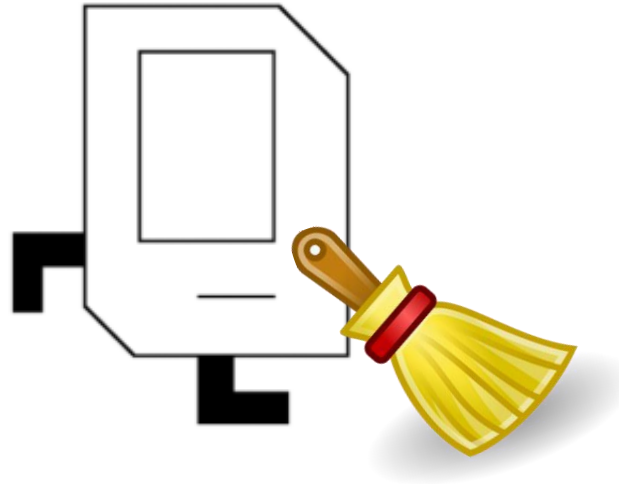




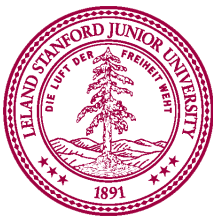
String Parsing

CS106A, Stanford University

Housekeeping

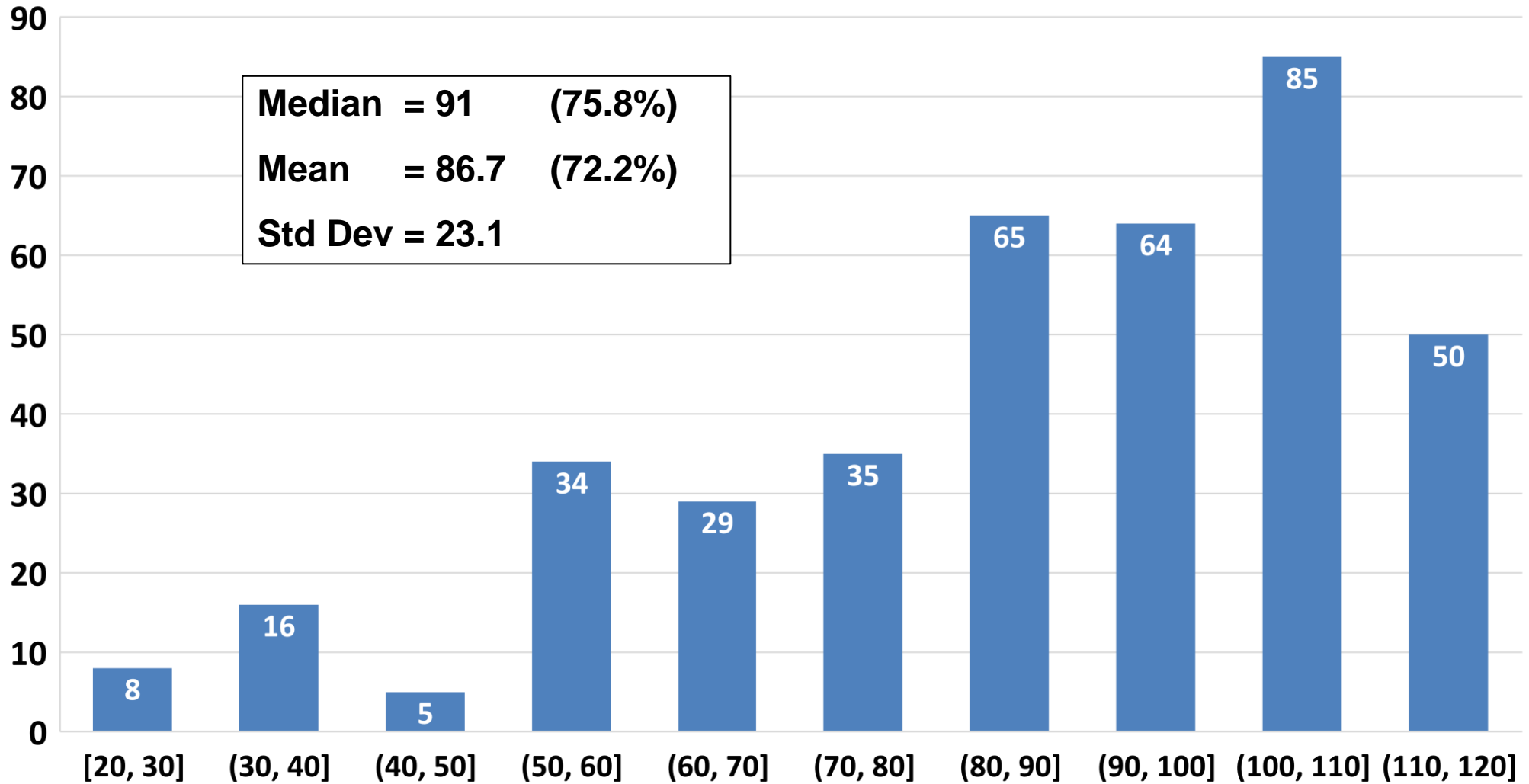


- Assignment #4 due
 - Poll: <https://pollev.com/assignment4>
- Assignment #5 released today
 - Due: Monday, May 16th
- Midterm is graded
 - Will get back (online) later today



Midterm Statistics

Midterm Score Histogram



Review!

