

Hello

```
0 1 2 3 4
-5 -4 -3 -2 -1
```

```
• str = 'yellow'
• str[1] # => 'e'
• str[-1] # => 'w'
• str[4:6] # => 'ow'
• str[:4] # => 'yell'
• str[:3] # => 'low'
```

Methods:

- split() - Splits a string into a list
 - str.split(index)(separator, maxsplit)
- [:] - Indices beginning at i till end of string
- [:3] - Indices up to 3 (0, 1, 2)
- [i:] - Indices beginning at i ending one before j
- [:i] - Indices starting from END of string
- [i:] - All but last character
- [:i:-1] - goes backward ("oleH")

Some Functions...

- count() - returns the number of times something occurs
- len() - returns the number of the length of the string or list
- upper() - converts all characters to uppercase characters
- lower() - converts all characters to lowercase characters

split() example:
x = 'p.o.t.a.t.o'
y = x[2:7].split(',')
print(y)
Output: ['o', 't', 'a', 'o']

Chr & Ord

```
string = "love"
for c in string:
    print(c, ord(c), end=" ")
>> l 173 32 l 108 o 111 v 118 e 101
for i in range(65,70):
    print(i, chr(i), end=" ")
>> 65 A 66 B 67 C 68 D 69 E
```

Colors:

```
Hex = # RR GG BB
Black = # 00 00 00
White = # 00 FF FF
Gray = # 42 42 42 (same values)
Brightest Blue = # 00 00 FF
Decimal = (1.0, 0, 0) 1.0 is max value
8-bit = (0, 255, 0) 255 is max value
```

Conversions

- Hex to Dec --> 2A as decimal number? 42
- Multiply first digit by 16
- > 2 * 16 = 32
- Add the next digit
- > 32 + 10 (A) = 42

A	B	C	D	E	F
10	11	12	13	14	15

- Binary to Dec --> 10110 as decimal number? 22
- 1 0 1 1 0 → (2⁴)(0)+(2³)(1)+(2²)(1)+(2¹)(0)+(2⁰)(0)
- 16+0+4+2+0+0=22

Dec to Binary --> 25?

What numbers add to 25?
>> 16 + 8 + 1 = 25
So turn those numbers on (1) and others off (0)

0	1	0	0	1	
32	16	8	4	2	1

Numpy Array

```
import numpy as np
import matplotlib.pyplot as plt
arr = np.zeros((10,10,3))
arr[0,0,0] = 1
plt.imshow(arr)
plt.show()
```

img[i, c, chan]
x,y coordinates
>img[0:2, 2:3, :] = 0
>img[:, 2:, :] = 0
>img[0:1, 0:2, :] = 0

```
>>> arr[0,1:]
array([3,41])
>>> arr[1,4:]
array([[44, 45],
       [54, 55]])
>>> arr[1,2]
array([2,12,22,32,42,52])
>>> arr[2:12,:2]
array([[20,22,24]
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