

# Navigating The Treacherous Whirlpools In The Sea Of Cs Of Loops & Loopholes!



# Loops

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Many a time it is required to loop/execute a set of statements based on a condition.



# Loops: Methods



Three methods:

- The **while** loop
- The **for** loop
- The **do-while** loop

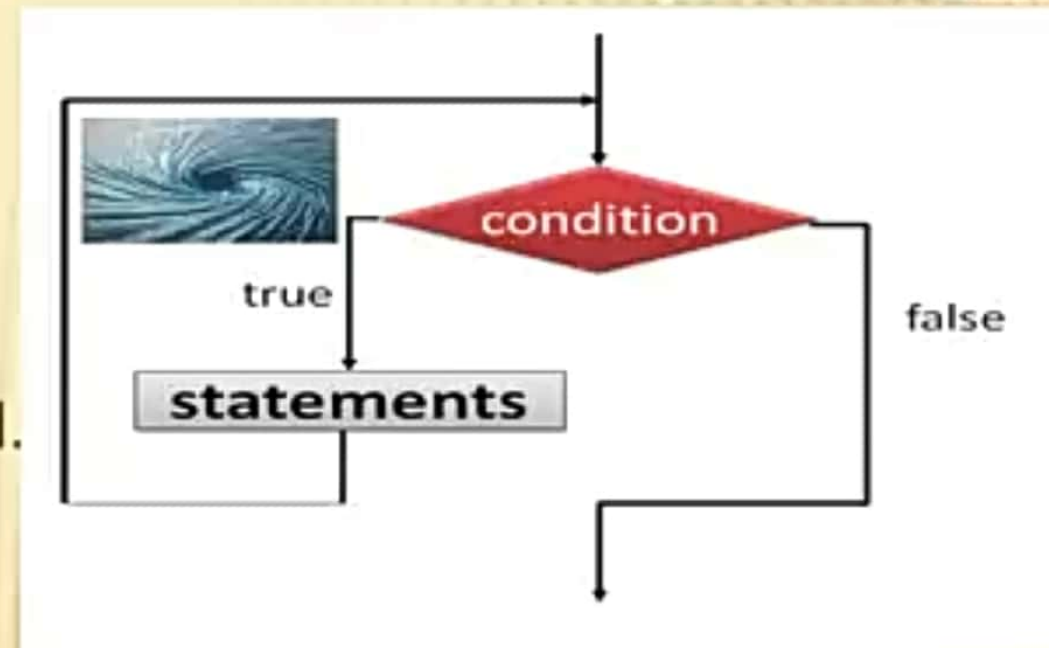


# WHILE

• syntax:

```
while (expression)
{
    statements;
}
```

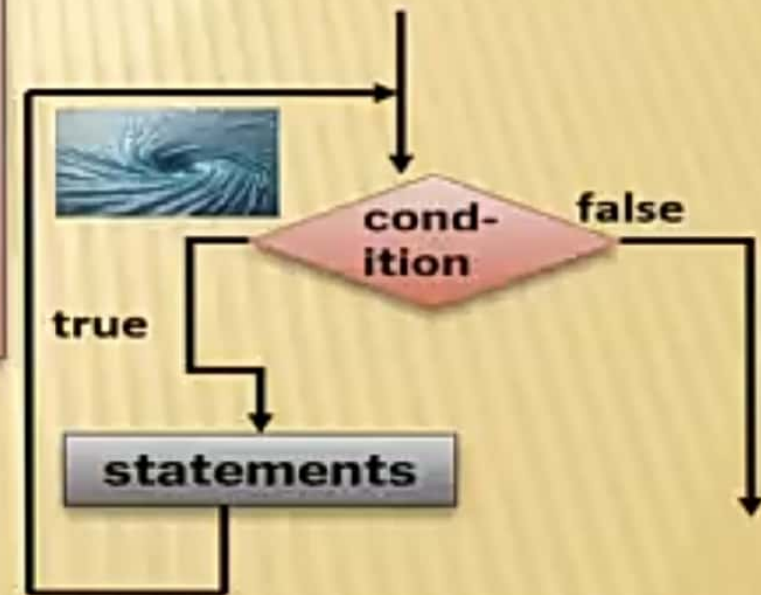
- The expression is evaluated.
- If it is non-zero (TRUE), the statement(s) is executed.
- This cycle continues until the expression evaluates to zero (FALSE).



# WHILE LOOP



```
int i = 5;
while( i > 0 )
{
    printf("Loop:%d\n", i);
    i--;
}
printf("While loop over.\n");
```



```
Loop: 5
Loop: 4
Loop: 3
Loop: 2
Loop: 1
While loop over.
```

# WHILE LOOP

```
int i = 5;
while( i >= 0 )
{
    printf("Loop:%d\n", i);
    i--;
}
printf("While loop over.\n");
```

```
Loop: 5
Loop: 4
Loop: 3
Loop: 2
Loop: 1
Loop: 0
While loop over.
```





# WHILE LOOP

```
int i = 5;
while( i < 0 )
{
    printf("Loop:%d\n", i);
    i--;
}
printf("While loop over.\n");
```

While loop over.



# WHILE



To count number of characters:

```
int main()
{
    int count = 0;
    char ch;
    ch = getchar( );
    while( ch != '\n' )
    {
        count++;
        ch = getchar( );
    }
    printf("you entered %d characters",
count);
```

Don't think there are no crocodiles in the sea of Cs even in calm waters!

You entered 73 characters



# LOOPS ...

```
int count=0;  
while ( count==0 )  
{  
    printf( "Hi again!\n" );  
}
```

***Its going to loop forever!***



# Break: EXITING A LOOP



To count number of characters

```
int count = 0;
char ch;
while ( 1 )
{
    ch = getchar( );
    if ( ch == '\n' )
        break;
    else
        count ++;
}
printf("you entered %d characters", count);
```

# THE for LOOP



- Counting items/things/events is something we do in most applications.
- **C** has a special loop utility for this.
- The **for** loop



# FOR LOOP: THREE PARTS



Initialization

Terminating condition

Increment or decrement

```
for ( count=1; count<=5; count++ )  
{  
    printf( "value of count=%d\n", count );  
}
```

value of count=1  
value of count=2  
value of count=3  
value of count=4  
value of count=5

# FOR LOOP: EXAMPLE

```
for(count=1; count<=5; co  
printf("count=%d\n", co
```

