True:** When n is 1 to 10
- **False:** When n is 11



Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

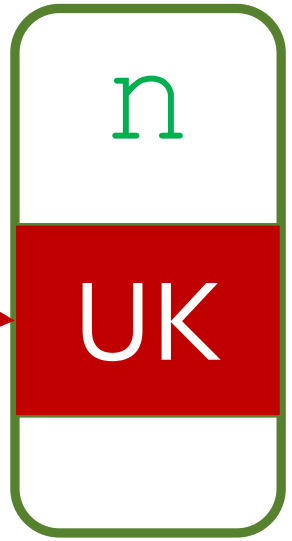


Output

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

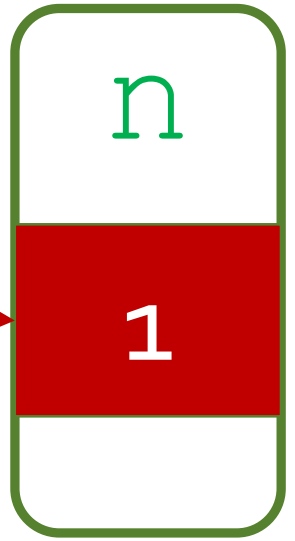


Output

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```



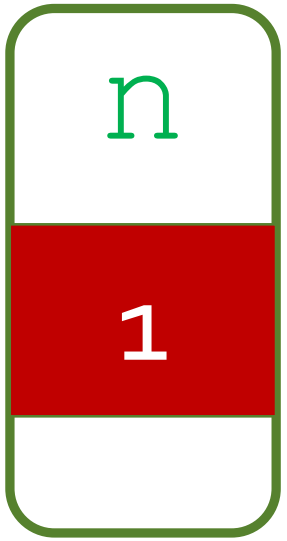
Output

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

True



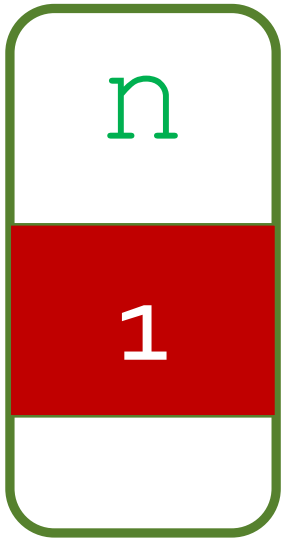
Output

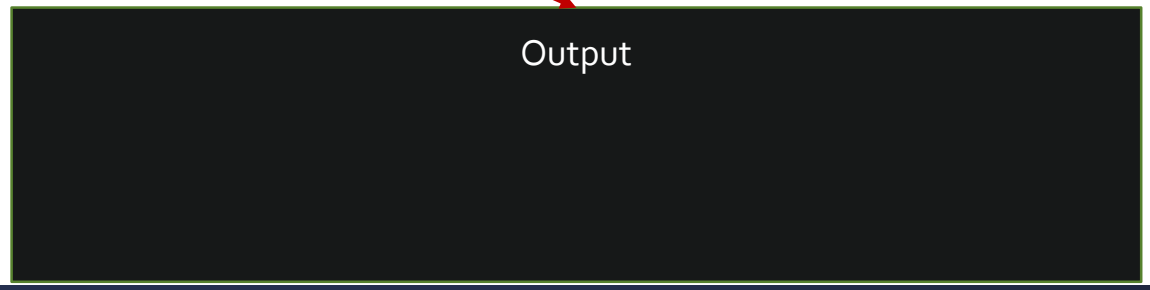
Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

