Repetition

1. Repetition
    a. Executing the same code over and over

for loops – Counter Controlled

1. for loop – Basic structure

```
for i in range(n):
    statement-1
    statement-2
    …
```

Loop Body – executes n times

01-22-repetition.py

2. Use a for loop in the drawSquare() function
    a. 01-23-ds_2.py
    b. 01-21-squareTester.py – **Modified to import ds_2**

The range function

1. How range works
    a. Convert to list – easier to see range values

    b. Three versions:
        i. range(Stop)
            range(10) → 0, 1, 2, 3, 4, 5, 6, 7, 8, 9

        ii. range(Start, Stop)
            range(2, 11) → 2, 3, 4, 5, 6, 7, 8, 9, 10

        iii. range(Start, Stop, Incremet)
            range(2, 11, 2) → 2, 4, 6, 8, 10

    c. More interesting examples
        i. Start ≥ Stop → No values produced
        range(10, 10) and range(10, 5) → No values produced

        ii. Negative step
        range(5, 10, -1) → No values produced
        range(10, 5, -1) → 10, 9, 8, 7, 6

        iii. Larger steps
        range(5, 15, 3) → 5, 8, 11, 14
        range(5, 15, 50) → 5

iv. To get numbers from 0 to n
To get 0 to 10 → range(11)

v. To get numbers from 1 to n
To get 1 to 10 → range(1, 11)

vi. To get numbers from n to 0
To get 0 to 10 → range(10, -1, -1)

vii. To get numbers from n to 1
To get 1 to 10 → range(10, 0, -1)