1.Four main categories of data types in Python includes

Data Types	Data Types Use Cases
Numeric Data Type	Used for numbers. For example, in a store, the count of products and integers will be recorded using Python (int). The decimal value and prices will be stored using Python(float). Complex numeric data can apply to scientific calculations
Sequence Data Type	Used for ordered of data collection. For example, names of items or characters, string values can be stored using Python(str). A list of items can be stored using Python (list). Python (tuple) is for lists where order matters and should not change.
Dictionary Data Type	Used for paring keys with items or values. For example, a person with ID (key) and name (value)
Set Data Type	Used for storing unordered collections of unique items. For example, if there is a collections of unique fruits a person has eaten, Python (set) will store only one and unique fruits once in the collection

2. Difference between Mutable and Immutable Data Types is that mutable data types can be changed after the data is created. Mutable data types in Python includes list, dict and set. Immutable data types on the other hand, cannot be changed after the data is created. Python immutable data types are – tuple, str, int

3. The Boolean value in Python can be written in the following way. The Two possible values of the Boolean data type are True and False. Boolean data types only have those two conditions True and False.

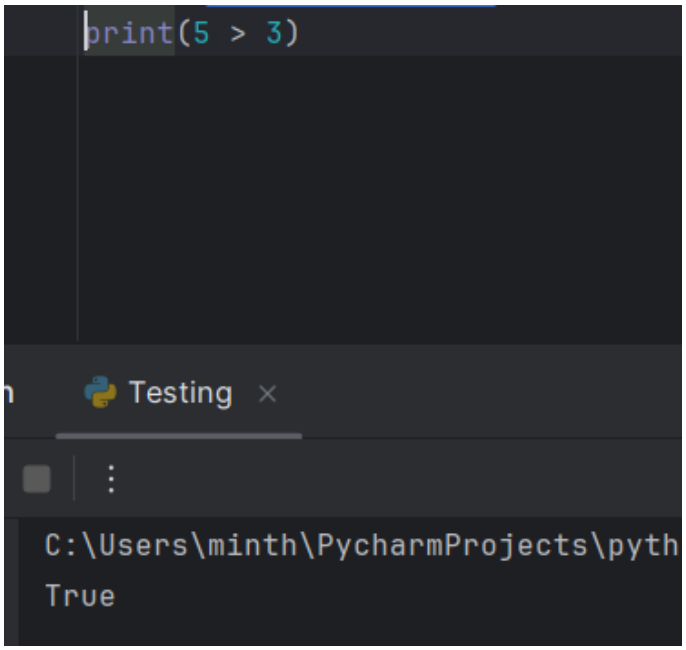
```
is_human = True
is_teenager = False

print(is_human)
print(is_teenager)
```

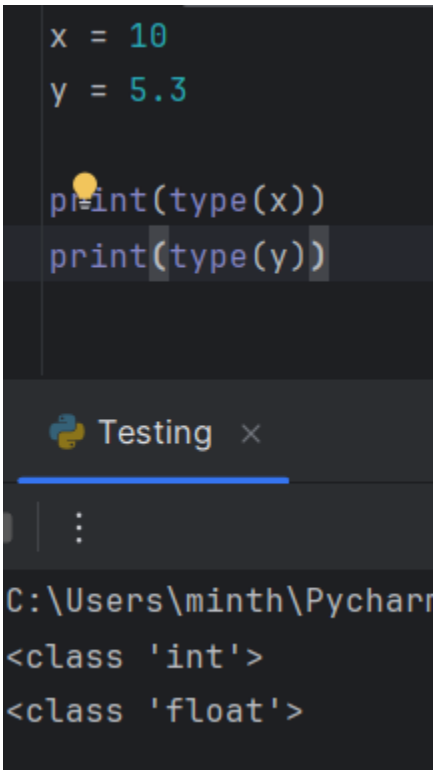
```
C:\Users\minth\PycharmProjects\pythonProject\
True
False

Process finished with exit code 0
```

Boolean values can result from comparisons and logical operations



4 Difference Between int and float is that Int data types are for whole numbers whereas the Float data types are for decimal numbers



5 NoneType serves as None to mean we do not have a value or a null value. The NoneType only have one value called None. It is often used when the data type is uncertain. For example, the result of a mathematical operation might be an integer or a float. In such cases, the output's data type can initially be set to None.

```
name = None
print(type(name))
```