List

index -> value

Dictionary

key -> value

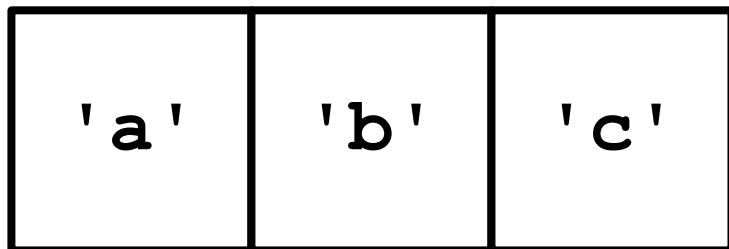
List

```
my_list = ['a', 'b', 'c']
```

```
print(my_list[1])
```

```
for i in range(len(my_list)):  
    value = my_list[i]  
    print(i, value)
```

my_list



0

1

2

indices

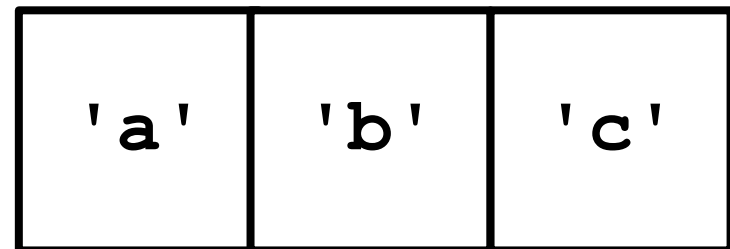
Dictionary

```
my_dict = {  
    'x': 'a',  
    'y': 'b',  
    'z': 'c'  
}
```

```
print(my_dict['y'])
```

```
for key in my_dict:  
    value = my_dict[key]  
    print(key, value)
```

my_dict



'x'

'y'

'z'

keys



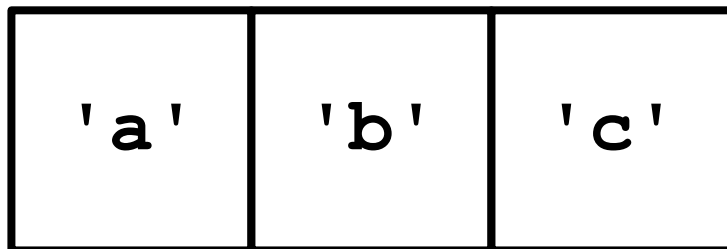
List

```
my_list = ['a',  
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           'c']
```

```
print(my_list[1])
```

```
for i in range(len(my_list)):  
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    print(i, value)
```

my_list



0

1

2

indices

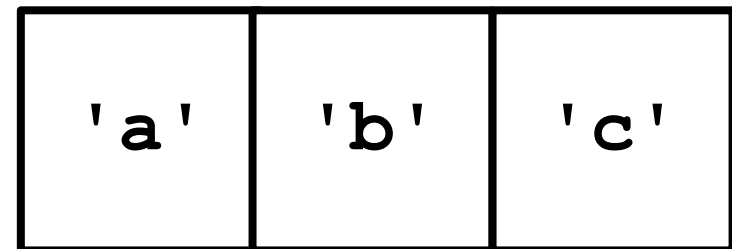
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for key in my_dict:  
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```

my_dict



'x'

'y'

'z'

keys



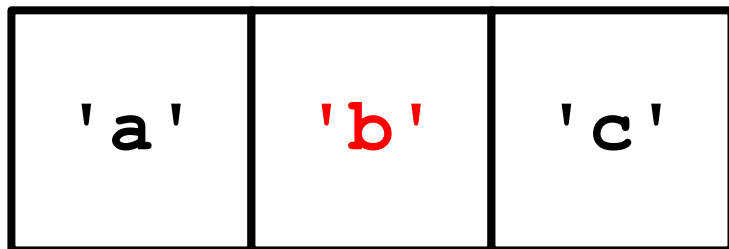
List

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```

```
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```

```
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my_list



0

1

2

indices

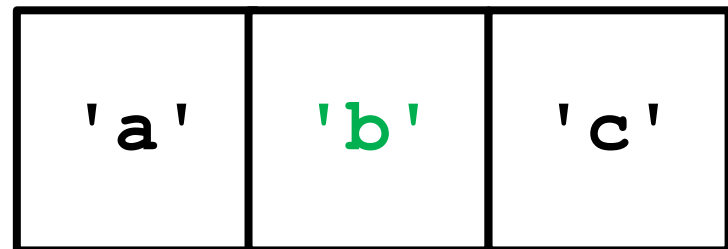
Dictionary

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    'y': 'b',  
    'z': 'c'  
}
```

```
print(my_dict['y'])
```

```
for key in my_dict:  
    value = my_dict[key]  
    print(key, value)
```

my_dict

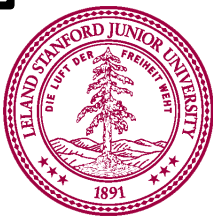


'x'

'y'

'z'

keys



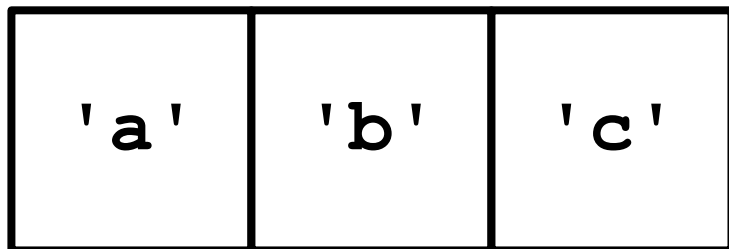
List

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```

