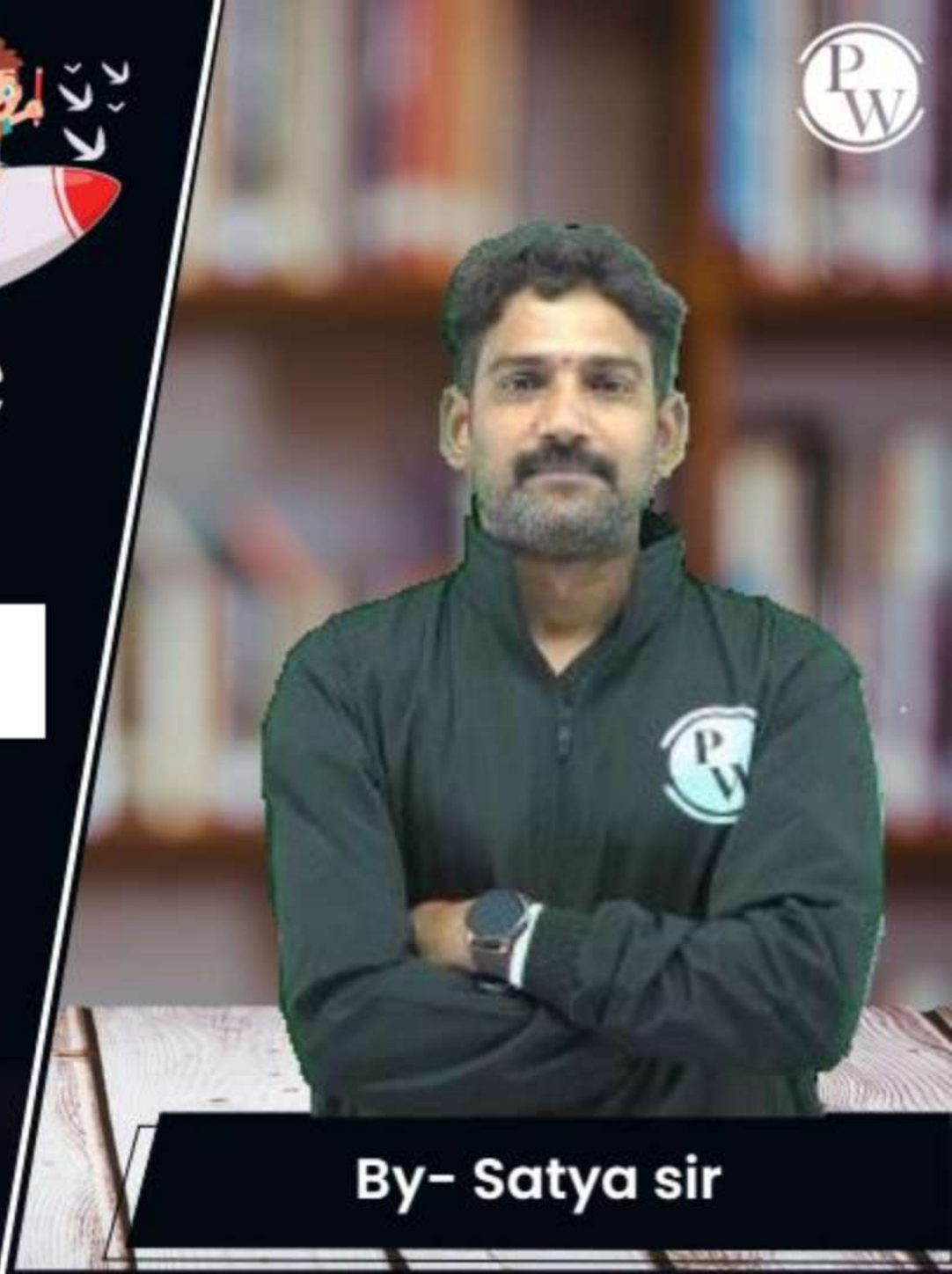
Data Science & Artificial Intelligence

Python For Data Science

Lecture No.- 04



By- Satya sir

Recap of Previous Lecture

Iterative Control Statements

- while
- for

Topics to be Covered

- H/W Qs Solving
- Collections in Python
  - Strings
  - Lists
  - Tuples*

SUPER 1500+ - CLASS – 3 - Homework Question - 1

#Q. Count Value at the end of execution will be 3

```
count=1
for i in range(5):
    for j in range(4):
        if i<j:
            count=j-count
        elif i>j:
            count=i-count
        else:
            break
print(count) #3
```

