

Loops

Java



Overview

- For loops(iterating over collection)
- For loops(iterating for set length)
- While loops
- Do/While loops
- Break



Loops

- . Loops allow us to execute a section of code, over and over again until the correct conditions are met.
- . There are different types of loops, each better suited for certain uses, but importantly, they CAN all be used interchangeably.



For Loops (over a collection)

```
for (local variable : collection){  
    //code goes here  
}
```

The local variable is used to hold the value of the item we are currently at in the collection

The collection is the thing that we are iterating over



For Loops (over a collection)

Below is an example that prints out the values held in an array

```
int [ ] numbers = {1, 2, 3, 4, 5, 6, 7, 8, 9};  
  
for (int x : numbers) {  
    System.out.print(x);  
    System.out.print(",");  
}
```

//Output: 1,2,3,4,5,6,7,8,9



For Loops (for a set length)

```
for (one, two, three){  
    //code goes here  
}
```

Area one executes before the loop starts. This is normally used to initialize the counter

Area two is the condition that will keep the loop running as long as it is true

Area three executes every time the loop iterates, This is normally used to increment or decrement the counter



For Loops

In the example below, *i* is used as a variable name for the iterator.

This is common, and acceptable, but it doesn't let you see at a glance what is happening

```
for (int i=0; i < 5; i++) {  
    System.out.print( i );  
    System.out.print(",");  
}
```

//output: 0,1,2,3,4



While Loops

- While loops execute while a condition is true

```
int age = 0;
```

```
while (age < 15) {
```

```
    System.out.println(age + " is too young to drive");
```

```
    age++;
```

```
}
```

```
System.out.println(age + " is the right age to start driving");
```



Break

The break keyword can be used to leave a loop early

Below is an example of a loop that will stop once the number 7 is found

```
int [ ] numbers = {1, 2, 3, 4, 5, 6, 7, 8, 9};
```

```
for (int x : numbers) {  
    if(x == 7){  
        System.out.print(x);  
        break;  
    }  
}
```



Summary

- For loops(iterating over collection)
- For loops(iterating for set length)
- While loops
- Do/While loops
- Break
- Why did the programmer use all of the shampoo?
- Because the directions said, Rinse, Lather, and Repeat



Assignment

Fizzbuzz

Write a program that prints every number from 0 to 100 to the console

If a number is divisible by 4, print 'fizz' instead of the number

If a number is divisible by 7, print 'buzz' instead of the number

If a number is divisible by 4 AND 7, print 'fizzbuzz' instead of the number

