
STRINGS
SESSION 12

Strings

A string is a sequence of characters enclosed with quotes(single or double)

Eg. ‘Welcome to CS GE’

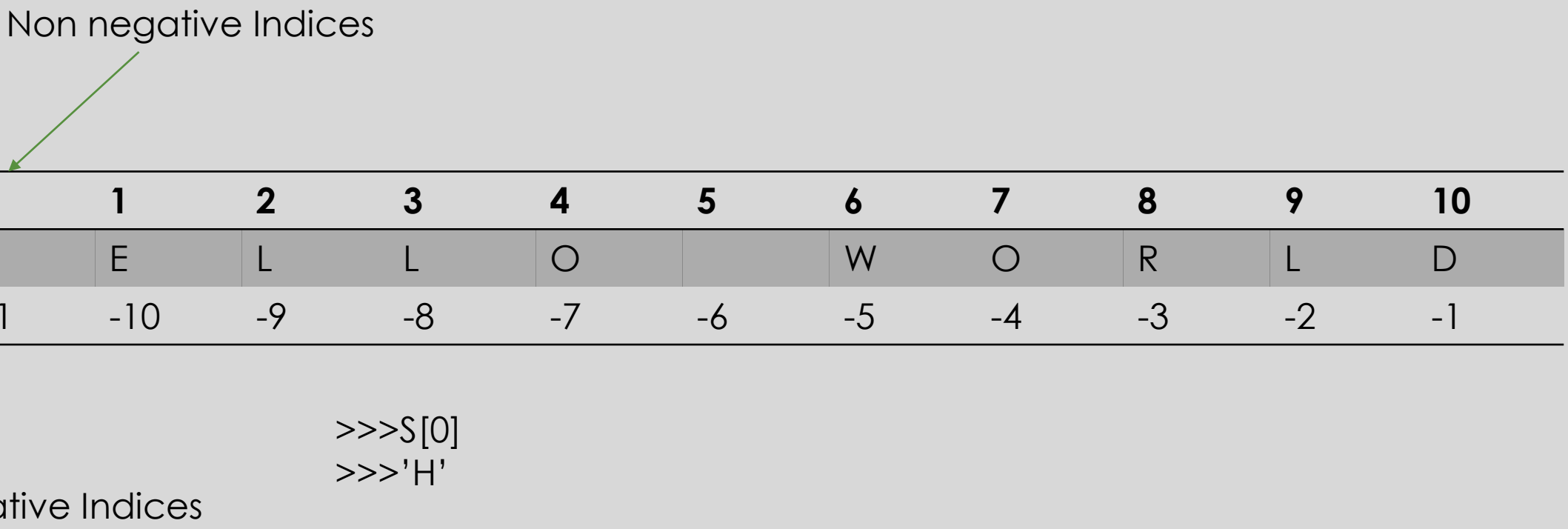
S=’ Hello World’ Here S is a variable holding a string Hello World