True



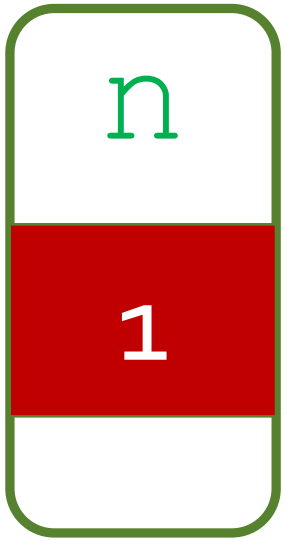


Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

True



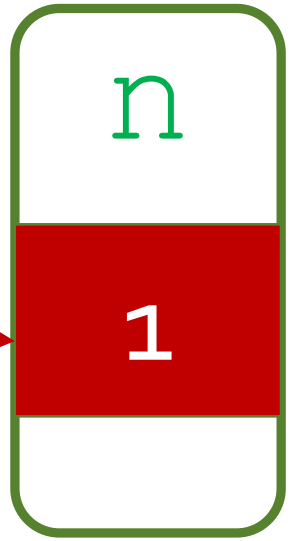
Output

```
1
```

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```



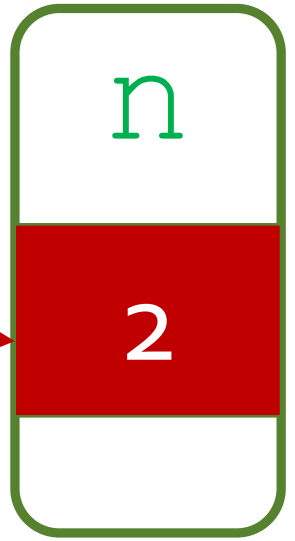
Output

1

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```



Output

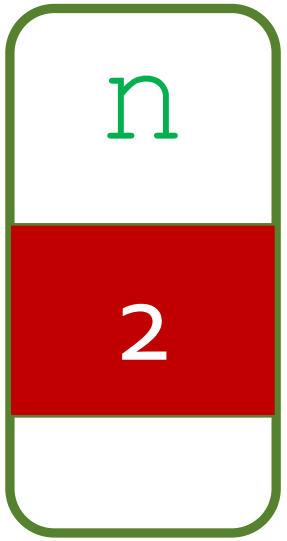
1

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

True



Output

1

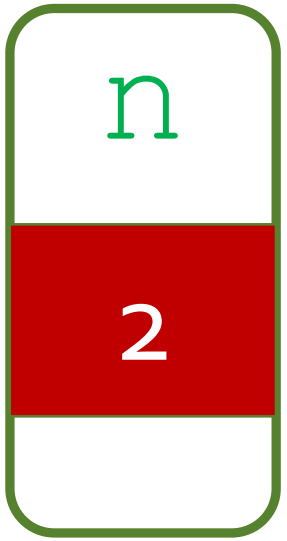
Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

True

Continue …



Output

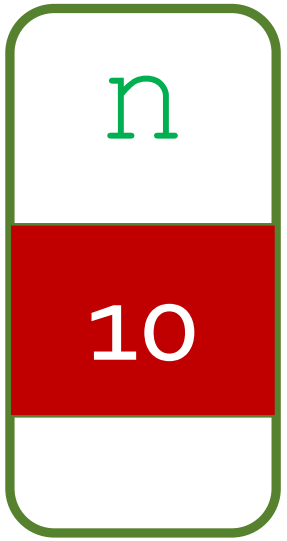
1 2

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

True



Output

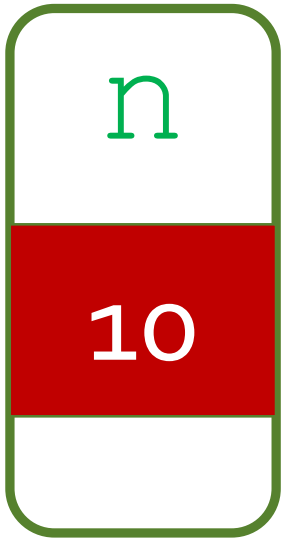
1 2 3 4 5 6 7 8 9

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

True



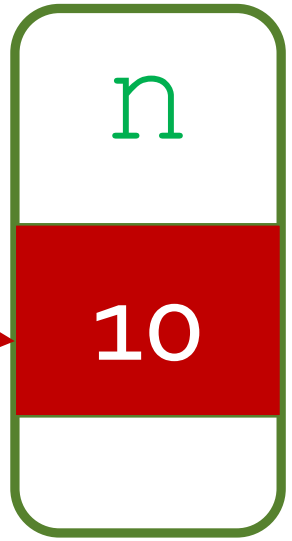
Output

1 2 3 4 5 6 7 8 9 10

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```



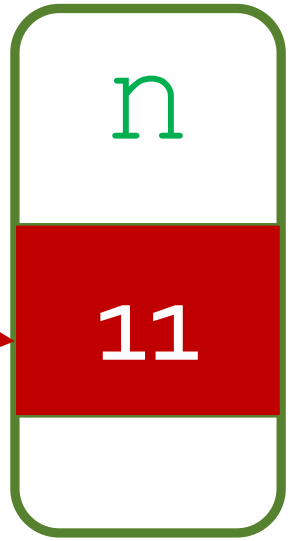
Output

1 2 3 4 5 6 7 8 9 10

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```



Output

1 2 3 4 5 6 7 8 9 10

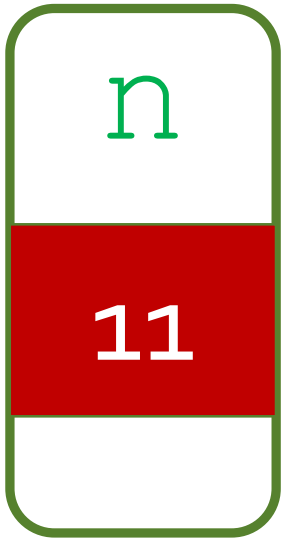
Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

