

# Programming for Everybody

## 3. Loops & Iterators



# Why looping?

**To repeat an action in Ruby!**

Ex: displaying posts on your blog page

# While loop

The number of times we'll be looping is **unknown**

Repeats an action in Ruby ``while`` a certain condition is **true**

Checks to see if said condition is **true**, and ``while`` it is, the loop keeps running; as soon as the condition stops being **true**, the loop stops

# Until loop

The number of times the action will be repeated is also **unknown**

Repeats an action in Ruby while a certain condition is **false**

Checks to see if said condition is **false**, and while it is, the loop keeps running; as soon as the condition becomes **true**, the loop stops

# Beware of infinite loops!

```
counter = 1
```

```
while counter < 11
```

```
    puts counter
```

```
    counter = counter + 1    (same as counter +=1)
```

```
end
```

If we'd forgotten to **increment the counter**, the loop would have kept checking if 1 is less than 11, therefore always evaluating to **true**.

We would have been stuck in an infinite loop! 

# Loop

Repeatedly invokes a `block` of code

```
loop { print "Hello, world!" }
```

is the same as:

```
loop do  
  print "Hello, world!"  
end
```

# Loop (cont.)

when using loop, we need to use “**break**” to break the loop as soon as a certain condition is met

```
number = 0
```

```
loop do  
  number += 1  
  print number  
  break if number > 5  
end
```

(the loop stops printing the numbers after 5)

# Iterators

Another way to loop in Ruby!

An **iterator** is a Ruby method that repeatedly invokes a `block` of code

That `block` of code is the bit that contains the instructions to be repeated

(and those instructions may be anything you want!) 🙌

The number of times the action will be repeated is **known** (not infinite)



# Iterators - For

## 1. For

It is used to repeat an action in Ruby within a certain **range** of elements

`1..10` -> a range which includes the numbers from 1 to **10**

`1...10` -> a range which includes the numbers from 1 to **9**

# Iterators - For Next

Used to skip over certain steps in the loop

```
for number in 1..5  
  next if number % 2 == 0  
  print number  
end
```

(skips printing all the even numbers)

# Iterators - Each

## 2. Each

a more powerful iterator which can apply an expression to **each element** of a **collection**, one at a time

```
collection_name.each do | item |  
    #do something to each item  
end
```

the name between | | can be anything -> it's just a placeholder for each element of the collection you're calling **.each** on

# Iterators - Times

## 3. Times

Does something a **specified number of times**

```
10.times do  
  #do something  
end
```

Thank **you.**

