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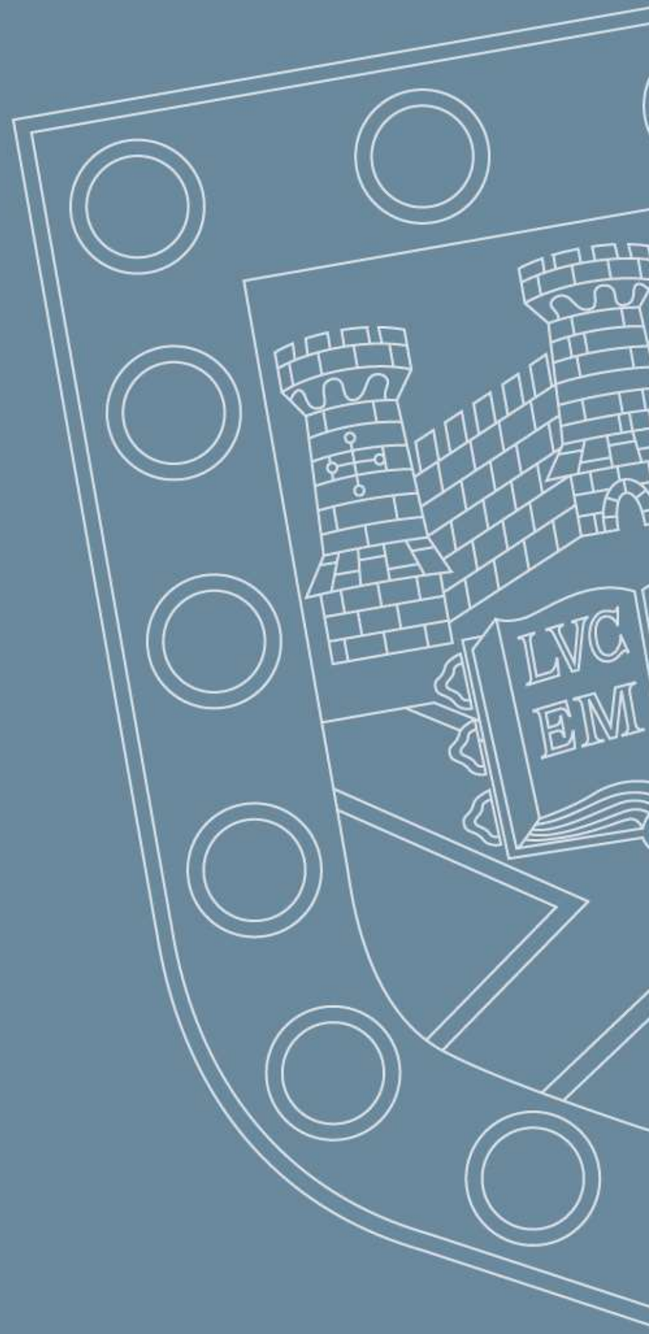
Python programming

Loops



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We've seen the for loop before

LOOPS

We've seen the `for` loop before

```
for m in range(mowers):
    print(m+1, "men went to mow")
    print("went to mow a meadow")
    for n in range(m+1):
        print((m+1)-n, "men, ", end="")
    print("and his dog")
    print("went to mow a meadow")
    print("")
```

LOOPS

Never

```
jobs_to_be_done = [] # An empty list
for job in jobs_to_be_done:
    do_the_job(job)
```

LOOPS

or forever

```
# Forever loop

while True:

    command = input("Type your command > ")
    print("You typed " + command)
```

LOOPS

Break

```
# Forever loop with break

while True:

    command = input("Type your command > ")
    print("You typed " + command)

    if command == "quit":

        break

print("Goodbye.")
```

LOOPS

Iterating through list items

```
words=["ant","bat","cat","dog"]
for w in words:
    found = search_text_for(w)
    if found:
        print("Found", w, "in text")
```

