Python Programming

Lesson 2

Strings for Everyone

Presented by Advaspire Team

What is String?

You might have noticed from previous lesson when we print the (Welcome). There is a symbol just before and after the word which looks like this (“Welcome”)

Basically, strings are a data type that can store a sequence of letter, digits and almost anything typable on a keyboard. Basically, it is just like what I’m typing here.

To create a (string), just start your word with a single quote mark(‘). In the pycharm, the letter will be in green. Depending on what IDE you use, the colour may be different.

Write down this code in Pycharm:
print (‘Hi, I am a Python Beginner’)
After you have done this, try writing your own sentence as string. Also to note : the space between the words will also be consider as string.

Code

```
print ( 'Hi, I am a Python Beginner')
```

Terminal

```
Hi, I am a Python Beginner
```

Variables

Variables is kind of a storage structure that is commonly used in python programming.

What variable does is it will store the data that can be accessed anytime in the code by just using its variable name. In a way, it gives you the convenience of not needing to write back the data that you may need to use multiple time or a longer string.

To create a variable, first you need to create a name for your variable. You can name it in short form or similar to the data you want to store. Then use = with the string written just like we did previously.

Now that you have your own variable, we are going to print it.
Same way like we did with strings, but this time you just need to type the name of your variable without the " ".

Variable

```
adv = ('advaspire class')
```

Code

```
adv = ('advaspire class')

print (adv)
```

Terminal

```
advaspire class
```

Connecting Strings

Connecting two or more strings is called string concatenation. It is usually used with variables to create a new sentence or string. You may use the + to combine. The combination can consist of more than two string.

In the example shown, I have two kind of concatenation. One consist of only strings and the other is a mix of variables and strings. The key here is the usage of + in the code.

Code

```
print (" Advaspire " + "is the place for " + "learning phyton.")
```

```
brand = (" Advaspire")
learn =("learning phyton.")

print ( brand + " is the place for " + learn)
```

Terminal

```
Advaspire is the place for learning phyton.
```

Functions

Functions is a little block of code that when run, will do a specific operation for us.
There are 2 kind of functions, one is already pre-installed with python, and the other one is the function that we write by ourselves. In this lesson we will learn about the pre-installed one.

To use it, just add a (.) at the end of your string or variable. Like in the example below.

Also, you can use multiple function in a line.

The function on top will transform the string into uppercase word.

Do note that after the (.) will be the functions.

Depending on the terminal you are using, it will show you a list of function that is available.

You can find the list over the link here https://www.w3schools.com/python/python_ref_string.asp

Function : Index

The index function is really useful in Python. What it does is it will tell you in what position is a letter in a string or where it starts at.

In programming in general, index number starts at 0 and not at 1, so don't get it mixed. Also, the space will also be considered part of the index, so be careful.

In most function, the bracket () can actually be used to insert an information or value from that you want to get in the terminal. This is called the passing the parameter.

To use the index, write the code like this : print (name.index( )) . Then to know the position of a particular letter, write the letter inside the ( ) as string like in the example below.
It will return back the index number for that letter position.

```
name = 'Advaspire'

print (name.index("p"))
```

```
5
```

More on Index Function

When using an index function, you cannot leave the ( ) blank. It needs to be filled with either a letter from the variable, or the whole string itself. If you leave it blank, it will result in an error when run.

In the case that the variable have more than one word in a string, you can check the index for one of the words by typing the string inside the ( ). It will then give you the index for the first letter of the word.

1

```
name = 'Advaspire'

print (name.index())
```

```
Traceback (most recent call last):
  File "C:\Users\hazig\PycharmProjects\pythonProject\general use.py", line 3,
    print (name.index())
TypeError: index() takes at least 1 argument (0 given)
```

2

```
name = 'Advaspire and Adcoins'

print (name.index("Adcoins"))
```

```
C:\Users\
14
```

Function: Modifying Strings

What if you have a variable and you want to change one of the words inside the string? Depending on which storage structure and IDE you use, the value inside cannot be changed directly once you have click run.It is also called immutable strings.

To solve this, we need to use the replace function. Replace will technically create a new word for it, because immutable strings cannot be changed once processed.

To use it, just write down just like this :
print (name.replace(“Adcoin”, “Pygame”))
Make sure you have the variable first and it is in string.
The first string will be the string you want to replace and the one after the comma will the new string.

```
name = 'Advaspire and Adcoins'

print (name.replace("Adcoins", "Pygame"))
```

```
Advaspire and Pygame
```

String Properties

Strings have properties, which means they have a lot of information stored inside. What if out of curiosity, you want to know how long the length of a string you wrote, or whether this particular word is already inside the string or not?
In this section, we are going to look at 2 of properties that are usually checked upon and how to use python function to find it for us.

