CS-152: Loops

Neal Holtschulte

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Loops are useful whenever there is a task that needs repeating.
Loops

Loops are the bread and butter of computers.

humans love repetition
While Loop

The last loop you will ever need.

http://en.wikipedia.org/wiki/While_loop
While (A = TRUE) Do
  B
End While
While Loop

Look at Collatz.java in Eclipse.
For Loop

The most commonly used loop.
The for loop is useful whenever you are counting.

http://taylorgroves.com/wiki/Intermediate_Java_Loops

http://en.wikipedia.org/wiki/For_loop
For Loop

While (A = TRUE) Do
B
End While
For Loop Syntax

```plaintext
for(initialize counting variable; condition; update counting variable)
{
    \ for loop code goes here
}
```
For Loop Syntax

```c
for(initialize; condition; update)
{
  // for loop code goes here
}
```
For Loop Example

```cpp
for(int i=0; i<loopLimit; i++)
{
    // for loop code goes here
}
```
While Loop

Look at ForLoopIntro.java in Eclipse.
While Loop

Look at ForAsWhile.java in Eclipse.
For Each Loop

The for each loop is used to iterate through a list. This is a common loop in “real life” and is very intuitive.

Note: Languages like python only use for each loops.
For Each Array Syntax

```java
int[] xs = {0,1,2,3,4,5,6,7,8,9};
for (int x : xs) {
    System.out.println(x);
}
```
For Each Loop

Look at ForEachLoop.java in Eclipse.
Do While

Do B
While (A = TRUE)
End While

http://en.wikipedia.org/wiki/Do_while_loop
Look at DoWhileIntro.java in Eclipse.