i = 0	j = 0 break			
i = 1	j = 0 Count = 1 − 1 = 0	j = 1 break		
i = 2	j = 0 Count = 2 − 0 = 2	j = 1 Count = 2 − 2 = 0	j = 2 break	
i = 3	j = 0 Count = 3 − 0 = 3	j = 1 Count = 3 − 3 = 0	j = 2 Count = 3 − 0 = 3	j = 3 break
i = 4	j = 0 Count = 4 − 3 = 1	j = 1 Count = 4 − 1 = 3	j = 2 Count = 4 − 3 = 1	j = 3 Count = 4 − 1 = 3

SUPER 1500+ - CLASS – 3 - Homework Question - 2

#Q. What does the following Python code segment print?

```
result=4
for i in range(3):
    i*=2
    for j in range(i):
        j+=2
        result=result+i+j
print(result)
```

43

j in (0)

i = 0 —

i = 1 → i = 1*2 = 2 → j in (0, 1)

- j = 0 → j = 2 → γ = 4+2+2 = 8
- j = 1 → j = 3 → γ = 8+2+3 = 13

i = 2 → i = 2*2 = 4 → j in (0, 1, 2, 3)

- j = 0 → j = 2 → γ = 13+4+2 = 19
- j = 1 → j = 3 → γ = 19+4+3 = 26
- j = 2 → j = 4 → γ = 26+4+4 = 34
- j = 3 → j = 5 → γ = 34+4+5 = 43

SUPER 1500+ - CLASS – 3 - Homework Question - 3

#Q. The final value of count will be 14

a,b,c=1,2,0
count=1
for i in range(c,b,a): (0, 2, 1)
    b=b+1
    for j in range(b):
        count+=i+j

i=0	b=3	j=0 count=1+0+0 =1	j=1 Count=1+0+1 =2	j=2 Count=2+0+2 =4
i=1	b=4	j=0 Count=4+1+0 =5	j=1 Count=5+1+1 =7	j=2 =7+1+2 =10	j=3 =10+1+3 =14

SUPER 1500+ - CLASS – 3 - Homework Question - 4

#Q. Count Value at the end of execution will be 14

```
count=1
for i in range(5):
    match i:
        case 1:
            count+=1
            for i in range(count):
                count+=1
        case 2:
            count*=2
            for i in range(count):
                count+=1
        case 4:
            count//=2
            for i in range(count):
                count+=1
        case _:
            count-=1
            for i in range(count):
                count+=1
```

i=0 Count=1-1=0 for loop Not Executed

i=1 Count=0+1=1 i=0 Count=2

i=2 Count= 2*2=4 i=0 i=1 i=2 i=3 =5 =6 =7 =8

i=3 Count= 8-1=7 i= 0,1,2,3,4,5,6 Count= 7+7=14

i=4 Count= 14//2=7 i=0,1,2,3,4,5,6 Count= 7+7=14

SUPER 1500+ - CLASS – 3 - Homework Question - 5

#Q. The Total number of times print statement executed is 8

```
i=len("GATE")
j=len("EXAMINATION")
while j!=i:
    print(i+j)
    j=j-1
else:
    print(i+j)
```

#4

#11

$11 \neq 4$, $10 \neq 4$, $9 \neq 4$, $8 \neq 4$, $7 \neq 4$, $6 \neq 4$, $5 \neq 4$