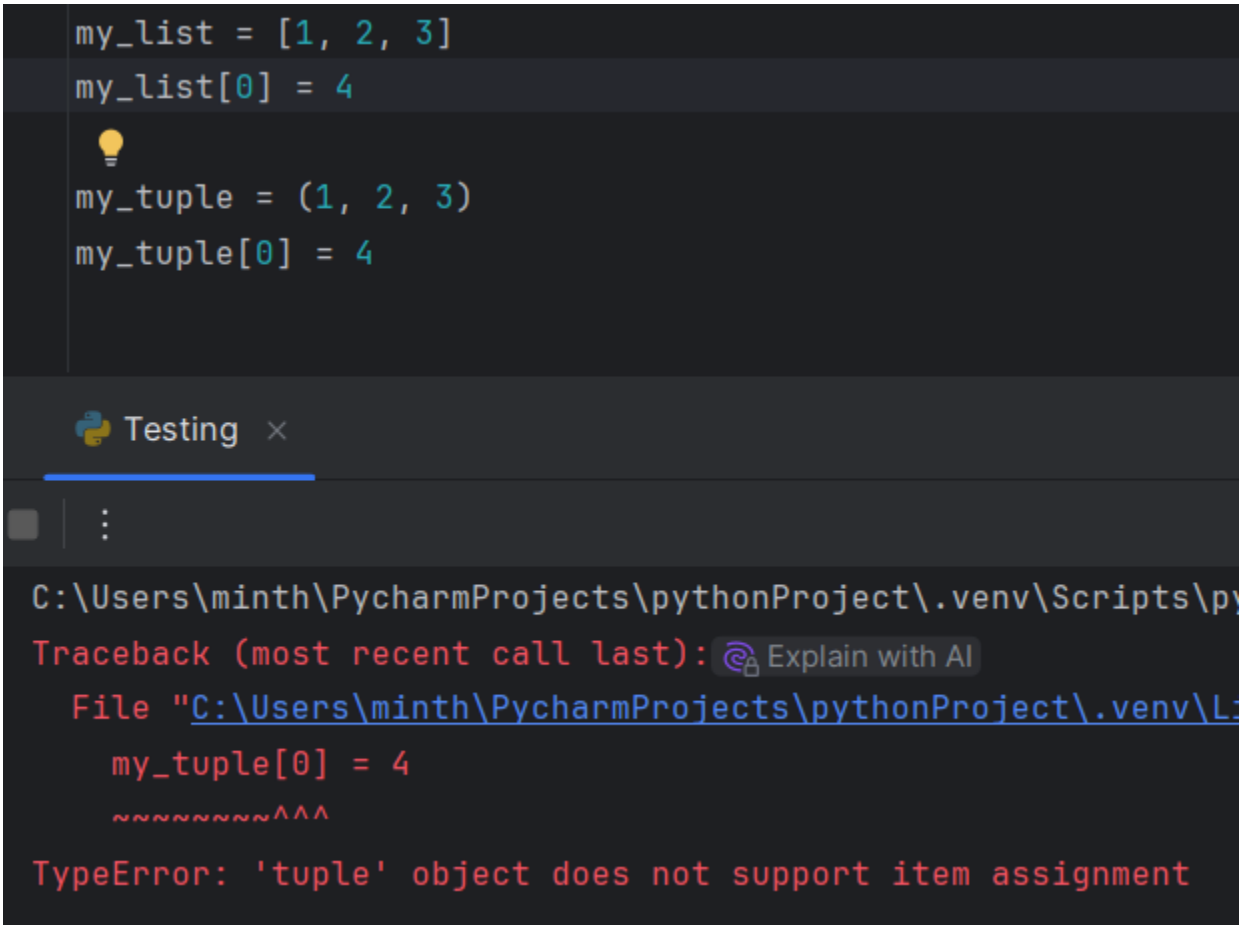
```
n  Testing ×
C:\Users\minth\PycharmProjects\pythonP
<class 'NoneType'>
```

6 The reason is that we store strings as Unicode sequences of memory with fixed, dynamically allocated storage and simultaneously make them immutable so that we can have interning, hashable in data structures, safe to use in threads, and to have a new string in a case of modification without changing the original one.