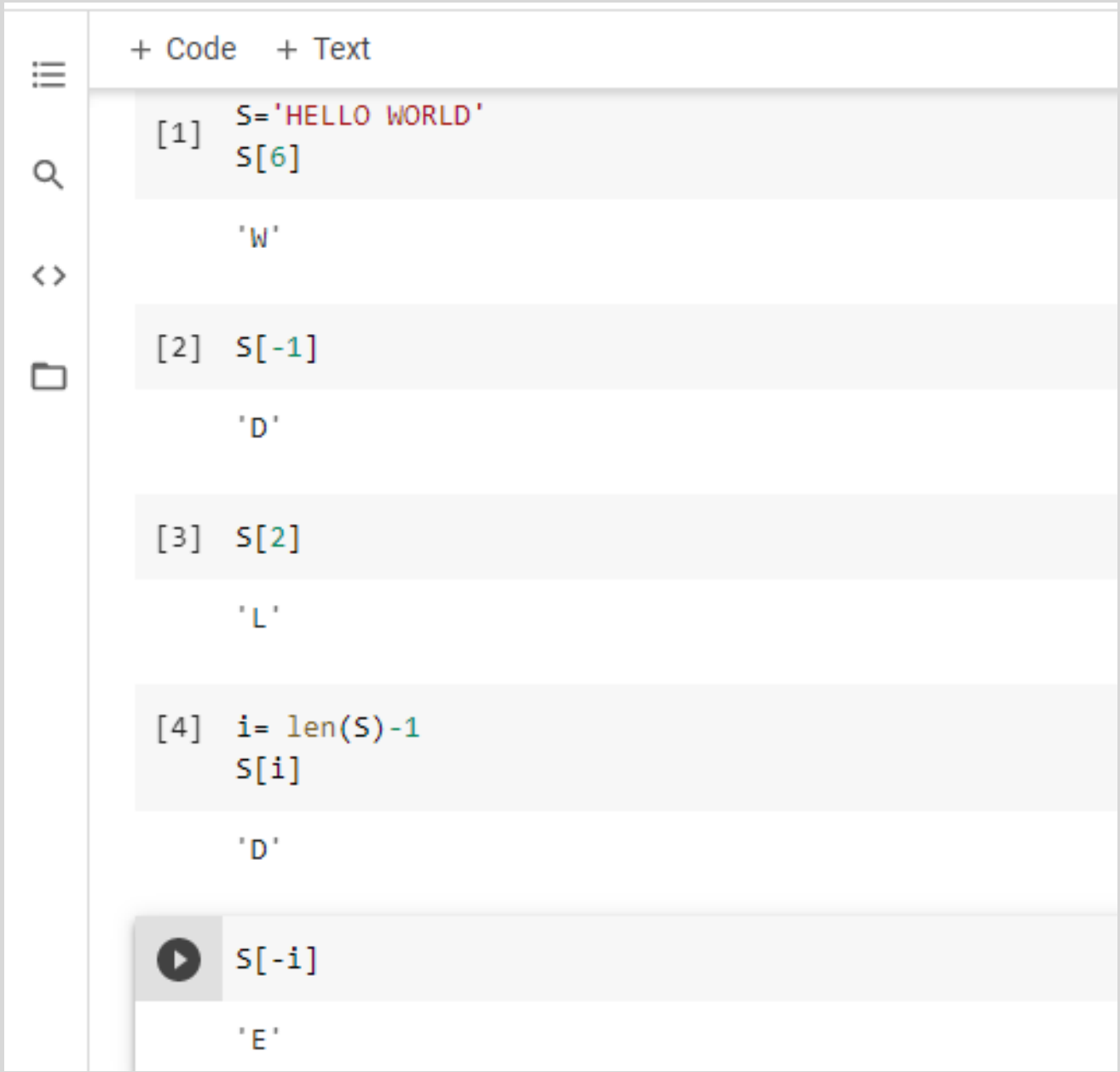
Len function is used to find the length of a string

>>>len(S)

>>>11

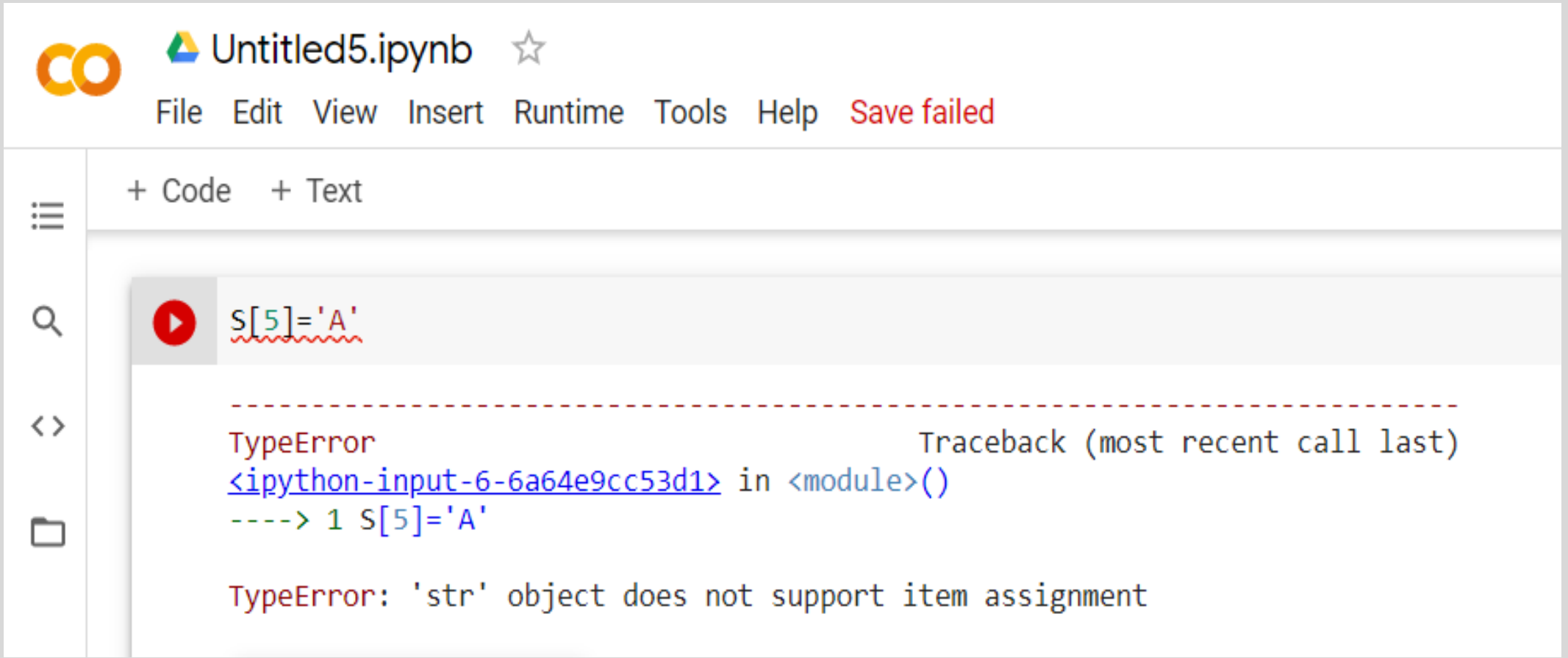
Individual characters are accessed using a technique known as **Indexing**