① ② ③ ④ ⑤ ⑥ ⑦

$4 = 4$

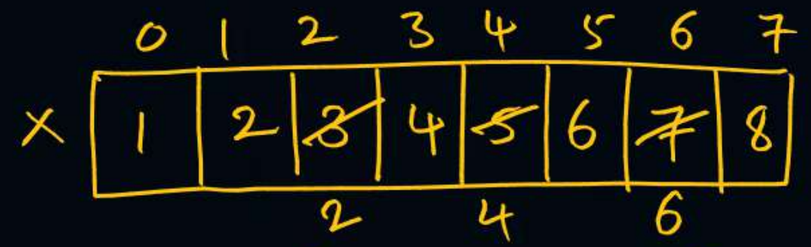
Print ⑧

#Q. What will be the output of the below code?

```
def f():
    x = [1, 2, 3, 4, 5, 6, 7, 8]
    for i in range(1, 7, 2):
        x[x[i]] = x[i]
    for i in range(8):
        print(x[i], end=' ')

f()
```

A. 1 2 3 3 5 5 7 8
B. 1 2 2 4 4 6 6 8
C. 1 2 3 3 4 4 7 8
D. 1 2 3 5 4 6 7 8



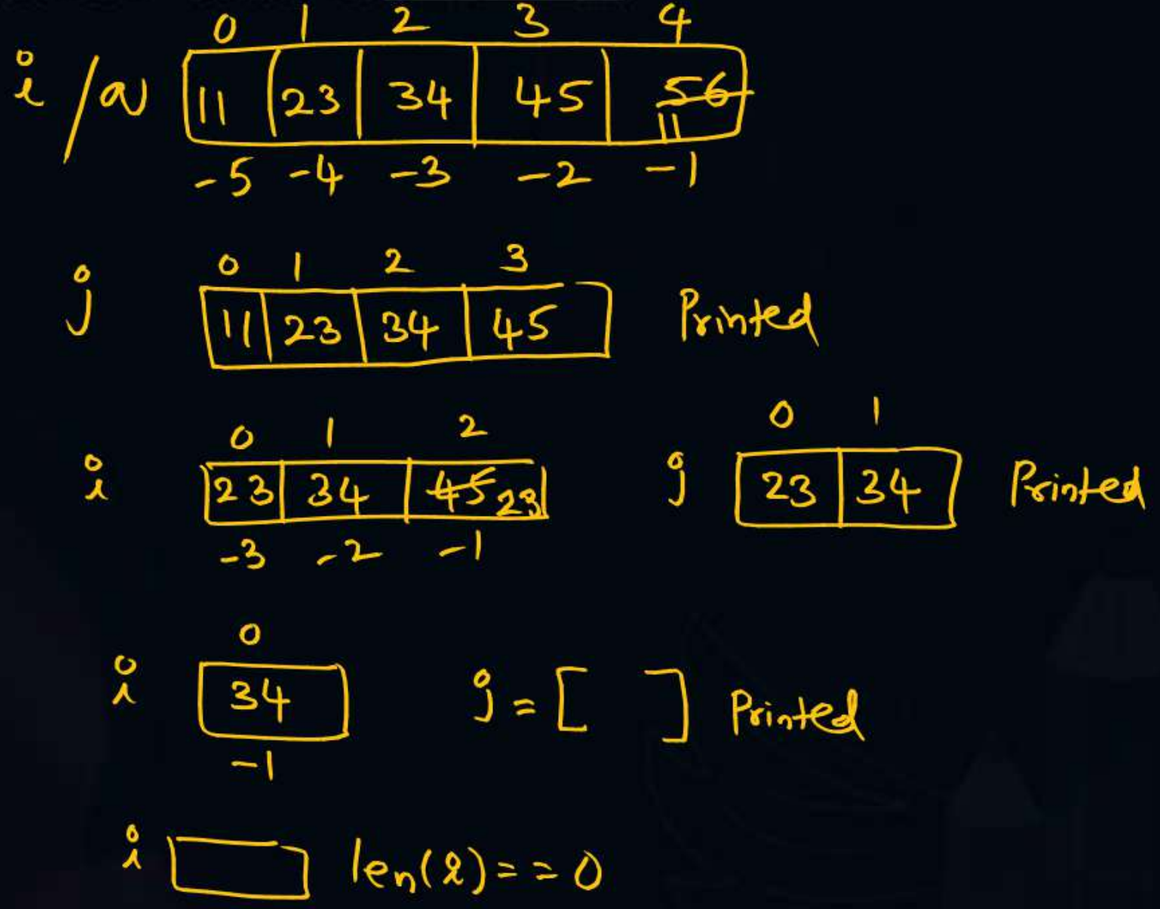
i=1 x[x[1]] = x[1] = x[2] = 2

i=3 x[x[3]] = x[3] ⇒ x[4] = 4

i=5 x[x[5]] = x[5] ⇒ x[6] = 6

#Q. The output printed by below code is _____

```
def f(i):
    if len(i)==0:
        return
    else:
        i[-1]=i[0]
        j=i[:-1]
        print(j)
        f(j[1:])
a=[11,23,34,45,56]
f(a)
```