```
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```

```
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    print(i, value)
```

my_list



0

1

2

indices

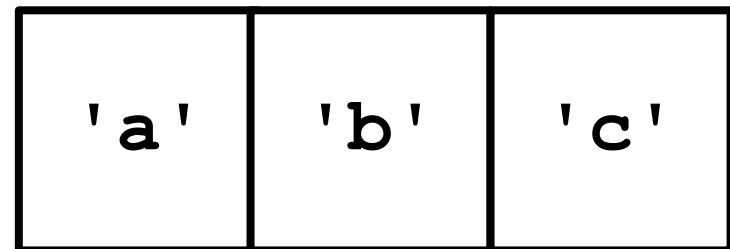
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for key in my_dict:  
    value = my_dict[key]  
    print(key, value)
```

my_dict

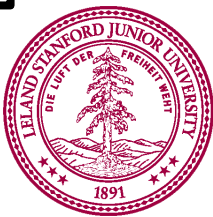


'x'

'y'

'z'

keys

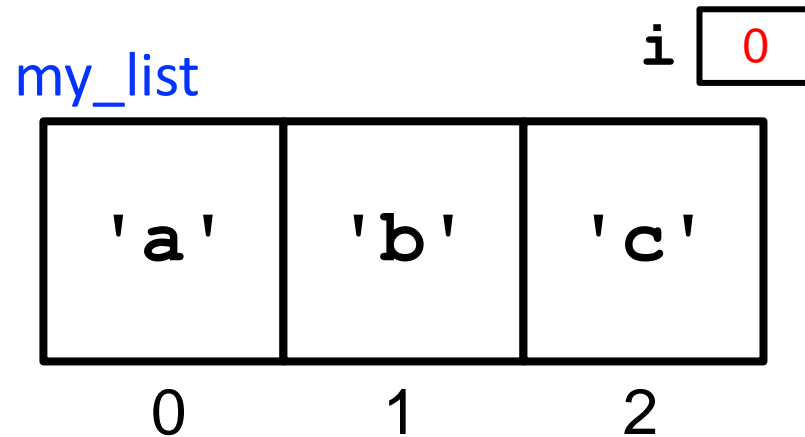


List

```
my_list = ['a',  
           'b',  
           'c']
```

```
print(my_list[1])
```

```
for i in range(len(my_list)):  
    value = my_list[i]  
    print(i, value)
```



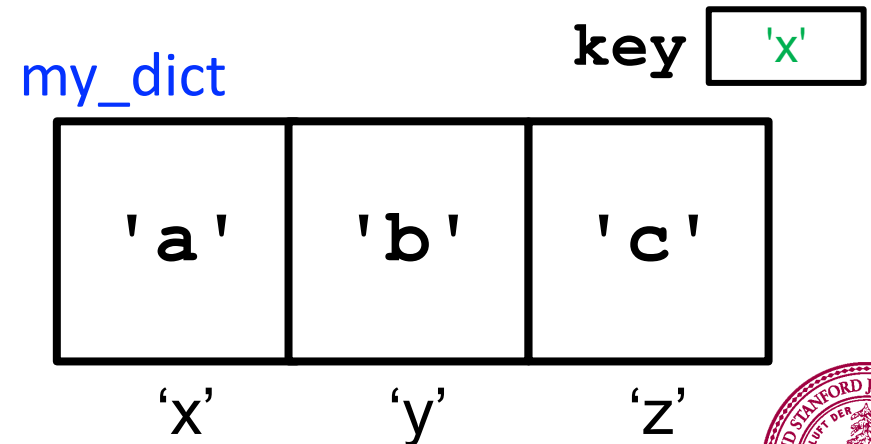
indices

Dictionary

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}
```

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print(my_dict['y'])
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for key in my_dict:  
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keys

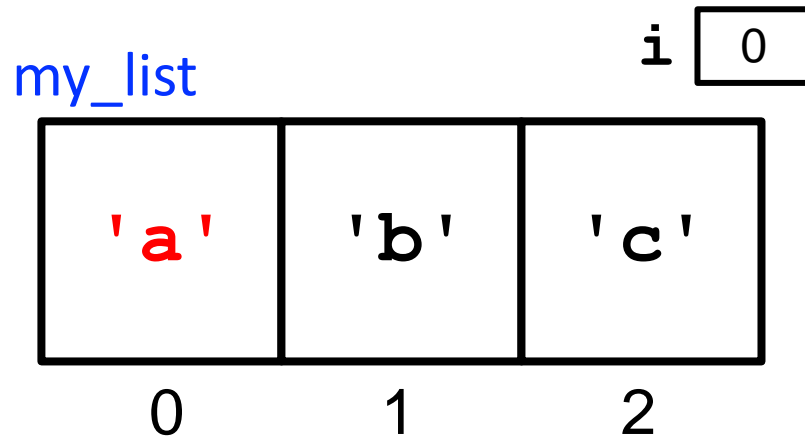


List

```
my_list = ['a',  
           'b',  
           'c']
```

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```
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```