+ Code
+ Text
[1]
S='HELLO WORLD'
S[6]
'W'
[2]
S[-1]
'D'
[3]
S[2]
'L'
[4]
i= len(S)-1
S[i]
'D'
S[-i]
'E'

Strings are **immutable**

Components of a string cannot be altered any attempt to it will lead to error



Strings can be concatenated using + operator

```
>>>'Computer' +' Science'
>>>'Computer Science'


>>>'Hi' +'How'+'are'+'you'
>>>'HiHowareyou'
```

```
>>>max('AZ', 'C', 'BD', 'BT')
>>>'C'


>>>min('BD','AZ', 'C')
>>>'AZ'
>>>max('hello','How','Are','You','sir')
>>>'sir'
```

Slicing- retrieving a substring

>>>message ='HELLP WORLD'

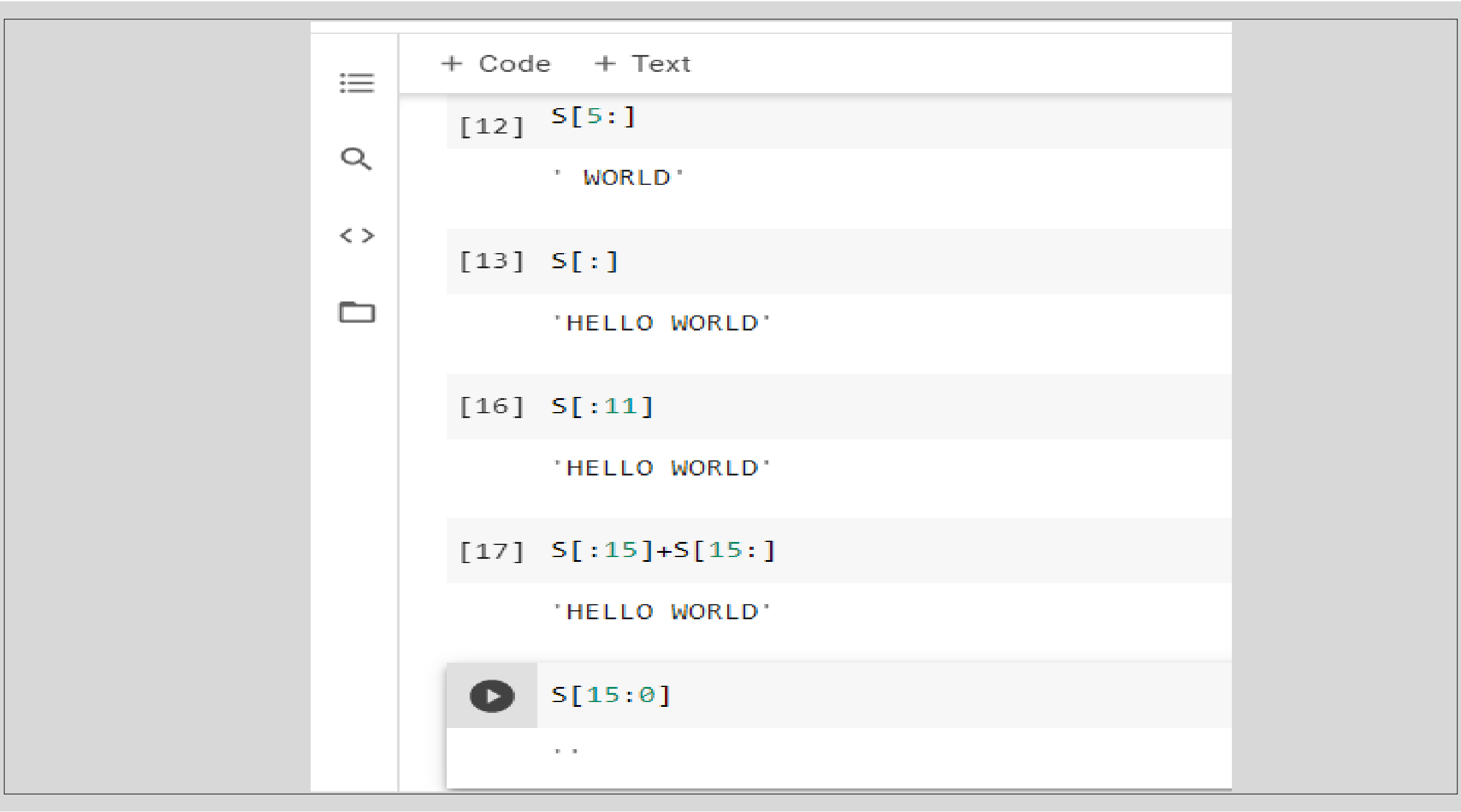
0	1	2	3	4	5	6	7	8	9	10
H	E	L	L	O		W	O	R	L	D
-11	-10	-9	-8	-7	-6	-5	-4	-3	-2	-1

