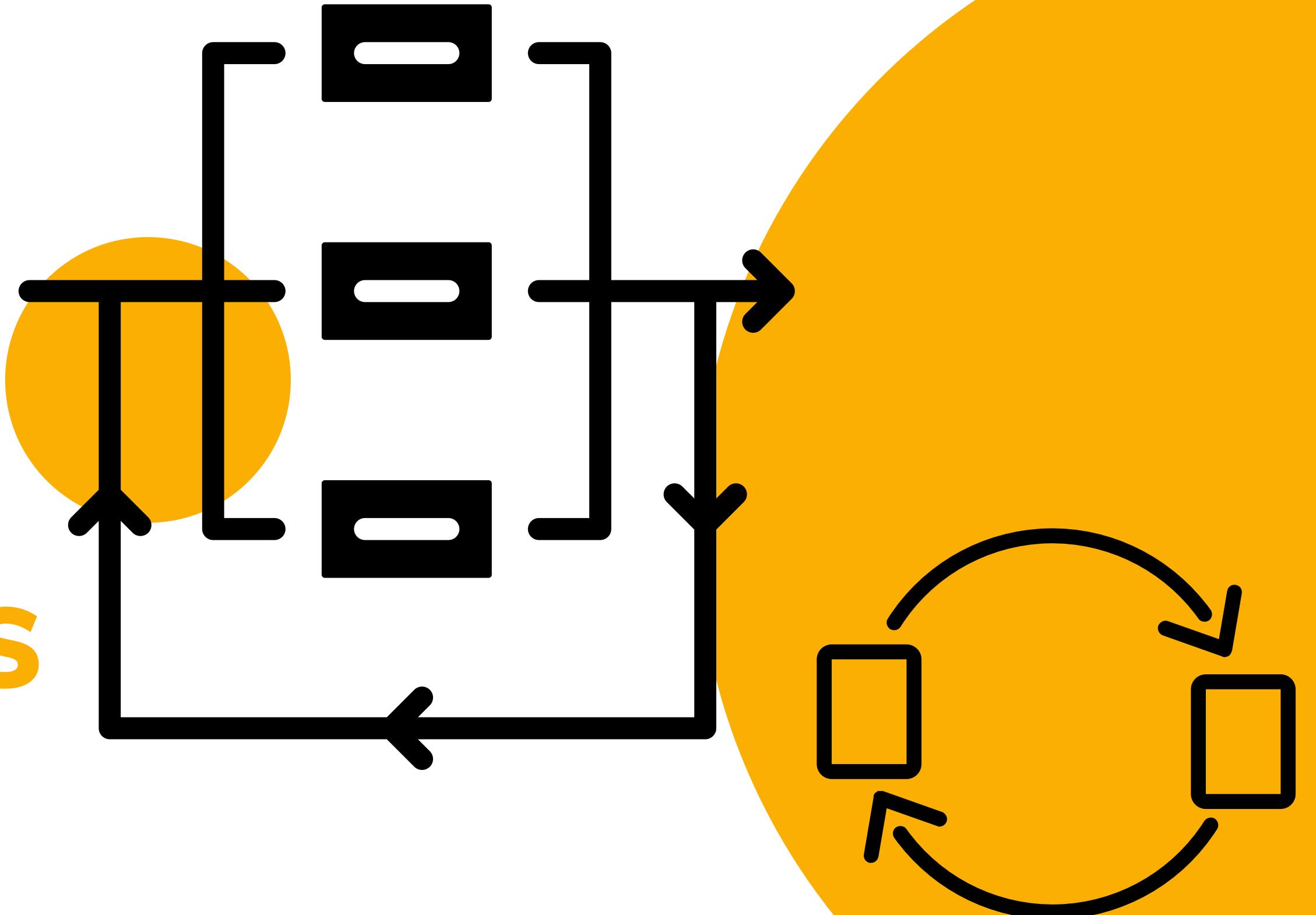


Python 003

Control Flow Structures



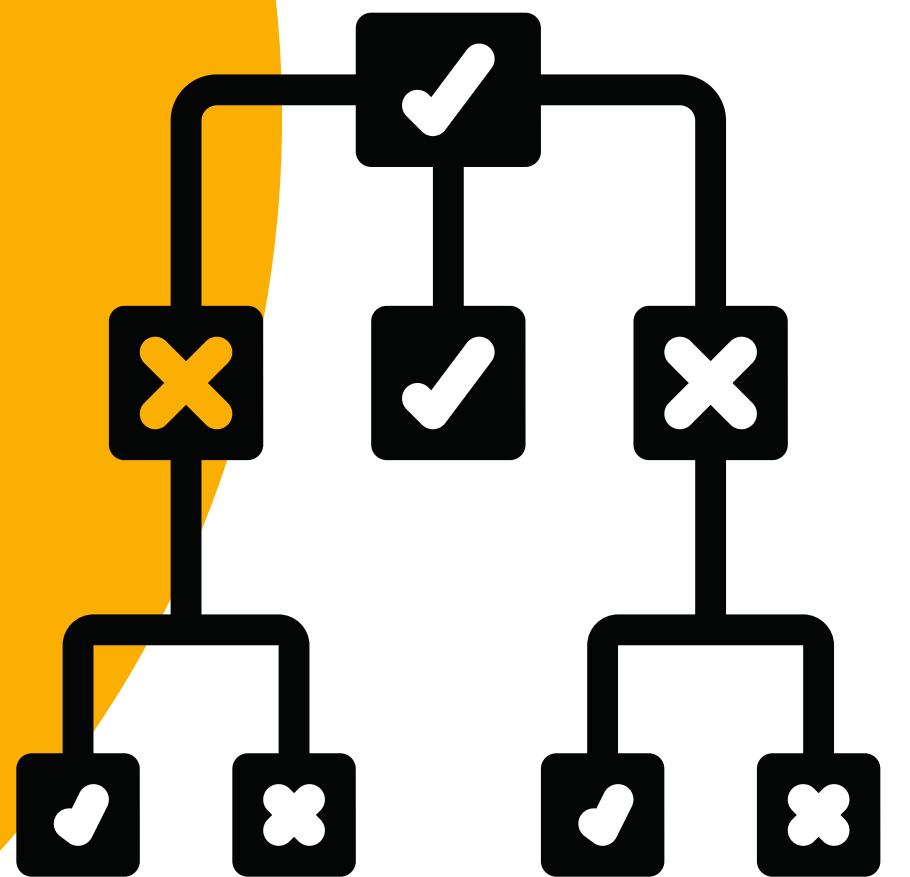
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**"Control flow and looping
are the dance steps of
code, orchestrating the
rhythm and flow of a
program's execution." -
Unknown**

**There are many
conditional day to day
decisions.**



if Rain ?



Else



Go Without
Umbrella

Take
Umbrella

distance < 10
km

Else



**Drive via
Car**

**Go Via
Train**



Product meets
requirements?
and
in budget ?



Else



Maybe
next time

Purchase
IT now!



Python allows us to
make decisions in our
code based on whether
certain conditions are
met.

if-else
Syntax

Anything that
evaluates to a
boolean

```
if <condition>:  
    ... < code to execute >
```

```
else:  
    ... < code to execute >
```

don't forget these colons

Carefully
note 4 spaces

Any valid
Py code

Code Examples

1

```
distance = float(input())  
  
if distance < 3.0:  
    print("Go via Car")  
else:  
    print("Go via Train")
```

Code Examples 2

```
age = int(input("Enter your age: \n "))

if age > 18:
    print("Eligible to Vote")
else:
    print("You are not eligible to vote")
```

Code Examples

3

```
● ● ●  
score = input("Enter your Score")  
score = int(score)  
if score >= 80:  
    grade = 'A'  
elif score >= 60:  
    grade = 'B'  
elif score >= 40:  
