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# Lab-9
# Solutions given to parts that required an answer.
# Basics 1
colors = {'red':10,'blue':20,'green':30}
print(colors)
#dictionary is printed in the same order as input

# Basics 2
colors = {'red':10,'blue':20,'green':30,'yellow':40,'orange':50}

# Basics 5
sum(colors.values())

# Basics 6
for key in colors:
    colors[key] +=1

#Basics 7 - Print a dictionary in order of keys
for key in sorted(colors):
    print(key)

#Basics 8 - keyError when key does not exist
#print(colors['pink'])

#Basics 9 - Using get
print(colors.get('red')) # key exist returns 10
print(colors.get('pink'))# key does not exist returns None

#Basics 10 - get with default value
print(colors.get('red',-1)) # key exist returns 10
print(colors.get('pink',-1))#key does not exist returns -1

#Basics 11
x = dict()
y = x
z = x.copy()
print(x is y, x is z)
print(x == y, x == z)
z[2.0] = 'two'
y[3.14159] = 'pi'
y[2.71828] = 'e'
print(x, z) #x={3.14159:'pi',2.71828:'e'} z={2.0:'two'}
y.clear()
print(x, z) #x={} z={2.0: 'two'}
# y is an alias of x. Both point to the same dictionary.
# z ia simply a copy but does not change if x or y changes.

#Basics 12
from string import ascii_lowercase
letters = dict.fromkeys(ascii_lowercase , 0)
print(letters)

#Basics 13
k=[2001, 2006,2011,2016]
v = [1039534, 1620693, 1649519, 1704694]
d = dict(zip(k,v))
print(d)

#Basics 14
rev_dict = dict(zip(d.values(), d.keys()))
print(rev_dict)

#Part 2
def LetterFrequencies(fx):
    ''' returns a dict with with the frequency of each letter in a text'''

    from string import ascii_lowercase,ascii_uppercase
    letters = dict.fromkeys(ascii_lowercase+ascii_uppercase, 0)

    fp = open(fx)
    text = fp.read()
    for c in text:
        if c.isalpha():
            letters[c] = letters.get(c,0)+1
    fp.close()
    return letters

x = "alice.txt"
dx = LetterFrequencies(x)
for k in dx:
    print(k,":",dx[k])
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