>>>message[0: 5]

>>>'HELLO'

>>>S[-10:-5]

>>>'ELLO '


+ Code
+ Text
[12] S[5:]
' WORLD'
[13] S[:]
'HELLO WORLD'
[16] S[:11]
'HELLO WORLD'
[17] S[:15]+S[15:]
'HELLO WORLD'
S[15:0]
''

Python also allows to extract a subsequence of the form start:end:inc

Membership

- We can check membership of individual characters using in operator
- The expression would yield a True or a False

>>>'H' in 'Hello'

>>>True

>>>'H' in 'hello'

>>>False

Built in Functions in Strings

- **count()-** to find the number of occurrences of character in the string

>>>'hello how are are you'.count('o')

>>>3

S='hello how are are you'

S.count('o') will give 3

find()- returns the index of first occurrence of the substring (if found). If not found, it returns -1.

E.g.

quote = 'Let it be, let it be, let it be'

result = quote.find('let it')

print(result)

Answer =11 (its small l in let it)

rfind()-returns the highest index (or rightmost index) of the substring (if found). If not found, it returns -1.

Eg

quote = 'Let it be, let it be, let it be'

result = quote.rfind('let it')

Answer -22

capitalize()-Converts the first character of the string to upper case

E.g.

txt = "hello, and welcome to my world."

x = txt.capitalize()

x will contain the string - Hello, and welcome to my world.

title()-returns a string with first letter of each word capitalized; a title cased string.

Str='hello how are you'

Str.title() will return

'Hello How Are You'

lower()-converts all uppercase characters in a string into lowercase characters and returns it.

Str='HELLO How ARE you'

Str.lower() will return

'hello how are you'

upper()-converts all lowercase characters in a string into uppercase characters and returns it.

Str='HELLO how ARE you'

Str.upper() will return

'HELLO HOW ARE YOU'

swapcase()- is used to covert lowercase letters in string to uppercase and vice versa

'Welcome to CS GE Class'.swapcase()

'wELCOME TO cs ge cLASS'

islower()-returns True if all alphabets in a string are lowercase alphabets. If the string contains at least one uppercase alphabet, it returns False.
Str= ‘hello How are you’
Str.islower()-
Answer False (as H of how is in uppercase)

isupper()-returns whether or not all characters in a string are uppercased or not.
Str=’ HOW ARE YOU’
Str.isupper() -returns true
‘Hello how’.isupper()- returns false

istitle()-returns True if the string is a titlecased string. If not, it returns False.
That is only 1st character of every word is in capital rest all in lower case(the string should comprise of atleast one alphabet)
s = 'Python Is Good.'
print(s.istitle())
Answer True
A=‘123’.istitle() –it will return False
‘Book 123’.istitle() – will return True

replace()-returns a copy of the string where all occurrences of a substring is replaced with another substring.
e.g
str='Hello how are you. Hello'
str.replace('Hello',' hola')
returns
-hola how are you.hola

split()-breaks up a string at the specified separator and returns a list of strings.
E.g
text= 'Love thy neighbor'
print(text.split())
output ['Love','thy','neighbor']

Colors='red, green, blue,pink'
Colors.split(',')-results in
['red',' green',' blue','pink']