Floating Point Numbers

In [1]:
```
1/10 + 2/100 + 5/1000
```

Out[1]: 0.125

In [2]:
```
0/2 + 0/4 + 1/8
```

Out[2]: 0.125

In [3]:
```
1/3
```

Out[3]: 0.3333333333333333

In [4]:
```
print(format(1/3, '0.2f'))
```

```
0.33
```

In [5]:
```
import math
```

In [6]:
```
print(format(math.pi, '.12g'))
```

```
3.14159265359
```

In [7]:
```
print(format(math.pi, '0.6f'))
```

```
3.141593
```

In [8]:
```
2**52 <=  2**56 // 10  < 2**53
```

Out[8]: True

In [9]:
```
2**52
```

Out[9]: 4503599627370496

In [10]:
```
2**56 // 10
```

Out[10]: 7205759403792793

Strings

In [11]:
```
season = "Winter is coming"
```

In [12]:
```
length = len(season)
```

In [13]:
```
length
```

Out[13]: 16

In [14]:
```
last = season[length - 3]
last
```

Out[14]: 'i'

In [15]:
```
middle =  season[length - 8]
middle
```

Out[15]: 's'

In [16]:
```
for char in season: #in operator
    print(char)
```

```
W
i
n
t
e
r

i
s

c
o
m
i
n
g
```

Do it with While Loop in class

In [17]:
```
ch = 0

while(ch < length):

    print(season[ch])

    ch+=1
```

```
W
i
n
t
e
r

i
s
```

```
c
o
m
i
n
g
```

In [18]:
```
#String Slices
print(season[6:])
print(season[:4])
```

```
 is coming
Wint
```

In [19]:
```
season[7] = 'H'
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-19-676b678fc813> in <module>
----> 1 season[7] = 'H'

TypeError: 'str' object does not support item assignment
```

Exercise: Now do the counting with loops.

String Methods

In [ ]:
```
new = season.upper()
new
```

In [ ]:
```
cricket = ' BD beat AUS '
cricket.strip()
```

Lists

In [ ]:
```
a = [12, 10, 20, 30]
a
```

In [ ]:
```
type(a)
```

In [ ]:
```
a[2] = "52"
```

In [ ]:
```
a
```

In [ ]:
```
mixed = ["Rahat", "Shamim", "Arif", 10, 20, 30]
mixed
```

In [ ]:

```
nested = ["Arif", "Sagor", "Rahul", [10, 20, 30], "EWU", "AUST", "BUET", "DU"]
nested
```

HW Traverse nested list

In [ ]:
```
nested.append("Wahid")
```

In [ ]:
```
nested
```

Python Essentials

In [ ]:
```
if True:
    print('The morning was very charming')
```

In [ ]:
```
a =  False
if a:
    print("a was True")
else:
    print("a was not True")
```

In [ ]:
```
loc = 'Bank'
if loc == "Auto shop":
    print("Welcome to the auto shop")
elif loc == 'Bank':
    print('Welcome to the Bank')
else:
    print("Where are you?")
```

In [ ]:
```
x = (1, 2 , 3 , 2)
type(x)
```

In [ ]:
```
numbers = (10, 20, 30)
x, y, z = numbers
```

In [ ]:
```
print(x, y, z)
```

In [24]:
```
dictionary = {"EWU": "Dhaka", "RU": "Rajshahi", "KUET": "Khulna"}
dictionary
```

Out[24]:
```
{'EWU': 'Dhaka', 'RU': 'Rajshahi', 'KUET': 'Khulna'}
```

In [25]:
```
dictionary['EWU']
```

Out[25]:
```
'Dhaka'
```

In [ ]:
```
s = {'a', 'b'}
s1 = {'b' , "c"}

s.intersection(s1) #et is unordered collections. Set does not allow duplicate element.
```

In [ ]:
```
s0 = set(x)
s0
```

In [ ]:
```
for x in range(0, 100):
    if x%2 == 0:
        print(x)
```

Exercises

1. Write a program in Python to find the root of a quadratice equation.

2. Write code to perform grade computation

3. Given two numeric lists or tuples x_vals and y_vals of equal length, compute their inner product uzing zip(). Additionally count the number of even number in 0 to 99. Furthermore given pairs = ((4, 5), (6,7), (8,9)) count the number of pairs (x,y) such that a and b are odd.

In [ ]:
```

```