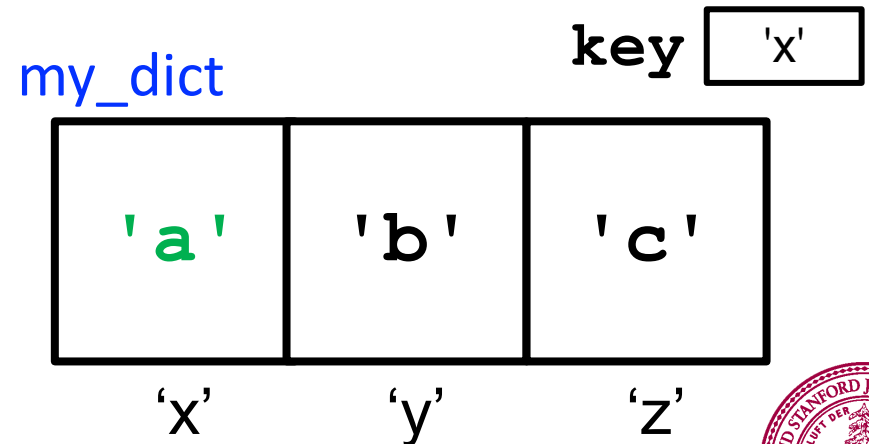
indices

Dictionary

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}
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for key in my_dict:  
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keys

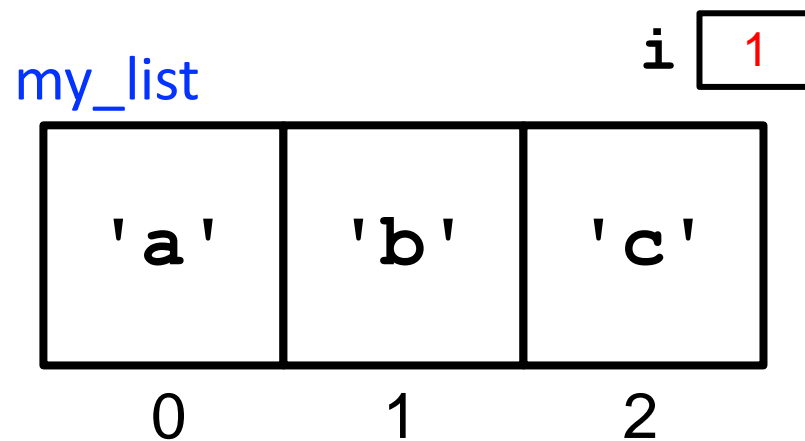


List

```
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           'b',  
           'c']
```

```
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```

```
for i in range(len(my_list)):  
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```



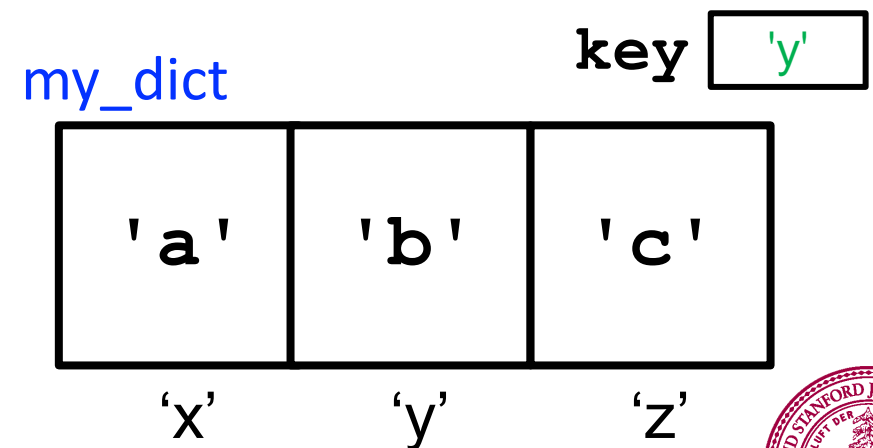
indices

Dictionary

```
my_dict = {  
    'x': 'a',  
    'y': 'b',  
    'z': 'c'  
}
```

```
print(my_dict['y'])
```

```
for key in my_dict:  
    value = my_dict[key]  
    print(key, value)
```



keys

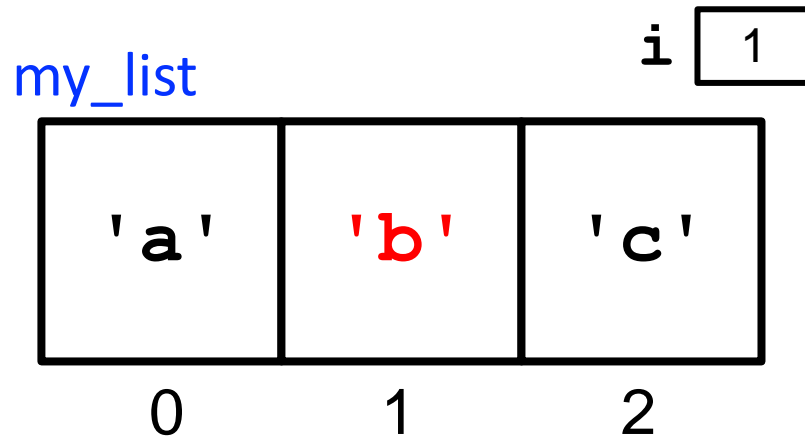


List

```
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           'b',  
           'c']
```

```
print(my_list[1])
```

```
for i in range(len(my_list)):  
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    print(i, value)
```