    grade = 'C'  
else:  
    grade = 'D'  
  
print("Your grade is:", grade)
```



```
age = 25  
gpa = 3.5
```

```
if age >= 18:  
    if gpa >= 3.0:  
        print("You are eligible for admission.")  
    else:  
        print("your GPA does not meet the criteria.")  
else:  
    print("Sorry, you must be at least 18 years old to apply.")
```

nested if-else

04





Logical Operators

symbols or keywords in programming that allow you to combine or manipulate logical operations on boolean values (True or False)

Logical and

	Operan d 1	Operan d 2	Result
	False	False	False
	False	True	False
	True	False	False
	True	True	True

Logical or

	Operan d 1	Operan d 2	Result
	False	False	False
	False	True	True
	True	False	True
	True	True	True

Logical not

Operand	Result
False	True
True	False



```
age = 28  
membership = True  
ticket_price = 20
```

```
if age <= 12 or age >= 60:  
    ticket_price -= 5  
    if membership:  
        ticket_price -= 3  
  
else:  
    if membership:  
        ticket_price -= 2  
  
print("Your ticket price is:", ticket_price)
```



05



location = "City A"

day = "Monday"

time = "Morning"

if (location == "City A" or location == "City B") and
(day != "Sunday" and time != "Evening"):

 print("Your order is eligible for delivery.")

else:

 print("Sorry, delivery is not available for your location,
day, or time.")

