

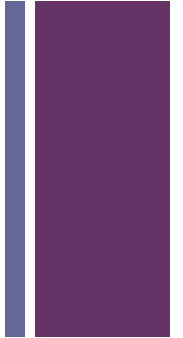


In-Class Programming Workshop

Introduction to Computer Programming - Python



while loops



- A condition controlled loop iterates a variable number of times – we control the # of iterations through our Boolean condition

```
counter = 0
while counter < 5:
    print ("This will print 5 times")
    counter += 1
```



Count Controlled Loops



- A count controlled loop is a repetition structure that iterates a specific number of times

```
for num in [1,2,3,4,5]:  
    print ("This will print 5 times")
```

```
for num in range(5):  
    print ("This will print 5 times")
```

```
for s in "apple":  
    print ("This will print 5 times")
```



while loops vs for loops

+ while loops vs for loops

while loops

```
x = 1
```

```
while x <= 10:  
    print(x)
```

```
    x += 1
```

for loops

```
for x in range(1,11,1):  
    print(x)
```

+ while loops vs for loops

while loops

```
x = 1
```

```
while x <= 10:  
    print(x)
```

```
x += 1
```

for loops

```
for x in range(1, 11, 1):  
    print(x)
```

start

stop

step



while loops vs for loops



- Every for loop can be re-written as a while loop, BUT not every while loop can be rewritten as a for loop
- for loops always iterate over a sequence of values (always finite)
- while loops have the potential to be infinite

+

Can I rewrite this as a while loop?

while loop

for loop

```
for x in range(-10,0,1):  
    print(x)
```


+

Can I rewrite this as a while loop?

while loop

```
x = -10
```

```
while x < 0:  
    print(x)
```

```
x += 1
```

for loop

```
for x in range(-10,0,1):  
    print(x)
```

YES!



Can I rewrite this as a for loop?

while loop

for loop

```
total = 0
```

```
price = float(input("Enter a price: "))
```

```
while price != 0:  
    total += price
```

```
    price = float(input("Enter a price: "))
```

```
print(total)
```



Can I rewrite this as a for loop?



while loop

for loop

```
total = 0
```

```
price = float(input("Enter a price: "))
```

```
while price != 0:  
    total += price
```

```
    price = float(input("Enter a price: "))
```

```
print(total)
```

NO!



Worksheet