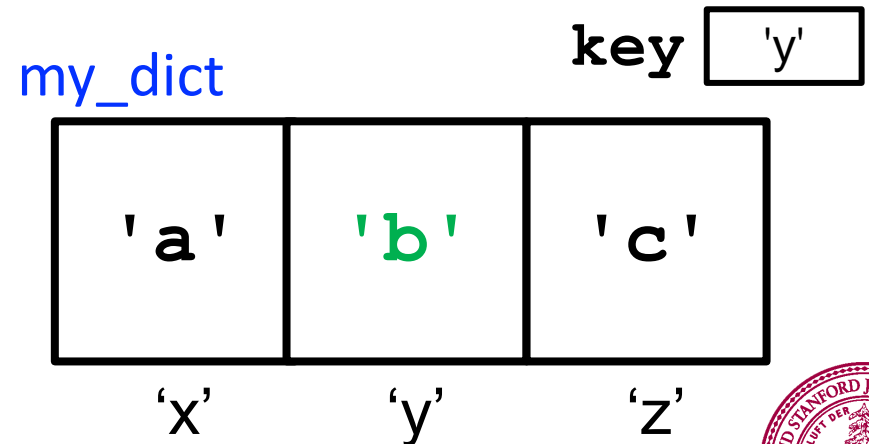
indices

Dictionary

```
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    'y': 'b',  
    'z': 'c'  
}
```

```
print(my_dict['y'])
```

```
for key in my_dict:  
    value = my_dict[key]  
    print(key, value)
```



keys

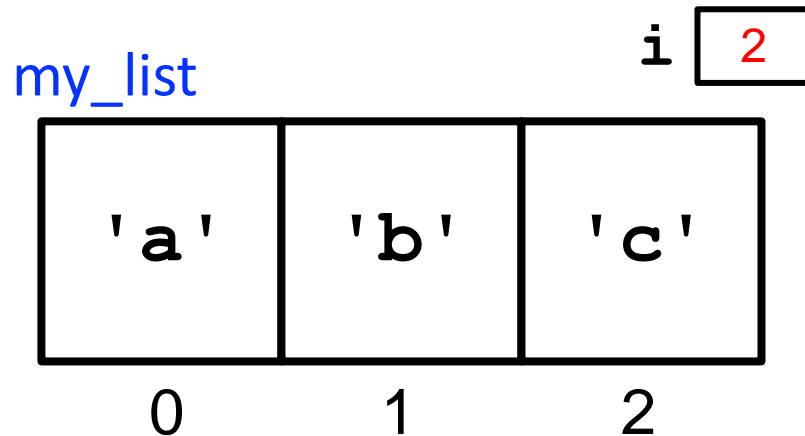


List

```
my_list = ['a',  
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           'c']
```

```
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```

```
for i in range(len(my_list)):  
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```



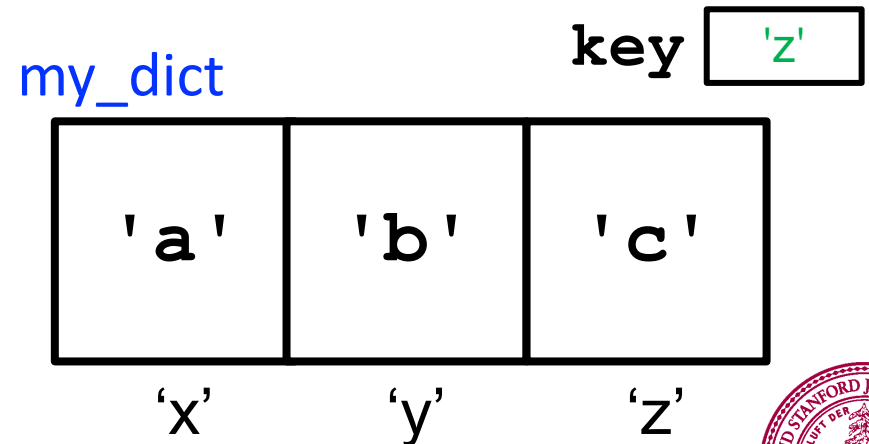
indices

Dictionary

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my_dict = {  
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    'y': 'b',  
    'z': 'c'  
}
```

```
print(my_dict['y'])
```

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for key in my_dict:  
    value = my_dict[key]  
    print(key, value)
```