06



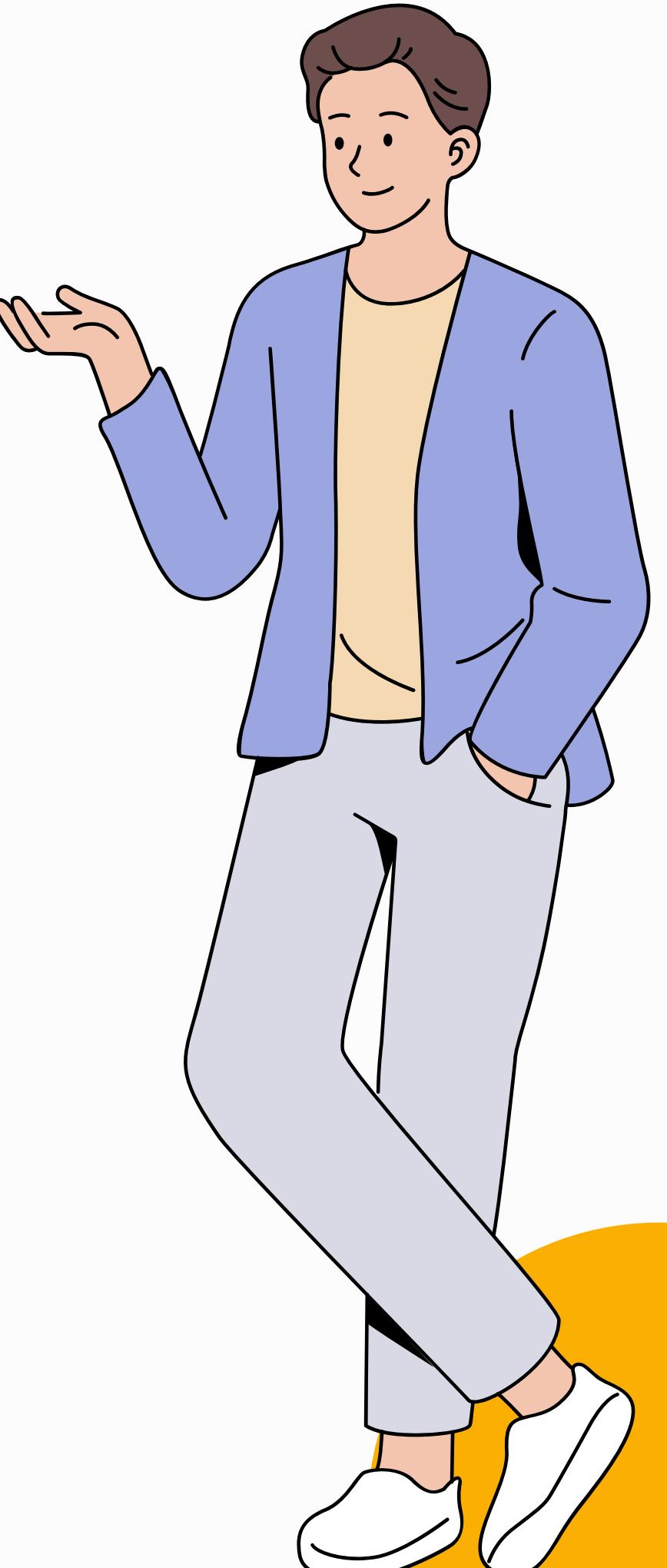
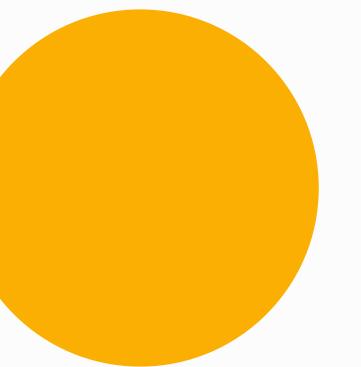
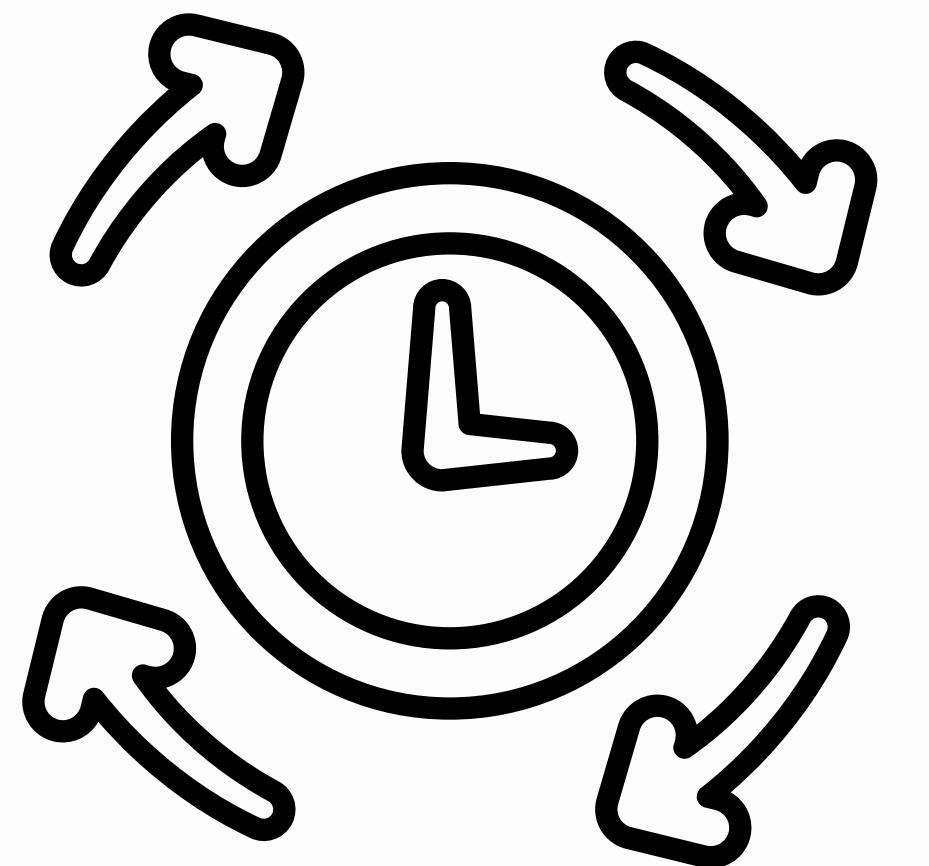
```
password = "P@ssw0rd"

if len(password) >= 8:
    if any( char.isdigit() for char in password ) and
        any( char.isalpha() for char in password ) and
        any( char.isupper() for char in password ) and
        any( char.islower() for char in password):
        print("Password meets complexity requirements.")
    else:
        print("Password must contain a mix of uppercase and lowercase
              letters, as well as numbers.")
else:
    print("Password must be at least 8 characters long.")
```