We've seen the for loop before

LOOPS

The range() generator

```
for m in range(mowers):
    print(m+1, "men went to mow")
    print("went to mow a meadow")
```

range() generates a sequence of numbers

If mowers is 4 we will get the values 0, 1, 2, 3

```
for m in [0,1,2,3]:
    print(m+1, "men went to mow")
```

We've seen the for loop before

LOOPS

The range() generator

```
for n in range(m+1):
        print((m+1)-n, "men, ", end="")
```

For the inner loop we can't use a list of numbers, because the length of the sequence increases. What we would like is to count down.

```
for n in range(m,0,-1):
        print(n, "men, ", end="")
```

LOOPS

Iterating through a dict

```
trees={"oak":4, "ash":3, "beech":5, "elm":0}
# loop through the keys
for t in trees:
    print(t)
# also print the values
for t in trees:
    print(t, "count", trees[t])
```

LOOPS

Other iterables

- characters of a string
- lines of a text file
- individual frames of a movie
- pixels in a picture
- and more…

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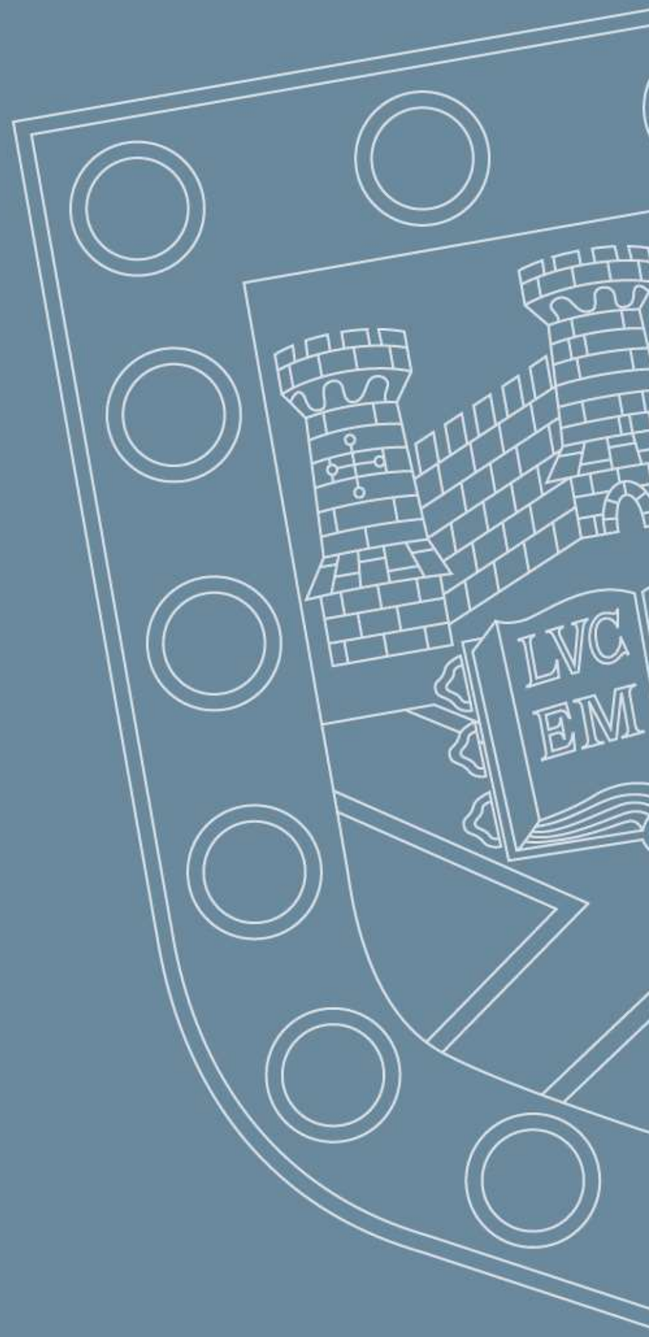

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