keys

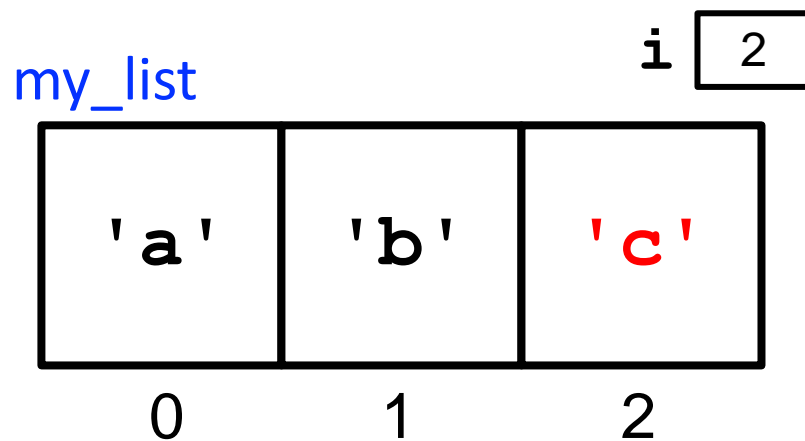


List

```
my_list = ['a',  
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           'c']
```

```
print(my_list[1])
```

```
for i in range(len(my_list)):  
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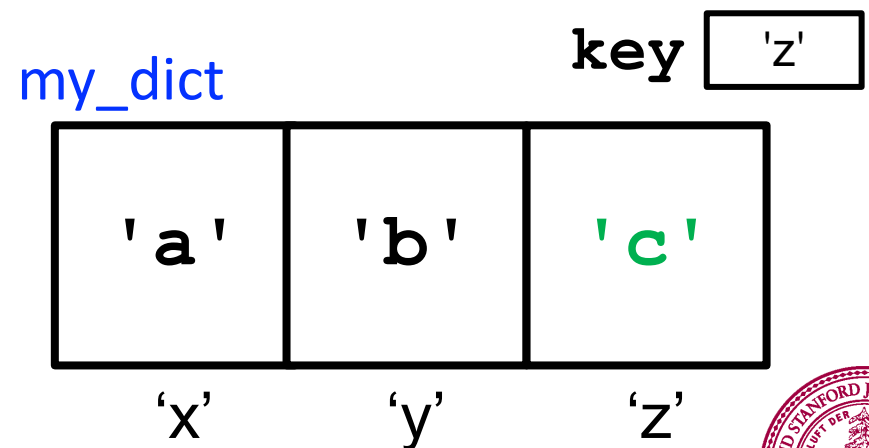
indices

Dictionary

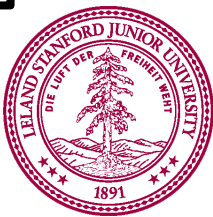
```
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    'x': 'a',  
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    'z': 'c'  
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```

```
for key in my_dict:  
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```

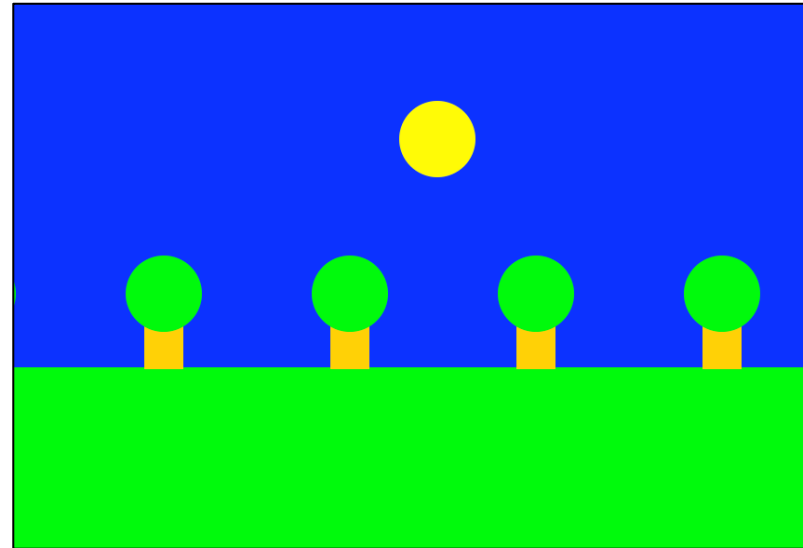


keys



Reading data from files

Recall, Our Old Friend, Graphics

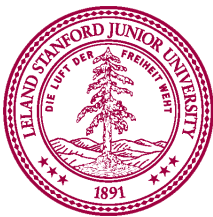


Thank you!
Thank you
very much!

- What were all those colors again?

<https://www.tcl.tk/man/tcl8.6/TkCmd/colors.html>

- And what color is *chartreuse*, really?

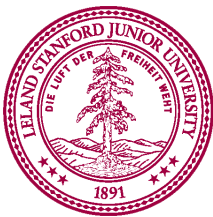


Loading Data From File

- We have file containing color names and RGB values
 - File has "comma separated values"
 - This is called a CSV file (with .csv ending)
 - Can produce these in spreadsheet program (e.g., Excel)
- Want to read in file and store this as a dictionary of lists
 - Key: color name
 - Value: list of R, G, and B values

colorRGB.csv

```
beige,245,245,220
black,0,0,0
blue,0,0,255
brown,165,42,42
chartreuse,127,255,0
gold,255,215,0
gray,128,128,128
green,0,128,0
orange,255,165,0
purple,128,0,128
red,255,0,0
yellow,255,255,0
```



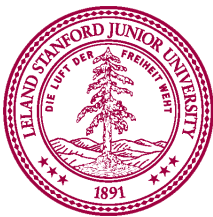
Loading Data From File

colorRGB.csv

```
beige,245,245,220
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blue,0,0,255
brown,165,42,42
chartreuse,127,255,0
gold,255,215,0
gray,128,128,128
green,0,128,0
orange,255,165,0
purple,128,0,128
red,255,0,0
yellow,255,255,0
```



```
{
  'beige': [245, 245, 220],
  'black': [0, 0, 0],
  'blue': [0, 0, 255],
  'brown': [165, 42, 42],
  'chartreuse': [127, 255, 0],
  'gold': [255, 215, 0],
  'gray': [128, 128, 128],
  'green': [0, 128, 0],
  'orange': [255, 165, 0],
  'purple': [128, 0, 128],
  'red': [255, 0, 0],
  'yellow': [255, 255, 0]
}
```



Reading Data From File

```
def load_colors(filename):  
    color_dict = {}  
    with open(filename) as file:  
        for line in file:  
            line = line.strip()  
            parts = line.split(',')  
            color_name = parts[0]  
            rgb_list = []  
            for i in range(1, 4):  
                rgb_list.append(int(parts[i]))  
            color_dict[color_name] = rgb_list  
    return color_dict
```

colorRGB.csv