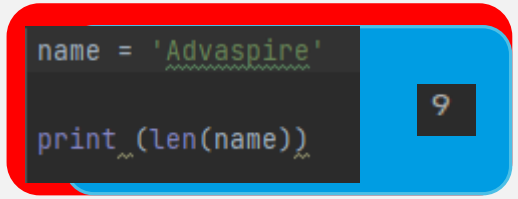
String Properties - Length

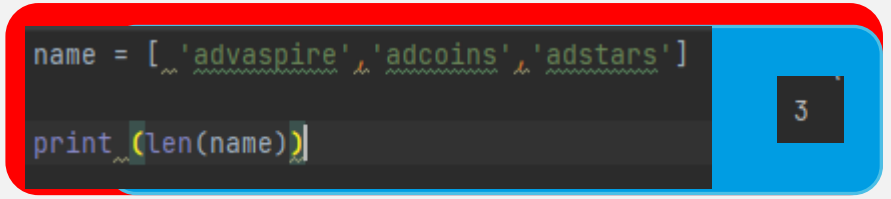
Length / len

Sometime it is really important for us to know how long is the string. So this where the len function comes in handy.

Len function when used will return us the number of letters used in the string. Unlike index, it gives you specifically the number of letters and not the position.

When used in a list, which we will go through in another lesson, it will count the number of strings in it, not the letters for the whole thing.





Strings Properties

Inclusion

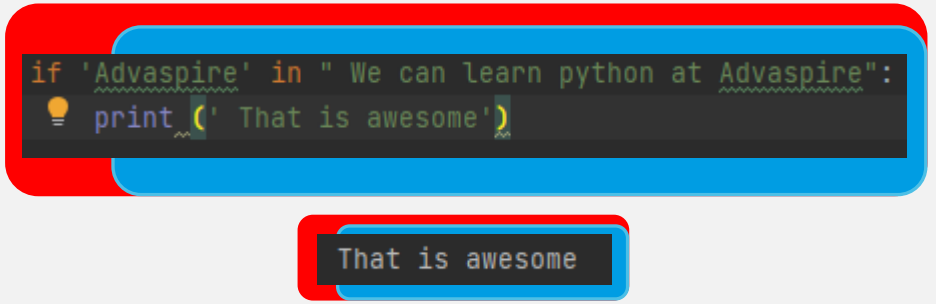
Inclusion means included, so it is used to see if a word is inside a string or not. We can easily find and determined whether a word is in the string or not but what about the python? They cannot find it unless we, the user specify it to.

To use it, we are using it with another statement, which is called if statement. Check the note for more info on if.

So in simple term, when using if and in, it will check the first string, then it will try to find it in the other string. You can then set what will happen if it is found.

If it cannot find the string, it will usually return you a blank space in the terminal.

(if) is a statement that will only run the code if the statement is true, or they can find the strings you put.
This will be explored more in future lesson.



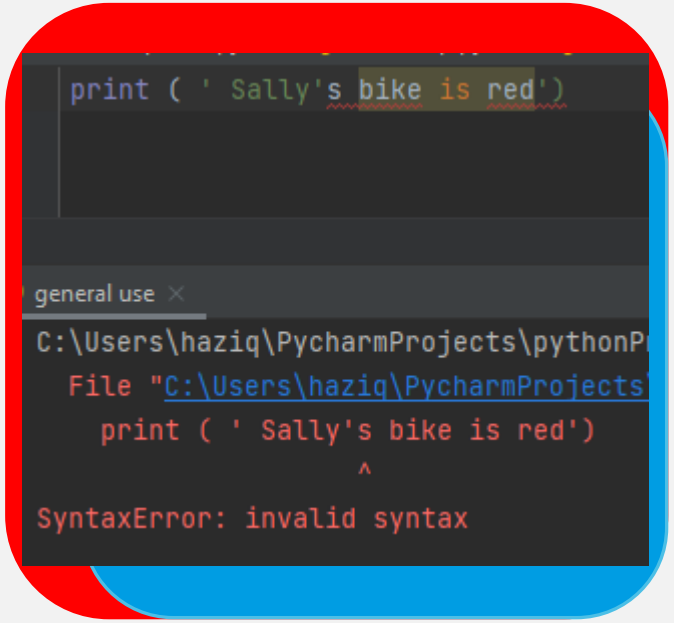
Try change the if “Advaspire” to something else and see what will happen.

Tricky Strings

Sometime, you may need to use some symbol that is quite similar to the one we are currently using for coding like this ‘ .

