AI Quest

Django for Web Development & Artificial Intelligence

Lecture - 02

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Environment Setup

❑ Download & Install python.

- visit the official website of Python: http://www.python.org/

❑ Download & Install PyCharm.

- visit the official website of PyCharm: https://www.jetbrains.com/pycharm/

Input/output Function

- We use the **print()** function to output data to the standard output device (screen).

  Ex: print('StudyMart')

- This **input()** function is used to read a line of input entered by the user at the console and returns it as a string.

  Ex: name = input('Enter Your Organization Name: ')

Variable

Variables are containers for storing data values.

Rules of Variable:

- The first character of the variable must be an alphabet or underscore (_).

  Ex: Studymart / _studymart
- A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)
- Identifier name must not contain any white-space, or special character (!, @, #, %, ^, &, *).
- Identifier name must not be similar to any keyword defined in the language.
- Identifier names are case sensitive

  Ex: Aiquest and aiquest is not the same.

Multi Words Variable

Variable names with more than one word can be difficult to read.

❑ Camel Case:

Each word, except the first, starts with a capital letter.

Ex: camelCaseVariable = “Aiquest”

❑ Pascal Case:

Each word starts with a capital letter.

Ex: PascalCaseVariable = “studymart”

❑ Snake Case:

Each word is separated by an underscore character.

Ex: snake_case_variable = “Django”

Multiple Assignment Variable

Python allows us to assign a value to multiple variables in a single statement, which is also known as multiple assignments.

We can apply multiple assignments in two ways.

- **Assigning a single value to multiple variables.**

```
a = b = c = 34
print(a)
print(b)
print(c)
```

- **Assigning multiple values to multiple variables.**

```
a, b , c = 34,30,32
print(a)
print(b)
print(c)
```

Strings

- Strings in python are surrounded by either single quotation marks or double quotation marks.

  Ex: “Noman”

  ‘Basar’

- In Python, we use the input() function to take input from the user. **Whatever you enter as input, the input function converts it into a string**. If you enter an integer value still input() function converts it into a string.

Strings

❑ Slicing:

You can return a range of characters by using the slice syntax.

Ex: s = “Welcome to python with Django”

- Slice From the Start:

print(s[0:7])

-Slice To the End

print(s[5:])

- Range

print(s[5:12])

******The first character has an index of 0.***

String Modify

❑ Upper Case:

The upper() method returns the string in upper case.

Ex: s = “Welcome to python with Django”

print(s.upper())

❑ Lower Case:

The lower() method returns the string in lower case.

Ex: print(s.lower())

❑ Remove Whitespace:

The strip() method removes any whitespace from the beginning or the end.

Ex: s = “ Welcome to python with Django ”

print(s.strip())

String Modify

❑ Replace String:

The replace() method replaces a string with another string.

Ex: s = “Welcome to python with Django”

print(s.replace(“o”, “a”))

❑ Split String:

The split() method returns a list where the text between the specified separator becomes the list items.

Ex: print(s.split())

❑ String Concatenation:

To concatenate, or combine, two strings you can use the + operator.

Ex: sm = “ AI”

print(s+sm)

String

❑ Count() method:

The count() method returns the number of times a specified value appears in the string.

Ex: s = “Welcome to python with Django”

print(s.count(“o”))

❑ len():

The len() returns the number of characters in the string.

Ex: print(len(s))

❑ find():

The find() Searches the string for a specified value and returns the position of where it was found

Ex: print(s.find(‘D’))