```
beige,245,245,220  
black,0,0,0  
blue,0,0,255  
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purple,128,0,128  
red,255,0,0  
yellow,255,255,0
```



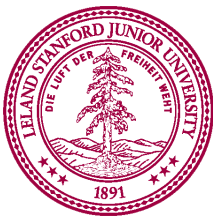
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```
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```

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gray,128,128,128  
green,0,128,0  
orange,255,165,0  
purple,128,0,128  
red,255,0,0  
yellow,255,255,0
```

```
line 'beige,245,245,220\n'
```



Reading Data From File

```
def load_colors(filename):  
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    with open(filename) as file:  
        for line in file:  
            line = line.strip()  
            parts = line.split(',')  
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```
color_dict = {}
```

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gray,128,128,128  
green,0,128,0  
orange,255,165,0  
purple,128,0,128  
red,255,0,0  
yellow,255,255,0
```

```
line 'beige,245,245,220'
```



Reading Data From File

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gray,128,128,128  
green,0,128,0  
orange,255,165,0  
purple,128,0,128  
red,255,0,0  
yellow,255,255,0
```

line 'beige,245,245,220'

parts ['beige', '245', '245', '220']



Reading Data From File

```
def load_colors(filename):
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```

```
color_dict = {}
```

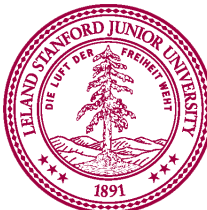
colorRGB.csv

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black,0,0,0
blue,0,0,255
brown,165,42,42
chartreuse,127,255,0
gold,255,215,0
gray,128,128,128
green,0,128,0
orange,255,165,0
purple,128,0,128
red,255,0,0
yellow,255,255,0
```

```
line 'beige,245,245,220'
```

```
parts ['beige', '245', '245', '220']
```

```
color_name 'beige'
```



Reading Data From File

```
def load_colors(filename):  
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    with open(filename) as file:  
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```

```
color_dict = {}
```

colorRGB.csv

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chartreuse,127,255,0  
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gray,128,128,128  
green,0,128,0  
orange,255,165,0  
purple,128,0,128  
red,255,0,0  
yellow,255,255,0
```

line 'beige,245,245,220'

parts ['beige', '245', '245', '220']

color_name 'beige'

rgb_list []



Reading Data From File

```
def load_colors(filename):  
    color_dict = {}  
    with open(filename) as file:  
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```

```
color_dict = {}
```

colorRGB.csv

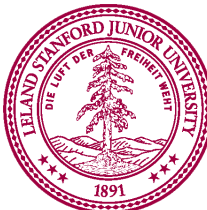
```
beige,245,245,220  
black,0,0,0  
blue,0,0,255  
brown,165,42,42  
chartreuse,127,255,0  
gold,255,215,0  
gray,128,128,128  
green,0,128,0  
orange,255,165,0  
purple,128,0,128  
red,255,0,0  
yellow,255,255,0
```

line 'beige,245,245,220'

parts ['beige', '245', '245', '220']

color_name 'beige'

rgb_list [245]



Reading Data From File

```
def load_colors(filename):
    color_dict = {}
    with open(filename) as file:
        for line in file:
            line = line.strip()
            parts = line.split(',')
            color_name = parts[0]
            rgb_list = []
            for i in range(1, 4):
                rgb_list.append(int(parts[i]))
            color_dict[color_name] = rgb_list
    return color_dict
```

```
color_dict = {}
```

colorRGB.csv

```
beige,245,245,220
black,0,0,0
blue,0,0,255
brown,165,42,42
chartreuse,127,255,0
gold,255,215,0
gray,128,128,128
green,0,128,0
orange,255,165,0
purple,128,0,128
red,255,0,0
yellow,255,255,0
```

```
line 'beige,245,245,220'
```

```
parts ['beige', '245', '245', '220']
```

```
color_name 'beige'
```

```
rgb_list [245, 245]
```



Reading Data From File

```
def load_colors(filename):
    color_dict = {}
    with open(filename) as file:
        for line in file:
            line = line.strip()
            parts = line.split(',')
            color_name = parts[0]
            rgb_list = []
            for i in range(1, 4):
                rgb_list.append(int(parts[i]))
            color_dict[color_name] = rgb_list
    return color_dict
```

```
color_dict = {}
```

colorRGB.csv

```
beige,245,245,220
black,0,0,0
blue,0,0,255
brown,165,42,42
chartreuse,127,255,0
gold,255,215,0
gray,128,128,128
green,0,128,0
orange,255,165,0
purple,128,0,128
red,255,0,0
yellow,255,255,0
```

line 'beige,245,245,220'

parts ['beige', '245', '245', '220']

color_name 'beige'

rgb_list [245, 245, 220]



Reading Data From File

```
def load_colors(filename):
    color_dict = {}
    with open(filename) as file:
        for line in file:
            line = line.strip()
            parts = line.split(',')
            color_name = parts[0]
            rgb_list = []
            for i in range(1, 4):
                rgb_list.append(int(parts[i]))
            color_dict[color_name] = rgb_list
    return color_dict
```