False

Terminate loop



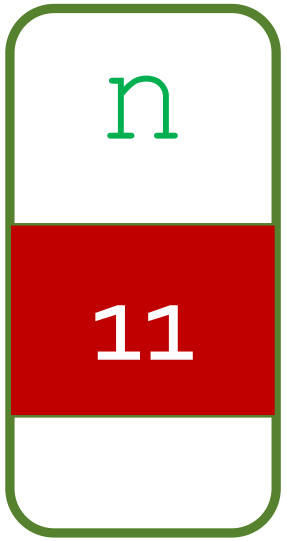
Output

1 2 3 4 5 6 7 8 9 10

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```



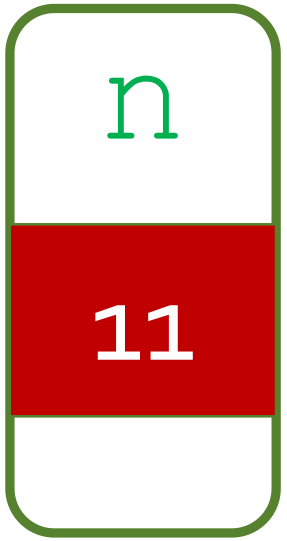
Output

1 2 3 4 5 6 7 8 9 10

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```



Output

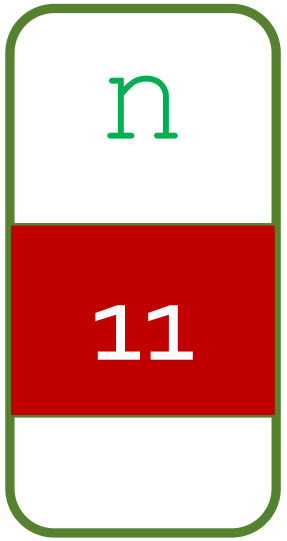
1 2 3 4 5 6 7 8 9 10

Terminate for loop

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```



Output

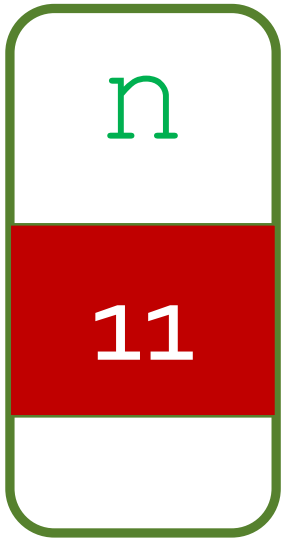
1 2 3 4 5 6 7 8 9 10

Terminate for loop

Using for loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```



Output

1 2 3 4 5 6 7 8 9 10

Terminate for loop

Present value of n is 11

for loop vs while loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

They are same

```c
#include<stdio.h>
int main()
{
    int n;

    n=1;
    while(n<=10)
    {
        printf("%d ",n);

        n++;
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

for loop vs while loop vs do while loop

1. Write a C program that will print numbers 1 through 10 on screen.

```c
#include<stdio.h>
int main()
{
    int n;

    for(n=1; n<=10; n++)
    {
        printf("%d ",n);
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");

    return 0;
}
```

```c
#include<stdio.h>
int main()
{
    int n;

    n=1;
    while(n<=10)
    {
        printf("%d ",n);

        n++;
    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");
```

```c
#include<stdio.h>
int main()
{
    int n;

    n=1;
    do
    {
        printf("%d ",n);

        n++
    }while(n<=10);