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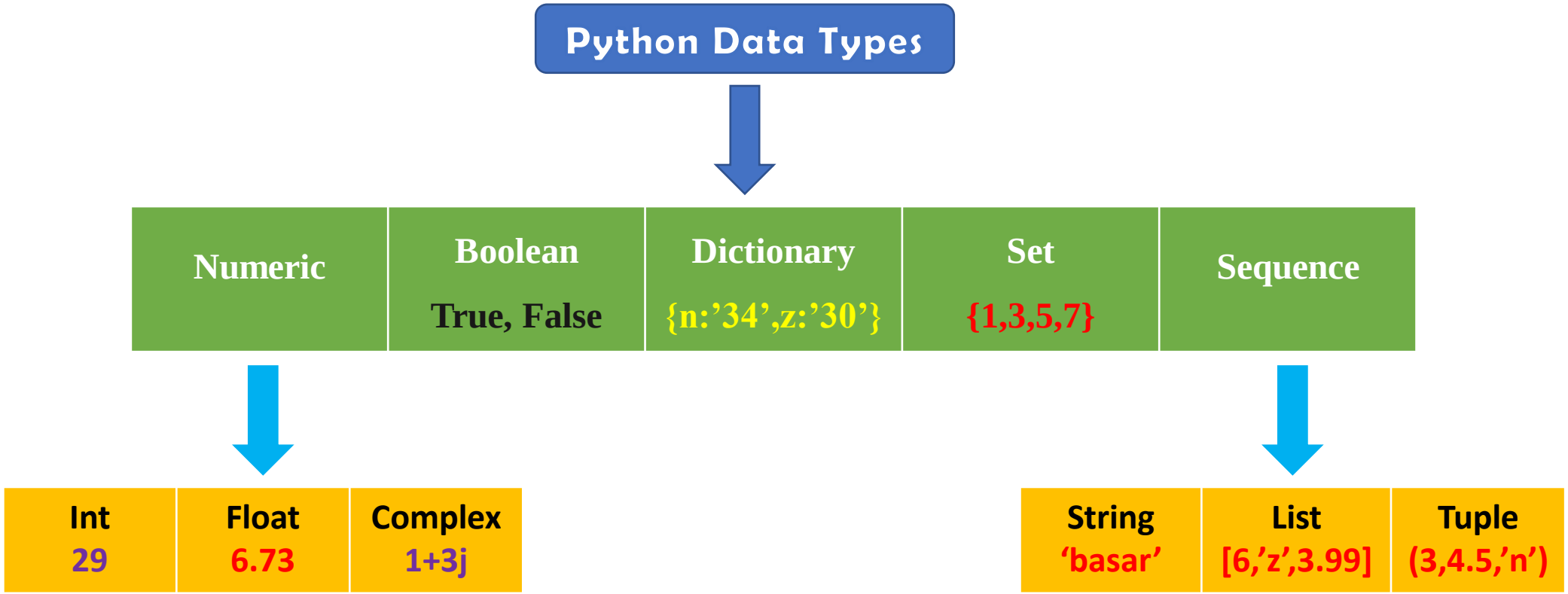
Data Types



Data Type

❑ Numeric

- **Integer:** Int, or integer, is a whole number, positive or negative, without decimals, of unlimited length.

  Ex: n = 10
  p = -12367632
  y = 78234873258732738 24

- **Float:** Float is a number, positive or negative, containing one or more decimals.

  Ex: z = 9.99

- **Complex:** Complex numbers are written with a "j" as the imaginary part:

  Ex: u = 8+10j

Data Type Conversion

❑ Numeric

```
z = 30          #int
u = 34.33       #float
m = 7j          #complex
```

❑ Int to float:

Ex: l = float(z)

❑ Int to complex:

Ex: **o** = float(z)

❑ float to int:

Ex: **q** = int(u)

❑ float to complex:

Ex: **r** = complex(u)

******You cannot convert complex numbers into another number type.***

Data Type

❑ Boolean

- **Boolean:** Boolean type provides two built-in values, True and False. These values are used to determine the given statement true or false. It denotes by the class bool.

Ex 1:
```
print(type(True))
print(type(False))
```

Ex 2:
```
x = 90>10
print(x)
print(type(x))
```

Ex 3:
```
x = 90>10
print(x)
print(type(x))
```

Data Type

❑ Dictionary

Dictionary: Dictionaries are used to store data values in key: value pairs.

- A dictionary is a collection that is **ordered, changeable, and does not allow duplicates.**
- Dictionaries are written with curly brackets and have keys and values.

Ex:

```
firstdict = {
        'name' : 'Noman',
        'id' : 107536,
        'year' : 2022
}
print(firstdict)
print('firstdict type : ', type(firstdict))
```

Data Type

❑ Set

Set: Sets are used to store multiple items in a single variable. Python Set is the unordered collection of the data type. It is iterable, mutable(can modify after creation), and has unique elements.

- Sets are written with curly brackets.

Ex:

firstset= {'noman',34,True,'basar'}

print(firstset)

print('firstdict type : ', type(firstset))

Data Type

❑ List

List: Lists are used to store multiple items in a single variable. The list can contain data of different types.

- The items stored in the list are separated with a comma (,) and enclosed within square brackets [].

Ex:

firstlist= [‘noman’,34,True, ‘basar’*]*

*print(*firstlist*)*

*print(‘firstdict type : ’, type(*firstlist*))*

Data Type

❑ Tuple

Tuple: Tuples are used to store multiple items in a single variable.

- A tuple is a collection that is ordered and **unchangeable**.
- Tuples are written with round brackets.

Ex:

firsttuple= (‘noman’,3.4,True, ‘basar’*)*

*print(*firsttuple*)*

*print(‘firstdict type : ’, type(*firsttuple*))*