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# Loops

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# Introduction to Loops

- Loops let your program repeat actions again and again!
- They save time — you don't have to write the same code over and over.

# Introduction to **for** Loops

- A for loop lets you repeat something a set number of times.
- It's like saying:
  - "For each time in this list, do this!"

# Basic For Structure

for variable in sequence:

Statement 1 # Code to execute

# Printing number from 1 to 5

```
for i in range(1,5):  
    print(i)
```

# Introduction to **while** Loops

- A for loop lets you repeat something until a certain condition is fulfilled
- It's like saying:
  - "Do this until this happens"

# Basic While Structure

**while** condition:

Statement 1 **# Code to execute**

# Printing number from 1 to 5

```
i = 0
```

```
while i<5:
```

```
    print(i)
```

```
    i+=1
```



# Common Mistakes in **while** loops

Infinite loops: When using while loop, infinite loops can be created if the condition never becomes False.

Example of Infinite Loop:

```
countdown = 10
```

```
while countdown > 0:
```

```
    print(countdown)
```

```
    # countdown is not updated!
```

# Lets Practice

Write a program to print all even numbers between 1 and 20.

Write a program that keeps asking the user for a password until they enter "Python123".

Create a program to print numbers from 1 to 10 (for loop), then reverse-count from 10 to 1 (while loop).