A) [11,23,34] [23,34] [ ]

B) [11,23,34] [23, 34,45] [ ]

C) [11,23,34,45] [23,34] [ ]

D) [11,23,34,45] [23,34,45] [45] [ ]

#Q. The value of result is 25

Tuple=[11,22,[33,44,[55,[66,77],88],99],110]

List=(10,20,30,(40,50,(60,70,80),90),100)

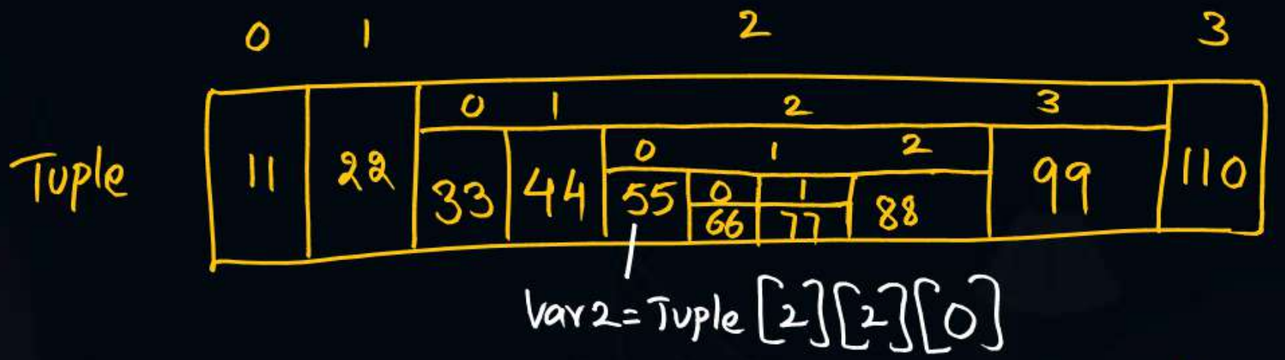
var1=List[3][2][2]

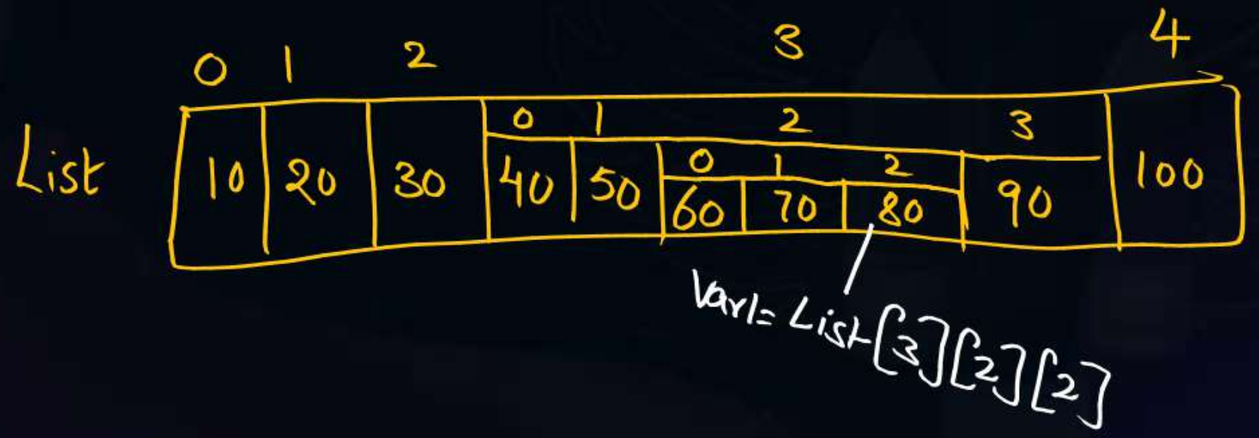
var2=Tuple[2][2][0]