```
color_dict = {
    'beige': [245, 245, 220]
}
```

colorRGB.csv

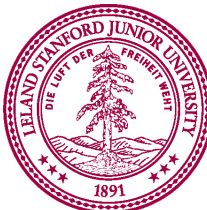
```
beige,245,245,220
black,0,0,0
blue,0,0,255
brown,165,42,42
chartreuse,127,255,0
gold,255,215,0
gray,128,128,128
green,0,128,0
orange,255,165,0
purple,128,0,128
red,255,0,0
yellow,255,255,0
```

line 'beige,245,245,220'

parts ['beige', '245', '245', '220']

color_name 'beige'

rgb_list [245, 245, 220]



Reading Data From File

```
def load_colors(filename):
    color_dict = {}
    with open(filename) as file:
        for line in file:
            line = line.strip()
            parts = line.split(',')
            color_name = parts[0]
            rgb_list = []
            for i in range(1, 4):
                rgb_list.append(int(parts[i]))
            color_dict[color_name] = rgb_list
    return color_dict
```

```
color_dict = {
    'beige': [245, 245, 220],
    'black': [0, 0, 0]
}
```

colorRGB.csv

```
beige,245,245,220
black,0,0,0
blue,0,0,255
brown,165,42,42
chartreuse,127,255,0
gold,255,215,0
gray,128,128,128
green,0,128,0
orange,255,165,0
purple,128,0,128
red,255,0,0
yellow,255,255,0
```

line 'black,0,0,0'

parts ['black','0','0','0']

color_name 'black'

rgb_list [0, 0, 0]



Reading Data From File

```
def load_colors(filename):  
    color_dict = {}  
    with open(filename) as file:  
        for line in file:  
            line = line.strip()  
            parts = line.split(',')  
            color_name = parts[0]  
            rgb_list = []  
            for i in range(1, 4):  
                rgb_list.append(int(parts[i]))  
            color_dict[color_name] = rgb_list  
    return color_dict
```

```
color_dict = {  
    'beige': [245, 245, 220],  
    'black': [0, 0, 0]  
}
```

colorRGB.csv

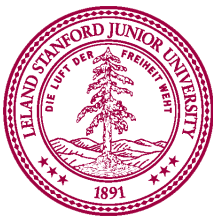
```
beige,245,245,220  
black,0,0,0  
blue,0,0,255  
brown,165,42,42  
chartreuse,127,255,0  
gold,255,215,0  
gray,128,128,128  
green,0,128,0  
orange,255,165,0  
purple,128,0,128  
red,255,0,0  
yellow,255,255,0
```

line 'black,0,0,0'

parts ['black','0','0','0']

color_name 'black'

rgb_list [0, 0, 0]



Reading Data From File

```
def load_colors(filename):  
    color_dict = {}  
    with open(filename) as file:  
        for line in file:  
            line = line.strip()  
            parts = line.split(',')  
            color_name = parts[0]  
            rgb_list = []  
            for i in range(1, 4):  
                rgb_list.append(int(parts[i]))  
            color_dict[color_name] = rgb_list  
    return color_dict
```

```
color_dict = {  
    'beige': [245, 245, 220],  
    'black': [0, 0, 0],  
    'blue': [0, 0, 255]  
}
```

colorRGB.csv

```
beige,245,245,220  
black,0,0,0  
blue,0,0,255  
brown,165,42,42  
chartreuse,127,255,0  
gold,255,215,0  
gray,128,128,128  
green,0,128,0  
orange,255,165,0  
purple,128,0,128  
red,255,0,0  
yellow,255,255,0
```

line 'blue,0,0,255'

parts ['blue', '0', '0', '255']

color_name 'blue'

rgb_list [0, 0, 255]



Reading Data From File

```
def load_colors(filename):
    color_dict = {}
    with open(filename) as file:
        for line in file:
            line = line.strip()
            parts = line.split(',')
            color_name = parts[0]
            rgb_list = []
            for i in range(1, 4):
                rgb_list.append(int(parts[i]))
            color_dict[color_name] = rgb_list
    return color_dict
```

```
color_dict = {
    'beige': [245, 245, 220],
    'black': [0, 0, 0],
    'blue': [0, 0, 255]
```

```
    .
    .
    .
```

```
}
```

colorRGB.csv

```
beige,245,245,220
black,0,0,0
blue,0,0,255
brown,165,42,42
chartreuse,127,255,0
gold,255,215,0
gray,128,128,128
green,0,128,0
orange,255,165,0
purple,128,0,128
red,255,0,0
yellow,255,255,0
```



Reading Data From File

```
def load_colors(filename):  
    color_dict = {}  
    with open(filename) as file:  
        for line in file:  
            line = line.strip()  
            parts = line.split(',')  
            color_name = parts[0]  
            rgb_list = []  
            for i in range(1, 4):  
                rgb_list.append(int(parts[i]))  
            color_dict[color_name] = rgb_list  
    return color_dict
```

```
color_dict = {  
    'beige': [245, 245, 220],  
    'black': [0, 0, 0],  
    'blue': [0, 0, 255]
```

```
    .  
    .  
    .
```

```
}
```

colorRGB.csv

```
beige,245,245,220  
black,0,0,0  
blue,0,0,255  
brown,165,42,42  
chartreuse,127,255,0  
gold,255,215,0  
gray,128,128,128  
green,0,128,0  
orange,255,165,0  
purple,128,0,128  
red,255,0,0  
yellow,255,255,0
```



I wanna see the colors!

Chartreuse!

Misty rose!

Papaya whip!

Lime!

colors.py

Blend it up!

showblend.py