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");
```

They are same

while loop vs do while loop

1. Write a C program that will print numbers 1 through 10 on screen.

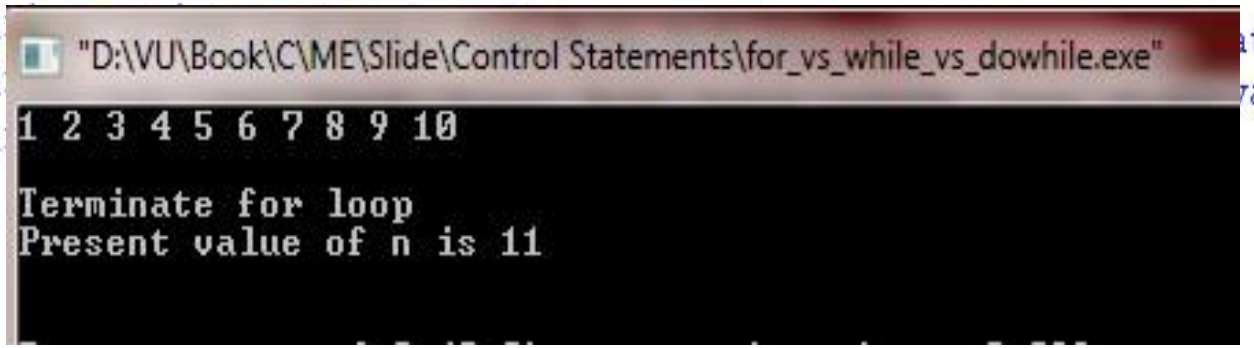
They produce same result

But they are different in some situation

```c
#include<stdio.h>
int main()
{
    int n;

    n=1;
    while(n<=10)
    {
        printf("%d ",n);

        n++;
    }

    printf("\
    printf("\
    printf("\

    return 0;
}
```

```c
n=1;
do
{
    printf("%d ",n);

    n++;

}while(n<=10);
```

```c
te for loop");
alue of n is %d",n);
```



while loop vs do while loop

```c
#include<stdio.h>
int main()
{
    int n;

    n=11;
    while(n<=10)
    {
        printf("%d ",n);

        n++;

    }

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");
```

False

```
"D:\VU\Book\C\ME\Slide\Control Statements\differentdowhile.
Terminate for loop
Present value of n is 11
```

```c
#include<stdio.h>
int main()
{
    int n;

    n=11;
    do
    {
        printf("%d ",n);

        n++;

    }while(n<=10);

    printf("\n\nTerminate for loop");
    printf("\nPresent value of n is %d",n);
    printf("\n\n");
```

```
"D:\VU\Book\C\ME\Slide\Control Statements\differentdowhile.exe"
11

Terminate for loop
Present value of n is 12
```

Nested loop

Run these code and try to understand the output

```
{
    int i, j;



    for(i=1; i<=10; i++)
    {
        printf("i=%d - ",i);
        for(j=1; j<=5; j++)
        {
            printf("j=%d ",j);
        }
        printf("\n");
    }
```

```
int i, j, lowerBound, upperBound;
scanf("%d%d",&lowerBound,&upperBound);

for(i=lowerBound; i<=upperBound; i++)
{
    printf("i=%d, i*i=%d\n",i,i*i);
    printf("lowerBound=%d, upperBound=%d\n\n",lowerBound,upperBound);
}

printf("\n\n\n");

for(i=1; i<=lowerBound; i++)
{
    printf("i=%d - ",i);
    for(j=1; j<=5; j++)
    {
        printf("j=%d ",j);
    }
    printf("\n");
}
```

Rewrite various nesting loop and analyze the output

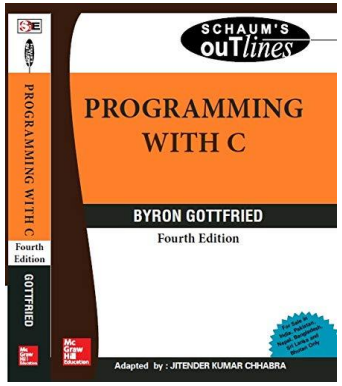
Thank You.

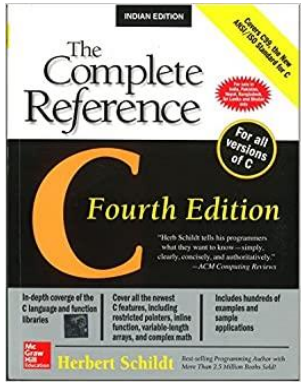
Questions and Answer

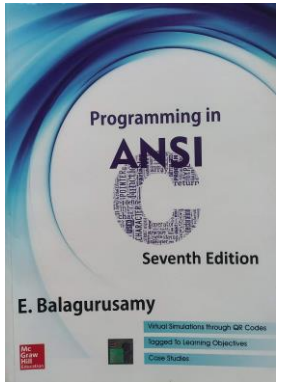
References

Books:

1. Programming With C. *By Byron Gottfried*
2. The Complete Reference C. *By Herbert Shield*
3. Programming in ANSI C *By E. Balagurusamy*
4. Teach yourself C. *By Herbert Shield*







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