07



**And of course there are
things we want to repeat
and repeat.**



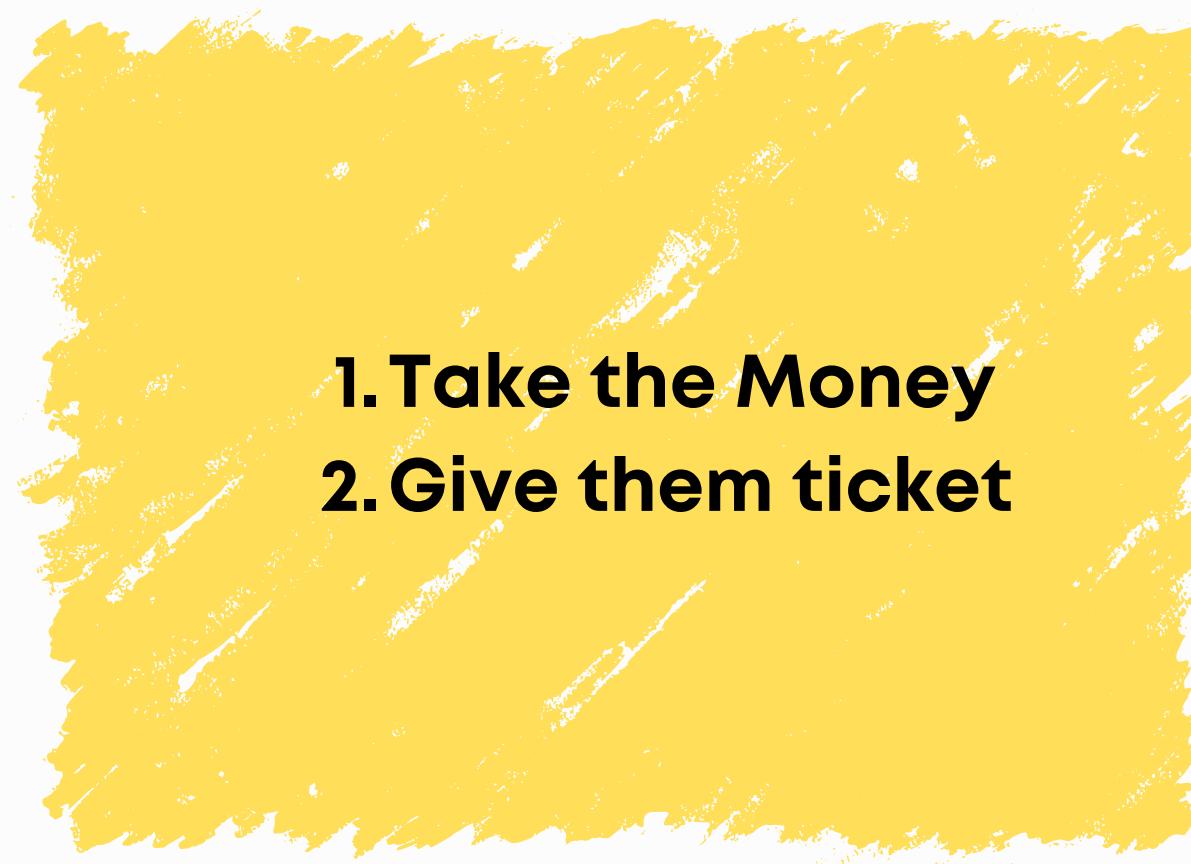
while
more items
on the list . . .



**Keep
Shopping**



for each
person
in the queue



**while loop
Syntax**

**Anything that
evaluates to a
boolean**

**while <condition>:
 ... < code to execute >**

don't forget 4 spaces

**Carefully
note 4 spaces**

**Any valid
Py code**

Code Examples

08



```
import time
```

```
# Program to count down from 5 with a
delay using a while loop
count = 5
```

```
while count > 0:
    print(count)
    count -= 1
    time.sleep(1) # Adds a delay of 1
second
```

```
print("Blastoff!")
```

**For loop
Syntax**

It is a general term used
to describe any object
that can return its
elements one at a time

```
for iterator in iterable:  
    ... < code to execute >
```

don't forget 4 spaces

Carefully
note 4 spaces

Any valid
Py code

Code Examples

09

Program to print numbers

```
for i in range(1, 6):  
    print(i)
```

Code Examples

10

Iterating over a List

```
fruits = ["apple", "banana", "orange"]  
  
for fruit in fruits:  
    print(fruit)
```

Code Examples

11

Iterating over a String

```
message = "Hello, World!"
```

```
for char in message:  
    print(char)
```

Code Examples

12

```
# Iterating over list keeping index also  
  
fruits = ["apple", "banana", "orange"]  
  
for index, fruit in enumerate(fruits):  
    print(f"Index: {index}, Fruit: {fruit}")
```

Code Activity

```
fruits = ["apple", "banana", "orange"]  
search_fruit = "kiwi"
```

Task:

- If Fruit is Found, Print :: Found Fruit
- If Fruit is not found in the complete list, then print "Fruit not Found"

Code Example 14

```
fruits = ["apple", "banana", "orange"]

search_fruit = "kiwi"

for fruit in fruits:
    if fruit == search_fruit:
        print("Fruit found!")
        break
    else:
        print("Fruit not found!")
```

Code Example 15

```
numbers = [1, 2, 3, 4, 5]

for num in numbers:
    if num % 2 == 0:
        continue
    print(num)
```