

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) #set 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 quadratic 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 using zip(). Additionally count the number of even numbers in 0 to 99. Furthermore given pairs = ((4, 5), (6, 7), (8, 9)) count the number of pairs (x, y) such that x and y are odd.

```
In [ ]:
```