result=var1-var2

= 80 - 55

= 25

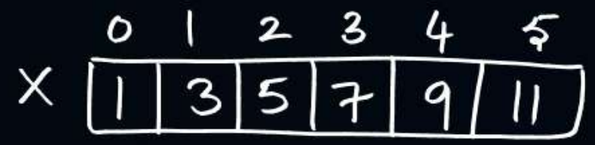


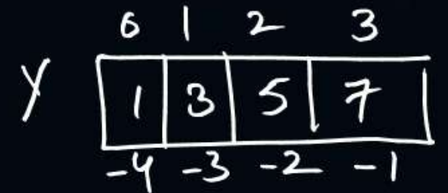


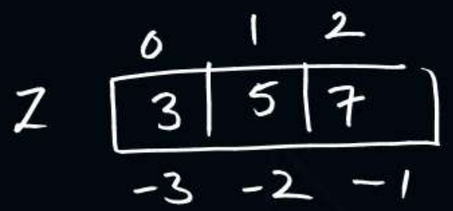
#Q. Count Value at the end of execution will be 5

```
x=[1,3,5,7,9,11]
y=x[:4]
z=y[1:]
val=x[4]-y[-2]-z[-3]
count=0
for i in range(val):
    count=count+x[i]+y[i]+z[i]
print(count)
```

val = 9 - 5 - 3
= 1







i = 0

Count = 0 + x[0] + y[0] + z[0]

= 0 + 1 + 1 + 3

= 5

#Q. The output printed will be ____

```
x=[]
for i in range(5):
    if i%2==0:
        x.append(i**3)
    else:
        x.append(i**2)
for i in range(len(x)):
    if (x[i]%3)==0:
        x[i]=x[i-2]
    else:
        x[i]=x[i-1]
print(x)
```

i=0 x.append(0)

i=1 x.append(1)

i=2 x.append(8)

i=3 x.append(9)

i=4 x.append(64)

A. [3, 3, 3, 3, 3]
B. [9, 9, 9, 9, 9]
C. [3, 9, 27, 64, 125]
D. [27, 27, 27, 27, 27]

x

0	1	2	3	4
~~0~~ 9	~~1~~ 9	~~8~~ 9	9	~~64~~ 9
-5	-4	-3	-2	-1

i=0 0%3==0 True x[0]=x[-2]

i=1 1%3==0 False x[1]=x[0]

i=2 8%3==0 False x[2]=x[1]

i=3 9%3==0 True x[3]=x[1]

i=4 64%3==0 False x[4]=x[3]

#Q. Identify Incorrect Statement(s) from below: [MSQ]

A) Tuples are Unordered Mutable Collection, Does not allow Duplicate Elements

B) Lists are Ordered Mutable Collection, Allow Duplicate Elements

C) Sets are Unordered Immutable Collection, allow Duplicate Elements

D) Dictionaries Unordered mutable Collection, Does not allow Duplicate Elements

Ans: A, C

#Q. What is printed by below code segment?

```
a=(1,2,3,4)
b=(1,2,4,3)
c=a>b
d=a<b
print(c,d)
```

a < b

c = False

d = True

A) False, False
B) False, True
C) True, False
D) True, True

#Q. What will be the result value? (NOTE: Unicode Values: 'A'=65, '0'=48)

```
a="GATEEXAM"
b="IITROORKEE"
c="2025"
d="AIR"
i=ord(a[4])
j=ord(b[8])
k=ord(d[0])
l=ord(c[1])
result=l+j-(i-k)
```

ord('E') = 69
ord('E') = 69
ord('A') = 65
ord('0') = 48

$= 48+69-(69-65)$

$= 48+69-4$

$= 48+65$

$= 113$

ANS: 113

#Q. The output will be _____?

