

PIAIC Sunday Class 08 (15th Sep 2024)

Introduction to ChatGPT 01 (Strawberry Project)

We reviewed the five levels of AI, focusing on chatbots, agents, and other types. The most important takeaway is Reinforcement Learning (RL). RL is a type of learning where an agent interacts with an environment and learns by receiving rewards based on its actions. It's introduced in the Strawberry project using the Chain of Thought model.

Example: In RL, an agent (e.g., a robot) is given an input (e.g., a command), performs an action (e.g., moving), and receives a reward (e.g., reaching a goal).

Today's Topic: String Data Type

We covered string operations:

- Shallow Copy vs. Deep Copy:

- Shallow copy copies the reference, while deep copy copies the object.

- Common String Escape Characters:

- ``\`` for escape, ``\n`` for newline, ``\t`` for tab. These help in formatting string output.

Displaying Data:

- `display(data)`: Shows data in its raw form.

- `print(data)`: Displays data in the user-friendly form.

Type Casting:

Type casting is converting data from one type to another.

- Example: `str(10)` converts an integer to a string.

- Placeholders: `%s` for strings, `%d` for integers, useful in formatted strings.

Codes We Performed:

The screenshot shows a Jupyter Notebook titled "Class08StringDataType.ipynb". It contains two code cells. The first cell uses string concatenation to build a message, and the second cell uses string formatting with placeholders. Both cells output the same string: "Hello my name is Wajahat and my age is 15 and my date of birth is 2009-04-29".

```
[14] #concatenation
name: str = ("Wajahat")
age: int = 15
dob: str = "2009-04-29"

message: str = "Hello my name is " + name + " and my age is " + str(age) + " and my date of birth is " + dob
print(message)

Hello my name is Wajahat and my age is 15 and my date of birth is 2009-04-29
```

```
#concatenation
name: str = ("Wajahat")
age: int = 15
dob: str = "2009-04-29"

message: str = "Hello my name is %s and my age is %d and my date of birth is %s" % (name, age, dob)
print(message)

Hello my name is Wajahat and my age is 15 and my date of birth is 2009-04-29
```

[] Start coding or [generate](#) with AI.

completed at 10:50

28°C Smoke

Search

10:50 AM 9/15/2024

The image displays two screenshots of a Jupyter Notebook interface, likely from a web browser. The top screenshot shows a successful execution of a Python script for string concatenation. The bottom screenshot shows a syntax error in a similar script, with a message box suggesting to 'Fix error'.

Top Screenshot:

- File: Class08StringDataType.ipynb
- Menu: File Edit View Insert Runtime Tools Help All changes saved
- Code cell 1:

```
#concatenation
name: str = ("Wajahat")
age: int = 15
dob: str = "2009-04-29"

message: str = "Hello my name is " + name + " and my age is " + str(age) + " and my date of birth is " + dob

display(message)
```
- Output:

```
'Hello my name is Wajahat and my age is 15 and my date of birth is 2009-04-29'
```
- Status: 0s completed at 10:41

Bottom Screenshot:

- File: Class08StringDataType.ipynb
- Menu: File Edit View Insert Runtime Tools Help All changes saved
- Code cell 8:

```
[8] data : str = "hello world how are you
Pakistan Zindabad"
print(data)
```
- Error message:

```
File "<ipython-input-8-0157c05c09f4>", line 1
data : str = "hello world how are you
              ^
SyntaxError: unterminated string literal (detected at line 1)
```
- Next steps: [Fix error](#)
- Code cell 9:

```
[9] data : str = "hello world how are you\
Pakistan Zindabad"
print(data)
```
- Output:

```
hello world how are youPakistan Zindabad
```
- Status: 0s completed at 10:30

Class08StringDataType.ipynb ☆

File Edit View Insert Runtime Tools Help [All changes saved](#)

+ Code + Text

✓ 0s T4 RAM Disk Gemini

```
[3] data : str = 'hello world, how are you'
    print(data)
hello world, how are you

[4] data : str = "hello world", "how are you"
    print(data)
('hello world', ' how are you')

[5] data : str = "hello world, how are you"
    print(data)
hello world, how are you

[6] data : str = 'hello world, "how are you'
    print(data)
hello world, "how are you

[7] data : str = "hello world\", how are you"
    print(data)
```

✓ 0s completed at 10:30

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colab.research.google.com/drive/17BVWux_wp63q4FjyHJcaSVD1VFLjBn4j#scrollTo=pN9xZq43EJR3

Class08StringDataType.ipynb ☆

File Edit View Insert Runtime Tools Help [Unsaved changes since 10:12](#)

+ Code + Text

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```
[ ] print ("hello")
hello

name : str = "Wajahat"
print (name)
print (type(name))
print (id(name))

name1 : str = "Wajahat"
print (id(name))

Wajahat
<class 'str'>
132103207319280
132103207319280
```

✓ 0s completed at 10:12

Operators in Python:

1. Arithmetic Operators:

- Addition: ``a + b``
- Subtraction: ``a - b``
- Multiplication: ``a * b``
- Division: ``a / b`` (returns a float)
- Floor Division: ``a // b`` (returns integer)
- Modulus: ``a % b`` (remainder)
- Exponent: ``a b`` (power)

2. Comparison Operators (Boolean Results: True/False):

- Equal to: ``a == b``
- Not equal to: ``a != b``
- Greater than: ``a > b``
- Less than: ``a < b``
- Greater than or equal to: ``a >= b``
- Less than or equal to: ``a <= b``

3. Assignment Operators:

- Assign value: ``a = 10``

- Add and assign: `a += 5`
- Subtract and assign: `a -= 5`
- Multiply and assign: `a *= 5`
- Divide and assign: `a /= 5`

4. Logical Operators:

- AND: `x and y`
- OR: `x or y`
- NOT: `not x`

5. Membership Operators:

- in: `x in list`
- not in: `x not in list`

6. Identity Operators:

- is: `x is y` (same object)
- is not: `x is not y`