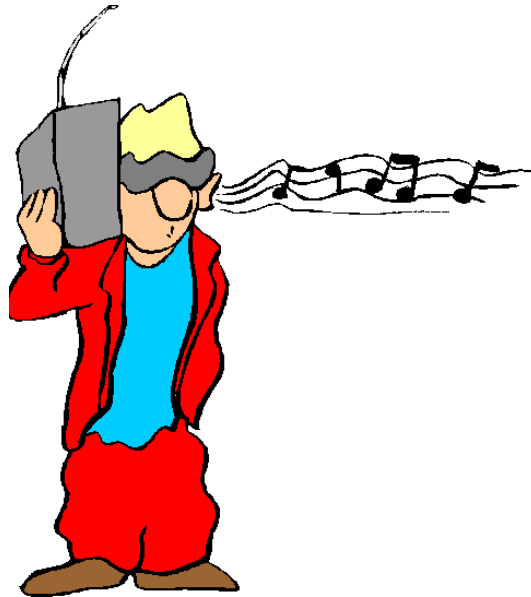


A+ Computer Science

WHILE LOOPS

The Loop

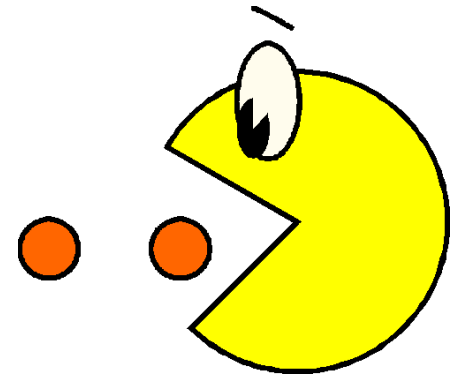
**while I can't hear the song
make it louder**



The Loop

**while I am hungry
i will eat something**

**while I have stuff to eat
i eat some stuff**



The Loop

condition

**while (student is hungry
and more pretzels left)**

{

**student will eat
another pretzel**

}



While Loop

A while loop is a block of code associated with a condition. As long as the condition is true, the loop will continue to run the block of code.



While Loop

```
while( boolean condition placed here )  
{  
    do something 1;  
    do something 2;  
}
```

While Loop

checks condition first

```
int run = 0;           //0 – start
while(run<5)           //1 - stop
{
    run = run + 1;      //2 - inc
    out.println(run);   //3 - code
}
```

OUTPUT

1
2
3
4
5



While Loop

```
int run = 7;  
while(run<10)  
{  
    out.println(run);  
    run++;  
}
```

//0 - start

//1 - stop

//2- code

//3 - increment

What is the final value of run?

OUTPUT

7

8

9

whileone.java



While Loop

```
int run=25;  
while(run>=10)  
{  
    out.println(run);  
    out.println("loop");  
    run=run-5;  
}
```

OUTPUT

```
25  
loop  
20  
loop  
15  
loop  
10  
loop
```



While Loop

```
int run=10;
while(run<=25)
{
    out.println(run);
    out.println("loop");
    run=run+5;
}
```

What is the final value of run?

OUTPUT

```
10
loop
15
loop
20
loop
25
loop
```

While Loop

```
int total=0,x=1;
while(x<6)
{
    total=total+x;
    x++;
}
out.println(total);
```

TRACE

<u>x</u>	<u>total</u>	<u>output</u>
	0	
1	1	
2	3	
3	6	
4	10	
5	15	
6		15

whiletwo.java
whilethree.java

Chopping Numbers



Accessing Digits

```
int num = 9154;  
out.println( num % 10 );  
out.println( num / 10 );  
num /= 10;  
out.println( num % 10 );  
out.println( num / 10 );
```

OUTPUT

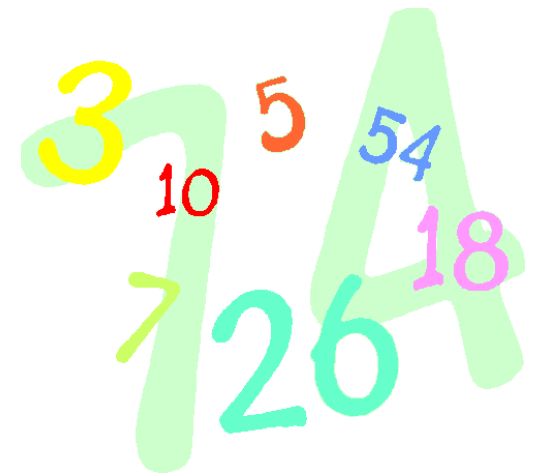
**4
915
5
91**



Accessing Digits

How would you take apart the number 9154 digit by digit?

You would need a loop.





Accessing Digits

```
int number = 9154;  
while( number > 0 )  
{
```

```
    out.println( number % 10 );  
    number = number / 10;  
}
```

OUTPUT

**4
5
1
9**

accessingdigits.java

Summing Digits

set total to 0

while num is greater than 0
add right most digit to total
remove right most digit

print out the total

summingdigits.java
averagingdigits.java

**Work on
Programs!**

**Crank
Some Code!**

Common Errors

Common Errors

```
int run=0;  
while( run < 5 )  
{  
    out.println(run);  
    < blank 1 >  
}
```



The Do While Loop

Do While Loop

A do while loop is a group of statements that will run once before checking the loop condition. If the condition is true, the loop will run again. This run and check process will continue until the condition evaluates false.



Do While Loop

```
do{  
    do something 1;  
    do something 2;  
}while( boolean condition placed here );
```

Do While Loop

```
int run=0;
```

//0 - start

```
do
```

```
{
```

```
    run = run + 1;
```

//1 - inc

```
    out.println(run);
```

//2 - code

```
} while(run<4);
```

//3 - stop

OUTPUT

1
2
3
4



Do While Loop

```
int run=0;
```

//0 - start

```
do
```

```
{
```

```
    run++;
```

//1 - inc

```
    out.println(run);
```

//2 - code

```
} while(run<4);
```

//3 - stop

OUTPUT

1

2

3

4

Do While Loop

```
int run= 4;           //0 - start
do
{
    out.println(run);  //1 - code
    run--;             //2 - dec
} while(run>0);        //3 - stop
```

OUTPUT

4
3
2
1

dowhileone.java



Do While Loop

```
int run=25;  
do{  
    out.println(run);  
    out.println("loop");  
    run=run-5;  
} while(run>=10);
```

What is the final value of run?

OUTPUT

```
25  
loop  
20  
loop  
15  
loop  
10  
loop
```



Do While Loop

```
int run=10;  
do{  
    out.println(run);  
    out.println("loop");  
    run=run+5;  
} while(run<=25);
```

What is the final value of run?

OUTPUT

```
10  
loop  
15  
loop  
20  
loop  
25  
loop
```


dowhiletwo.java
dowhilethree.java

Common Errors

```
int run=0;  
do{  
    out.println(run);  
    < blank 1 >  
} while(run<5)
```



**Work on
Programs!**

**Crank
Some Code!**

A+ Computer Science

WHILE LOOPS