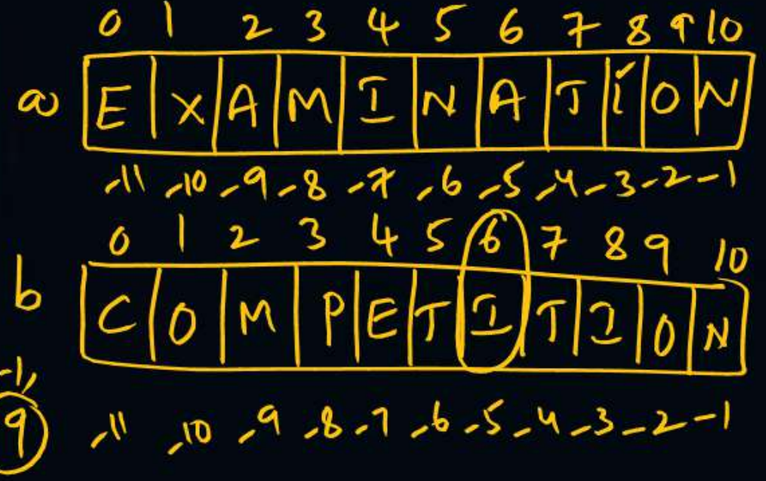
```
a="EXAMINATION"
b="COMPETITION"
for i in range(len(a),-10,-4):
    for j in range(3,len(b),5):
        pos=b.find(a[j])
print(pos)
```

(11, -10, -4) : 11, 7, 3, -1, -5, -9

(3, 11, 5)

3, 8

= b.find(a[8]) ⇒ #6



A) 2 b) 5 c) 6 D) 7

#Q. What value is printed by below code segment?

'A'=65 'a'=97

```
a="EXAMINATION"
b="competition"
c=b.upper()
d=a.lower()
x=ord(c[6].lower())-ord(d[6])
print(c[6])
print(d[6])
print(x)
for i in range(x,3,-3):
    value=ord(d[i+1])-ord(c[i-1])
print(value)
```

c = "COMPETITION"

d = "examination"

ord('I'.lower()) - ord('a') ⇒ ord('i') - ord('a')

⇒ 105 - 97 = 8

i = 8 value = ord(d[9]) - ord(c[7])

i = 5 value = ord(d[6]) - ord(c[4])

= ord('a') - ord('E')

= 97 - 69

= 28

SUPER 1500+ - CLASS – 4 - Homework Question - 1

#Q. The output will be _____

```
a="EXAMINATION"
b="competition"
c=a.count('N')
d=b.count('n')
e=c+d
str=[]
for i in range(3):
    str+=chr(ord(a[e])+2)
    e=e+1
print(str)
```

A. ['O', 'K', 'P']
B. [‘P’ , ‘K’ ,‘O’]
C. [‘o’, ‘k’, ‘p’]
D. [‘P', ‘L’, ‘Q']

SUPER 1500+ - CLASS – 4 - Homework Question - 2

#Q. What does the following Python code segment print?

```
i=[1,2,[3,4,1,2,[3,4,2,[1,2],3],4],2]
j=['a','ab','abc','abcd','abcde']
x=len(i)+len(j)
y=len(j)-len(i)
print('p' * (x-y))
```

A) ppppppp
B) pppppppp
C) pppppp
D) ppppppppp

SUPER 1500+ - CLASS – 4 - Homework Question - 3

#Q. The final value of count will be _____

```
p=len('GATE EXAM')
q=len('EXAMINATION')
r=len('PRACTICE')
l=len('REVISION')
i=p+l
j=q+r
k=j-i
count=1
while k>=0:
    count*=2
    k=k-1
print(count)
```

SUPER 1500+ - CLASS – 4 - Homework Question - 4

#Q. The output will be _____

```
a=[1,'Two',('III','four'),5,'SIX']
b=('SIX',[5,'four'],'III','Two',1)
print(a[2][1],b[1][1])
```

A) Two, four
B) four, Two
C) Two, Two
D) four, four

SUPER 1500+ - CLASS – 4 - Homework Question - 5

#Q. The Final score is ____

```
List=[11,22,33,44,55,66,77]
score=0
for x in List:
    if x%2==0:
        score=score+x
    else:
        score=score+1
```

2 mins Summary

- Strings
- Lists
- Tuples*

NEXT CLASS TOPIC: COLLECTION TYPES: Tuples, Sets, Dictionaries

THANK - YOU