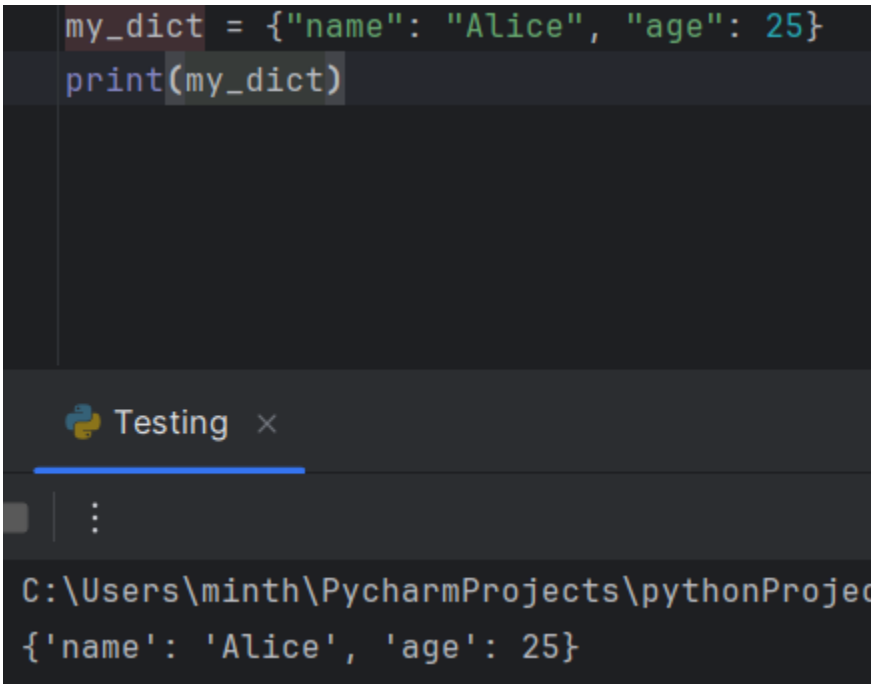
```
s = "Min Thant"
s[0] = "S"
```

```
Testing ×
C:\Users\minth\PycharmProjects\pythonProject\.venv\Scripts\py
Traceback (most recent call last): Explain with AI
  File "C:\Users\minth\PycharmProjects\pythonProject\.venv\Li
    s[0] = "S"
    ~^^^
TypeError: 'str' object does not support item assignment
```

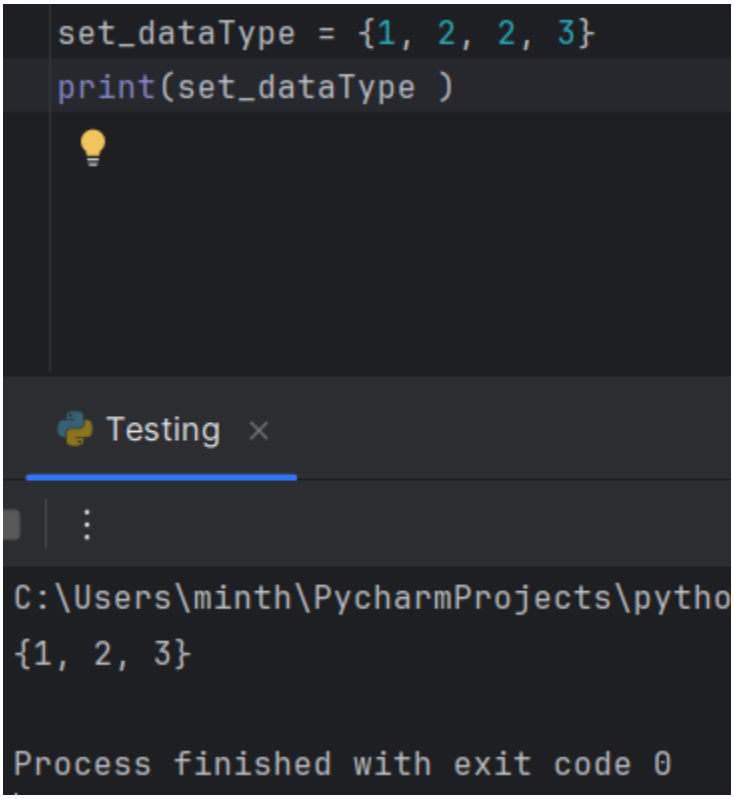
7. The difference between list and turple is that list is mutable, elements can be added, removed or changed but tuple is immutable which means elements cannot be modifed after created.



8 A dictionary is a collection of key-value pairs like in aforementioned. The difference from a List is that lists stored order elements whereas dictionaries store elements with keys.



9 Sets in Python automatically discard duplicate elements without showing errors



10 Composite Data Types group multiple elements like a collection and two examples of composite data types are list and dictionaries