Working with the String Data Type

Lab overview

In Python, a collection of letters and symbols is called a *string*. Strings are used often in Python for input and output.

In this lab, you will:

- Write Python code that uses the *string* data type
- Concatenate strings
- Use the string to get input
- Format strings for output

Estimated completion time

45 minutes

Accessing the AWS Cloud9 IDE

1. Start your lab environment by going to the top of these instructions and choosing **Start Lab**.

   A **Start Lab** panel opens, displaying the lab status.

2. Wait until you see the message *Lab status: ready*, and then close the **Start Lab** panel by choosing the **X**.

3. At the top of these instructions, choose **AWS**.

   The AWS Management Console opens in a new browser tab. The system automatically logs you in.

   > **Note:** If a new browser tab does not open, a banner or icon at the top of your browser typically indicates that your browser is preventing the site from opening pop-up windows. Choose the banner or icon, and choose **Allow pop ups**.

4. In the AWS Management Console, choose **Services** > **Cloud9**. In the **Your environments** panel, locate the **reStart-python-cloud9** card, and choose **Open IDE**.

   The AWS Cloud9 environment opens.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

> **Note:** If a pop-up window opens with the message *.c9/project.settings have been changed on disk*, choose **Discard** to ignore it. Likewise, if a dialog window prompts you to *Show third-party content*, choose **No** to decline.

Creating your Python exercise file

5. From the menu bar, choose **File > New From Template > Python File**.

   This action creates an untitled file.

6. Delete the sample code provided from the template file.

7. Choose **File > Save As...**, provide a suitable name for the exercise file (for example, *string-data-type.py*) and save it under the **/home/ec2-user/environment** directory.

> **Note**: Recall that *.py* is the extension for Python files.

Accessing the terminal session

8. In your AWS Cloud9 IDE, choose the **+** icon and select **New Terminal**.

   A terminal session opens.

9. To display the present working directory, enter `pwd`. This command points to **/home/ec2-user/environment**.

10. In this directory, you should also be able to locate the file you created in the previous section.

Exercise 1: Introducing the string data type

A text file containing a logical sequence of commands is a script.

11. From the navigation pane of the IDE, choose the **.py** file that you created in the previous *Creating your Python exercise file* section.

12. In the file, enter the following code:

```
myString = "This is a string."
print(myString)
```

13. Save the file.

14. Run the file.

15. Confirm that the script runs correctly and that the output displays as you expect it to.

```
This is a string.
```

16. Extend the Python script by using the built-in function `type()` to get the data type of the variable. Enter the following code:

```
print(type(myString))
```

17. To convert the return value of type into a string, use the `str()` built-in function:

```
print(myString + " is of the data type " + str(type(myString)))
```

18. Save the file.
19. Run the file.
20. Confirm that the script runs correctly and that the output displays as you expect it to.

```
This is a string.
<class 'str'>
This is a string. is of the data type <class 'str'>
```

Exercise 2: Working with string concatenation

String concatenation is the process of combining two strings into one string. You have actually been doing string concatenation since lab 1, but you didn't call this process by that term. The plus sign (+) is used to concatenate strings. When the plus sign (+) is used with strings, it behaves differently than when you use it for numbers. In lab 1, you used the plus sign (+) to add numbers. Now, you will use the plus sign (+) to combine, or concatenate, strings.

21. Return to the Python script.
22. Create two strings and then concatenate them by entering the following code:

```
firstString = "water"
secondString = "fall"
thirdString = firstString + secondString
print(thirdString)
```

23. Save the file.
24. Run the file.
25. Confirm that the script runs correctly and that the output displays as you expect it to.

```
This is a string.
<class 'str'>
This is a string. is of the data type <class 'str'>
waterfall
```

Exercise 3: Working with input strings

In coding, information that a user enters is known as *input*. You will use a built-in function named `input()` to get information from the user. The `input()` function will pause the code until a user enters a string and presses ENTER. Return to the Python script:

26. Enter the following code:

```
name = input("What is your name? ")
```

27. Use the `print()` function to write the value of the variable to the shell:

```
print(name)
```

28. Save the file.
29. Run the file.
30. Confirm that the script runs correctly and that the output displays as you expect it to.

```
This is a string.
<class 'str'>
This is a string. is of the data type <class 'str'>
waterfall
What is your name? Maria
Maria
```

Exercise 4: Formatting output strings

When your script wants to communicate information back to the user, it is called *output*. You have been using the `print()` function to write output to the shell. You will create a survey and output the information that it collects back to the user.

31. Return to the Python script and enter the following code:

```
color = input("What is your favorite color?  ")
animal = input("What is your favorite animal?  ")
```

32. You have been using the `print()` function with only one variable, but you can also use it with multiple variables to format a string. Enter the following code:

```
print("{}, you like a {} {}!".format(name,color,animal))
```

33. Save the file.
34. Run the file.

The Python shell has stopped and is waiting for your input.

35. Enter a name and press ENTER.
36. Next, you are asked for your favorite color. Enter a color and press ENTER.
37. Next, you are asked for your favorite animal. Enter an animal and press ENTER.
38. Finally, the script prints a formatted string to the user by using the three pieces of information that you provided. Confirm that the output in the shell looks like the following output.

```
This is a string.
<class 'str'>
This is a string. is of the data type <class 'str'>
waterfall
What is your name? Maria
Maria
What is your favorite color?  blue
What is your favorite animal?  dog
Maria, you like a blue dog!
```

> **Note:** The final `print()` statement uses the `format()` function. In the `format()` function, the opening and closing braces ({}) act as placeholders for the variables that will be *passed to* (that is, put between) the function's parentheses.

Congratulations! You have used Python to concatenate strings, take input from the user, and output a formatted string.

End Lab

Congratulations! You have completed the lab.

39. Choose **End Lab** at the top of this page, and then select Yes to confirm that you want to end the lab.

    A panel indicates that *DELETE has been initiated... You may close this message box now.*

40. A message *Ended AWS Lab Successfully* is briefly displayed, indicating that the lab has ended.

Additional Resources

For more information about AWS Training and Certification, see https://aws.amazon.com/training/ (https://aws.amazon.com/training/).

Your feedback is welcome and appreciated. If you would like to share any suggestions or corrections, please provide the details in our AWS Training and Certification Contact Form (https://support.aws.amazon.com/#/contacts/aws-training).

- ○ Yes
- ○ No

< Rubric: 3 - String Data Types | Points: 0 >

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