Check the error example, notice how all the words in the string look different than usual? This happen because of the conflicting use of the ‘ symbol.

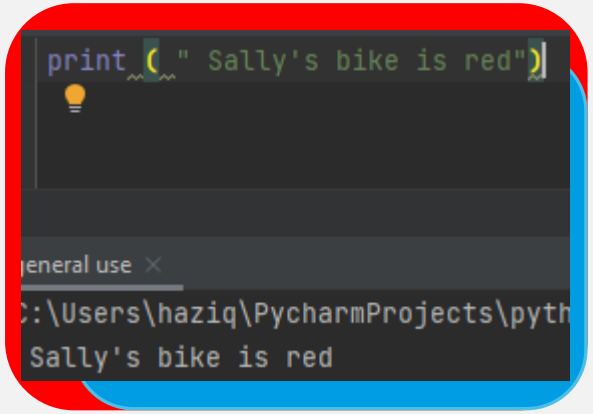
In a sense, the system recognize the ‘ ‘ as a string, so everything after is considered as normal words.



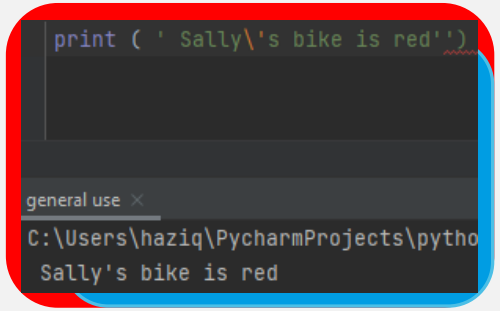
To prevent this from happening, we need to use either one of these symbol : “ “ and \

Tricky Strings

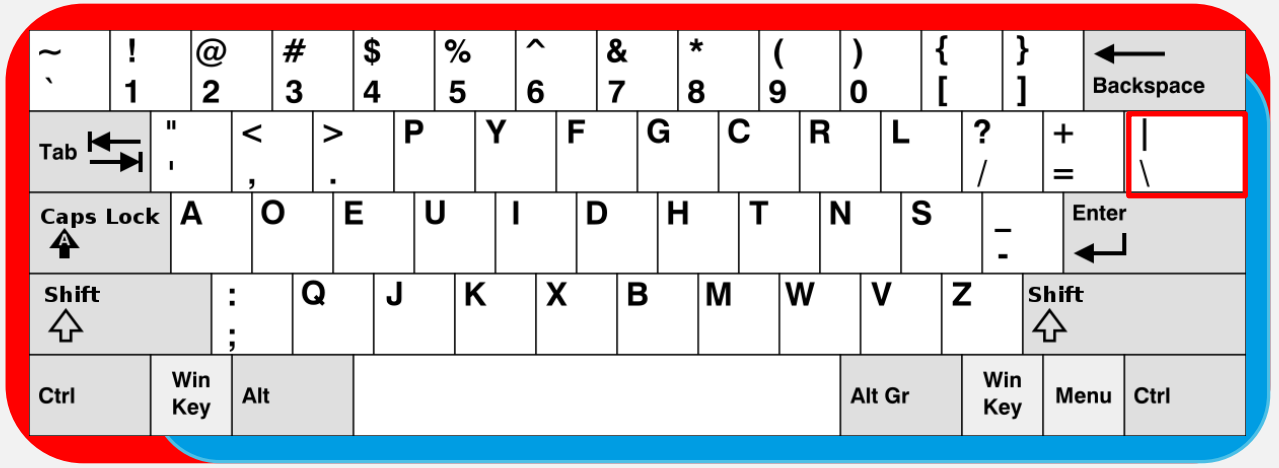
First method is to use quotes (“) to start and end your string.
The symbol is technically the same, and you can use it anytime you want.
Use whichever you prefer, just make sure to remember this part just in case.



The other one is to use backslash (\). Use (\) before the (‘) in the string. Using this character will change how the system interpret the character. Check the example on next slide to see the symbol on your keyboard.



Keyboard Layout



Task 1

Get your program to print the following statement:

If Bob's dog could talk, he would have said: "What are you looking at?“

Below is how it will look like when run.

```
if bob's dog could talk, he woould have said : "what are you looking at?"
```

Task 2

Create the following variable :
Code = ‘Python programming’
Place = ‘ Advaspire’

Combine both of the variables with strings so when printed, it will show:

We can learn Python programming at Advaspire.

Refer the concatenation method to solve this.

You can direct message your teacher and ask your question through Slack Robotene Community or arrange a One-to-One Consultation with your teacher.

Any Questions?

Thank you :)