

## **Lists and dictionaries**



# LESSON OBJECTIVES

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- Explore Python lists and dictionaries
  - Functional illustration
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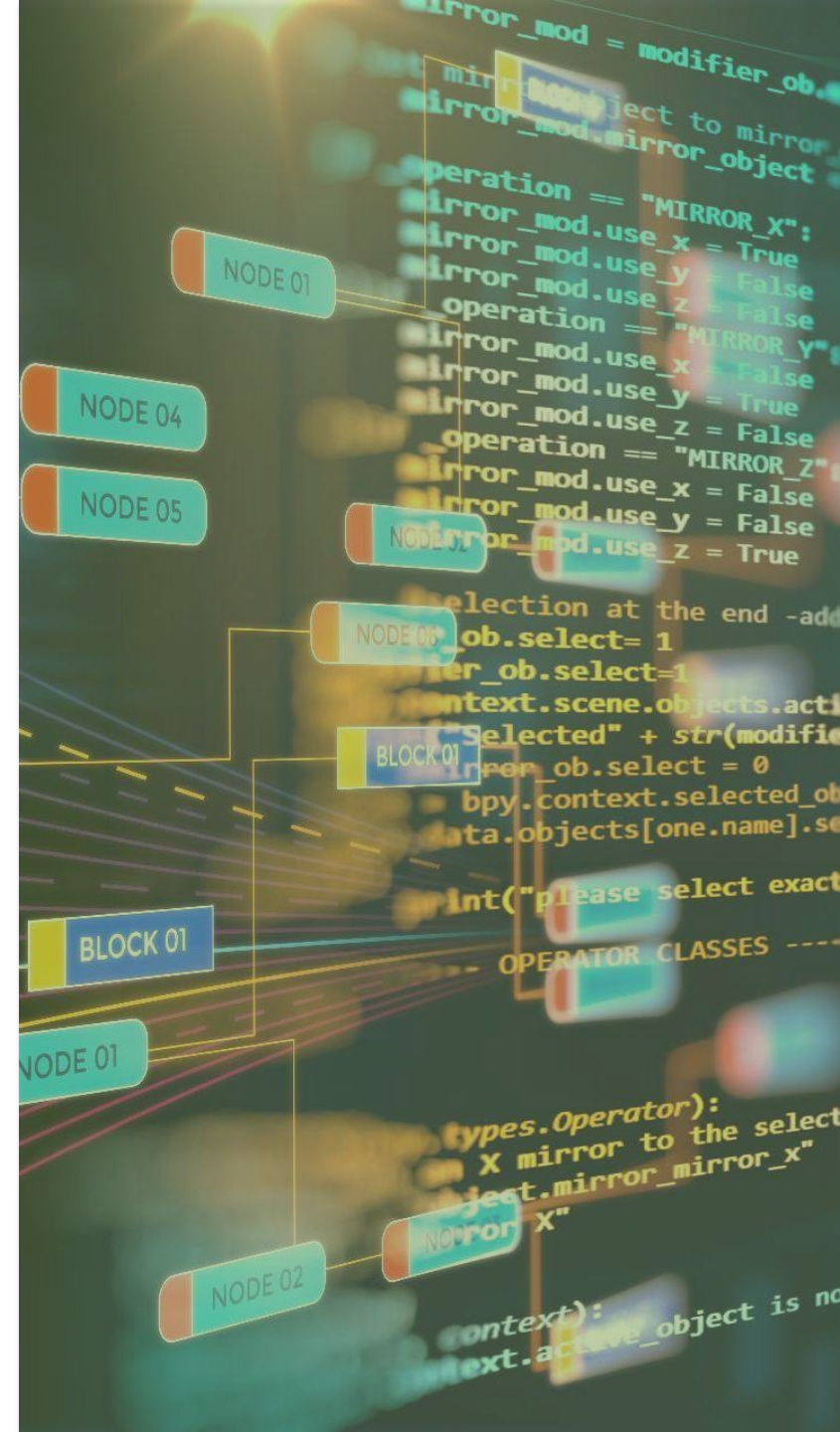
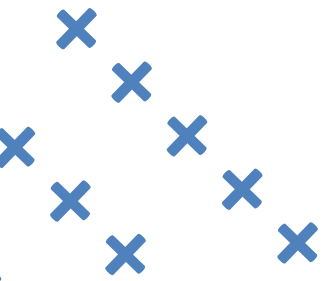
First we must understand  
collections



# Collections

Collections in Python are container data types used to store and organize multiple items. They are versatile and widely used in Python programming.

- **Lists**
- **Tuples**
- **Sets**
- **Dictionaries**



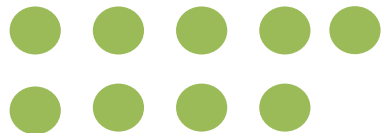
# Characteristics of lists

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Lists



- Ordered, mutable sequences
- Created using square brackets []
- Data is mutable
- Allows duplicate values



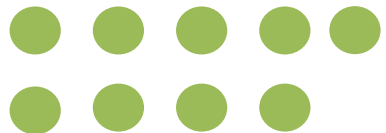
# Characteristics of dictionaries

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## Dictionaries

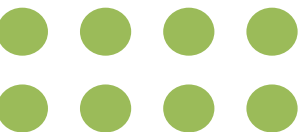


- Unordered collections of key-value pairs
- Created using curly braces with colons  
`{key:value}`
- Data is mutable
- Duplicate values are not allowed



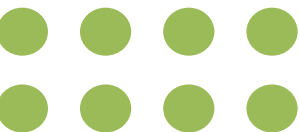
# List code example

```
fruits = ["apple", "banana", "cherry", "apple"]  
print(fruits)  
print(fruits[1])  # Accessing by index  
fruits[1] = "blueberry"  # Modifying an element  
print(fruits)
```

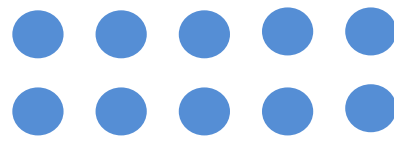


# Dictionary code example

```
student = {  
    "name": "John Doe",  
    "age": 20,  
    "major": "Computer Science",  
    "gpa": 3.8  
}  
  
print(student)  
print(student["major"]) #Accessing by key  
student["age"] #Updaing the age value  
print(student)
```







# Functional illustration

