

Business Analytics Programming 2019, Practice Set # 1

1. What is x[3]?

[4]

With List, there is no math happen.

```
1 x=[1,2,3,4,5]
2
```

2. What is z?

```
1 x=[1,2,3,4,5]
2 y=[10,11,13,14,15]
3 z=x+y
4
```

[1,2,3,4,5,10,11,13,14,15]

3. What is x*2?

```
1 x=[1,2,3,4,5]
2
```

[1,2,3,4,5,1,2,3,4,5]

4. What is x[2:]?

```
1 x=[1,2,3,4,5]
2
```

[3,4,5]

5. What is x[:2]?

```
1 x=[1,2,3,4,5]
2
```

[1,2]

6. What is x?

```
1 x=[1,2,3,4,5]
2 x.append(9)
3
```

[1,2,3,4,5,9]

7. What is y?

```
1 x=[1,2,3,4,5]
2 y=x
3 x[1:2]=[10,12]
4
```

x=[1,10,12,3,4,5] Both x and y change
y=[1,10,12,3,4,5]

8. What is y?

```
1 x=[1,2,3,4,5]
2 y=x.copy()
3 x[1:2]=[10,12]
4
```

x=[1,10,12,3,4,5]
y=[1,2,3,4,5]

9. What is z?

```
1 x=[1,2,3,4,5]
2 y=[10,11,13,14,15]
3 z=[]
4 for i in range(len(x)):
5     z.append(y[i]+x[i])
6
```

z=[11,13,16,18,20]

range(5) give list [0,1,2,3,4]
And for loop will run 5 times
→ we are adding the value of data containers

10. What is M1[2] ? = 1

```
1 M1=[4,2,1,3,1,2]
2 M2=range(len(M1)-1) = list(range(len(M1)-1))
3 M3=range(M2[3]+M1[2])
4
```

11. What is M2[M3[2]+1] ? = 7

```
1 M1=[4,2,1,3,1,2]
2 M2=range(len(M1)-1)
3 M3=range(M2[3]+M1[2])
4
```

$M_2 = \text{range}(5) = [0, 1, 2, 3, 4]$
 $M_3 = \text{range}(4) = [0, 1, 2, 3]$

12. What is M2[M2[M1[3]]] ? = 7

```
1 M1=[4,2,1,3,1,2]
2 M2=range(len(M1)-1)
3 M3=range(M2[3]+M1[2])
4
```

13. What is z[8]+z[3] ? = 6

```
1 M1=[4,2,1,3,1,2]
2 M2=range(len(M1)-1)
3 M3=range(M2[3]+M1[2])
4 z=list(M1) + list(M3)
5
```

$[0, 1, 2, 3, 4, 1, 0, 1, 2, 3]$

14. What is b[3] ? = 15

```
1 vv=[2,1,4,5,3]
2 a=[2,4,4,2,4]
3 b=[]
4 for i in vv:
5     if i<4:
6         b.append(i)
7     else:
8         x=i*3
9         b.append(x)
10
```

$b = [2, 1, 2, 15, 3]$

Difference with #16

15. What is b[3] ?

```
1 vv=[2,1,4,5,3]
2 a=[2,4,4,2,4]
3 b=[]
4 for i in vv:
5     if i<4:
6         b.append(i)
7     else:
8         x=i*3
9         b.append(x)
10
```

Mind
Difference
of #14 and #16

16. What is c[4]? =12

```

1 vv=[2,1,4,5,3]
2 a=[2,4,4,2,4]
3 c=[]
4 for i in range(len(vv)):
5     if i<4:
6         c.append(vv[i]+a[i])
7     else:
8         x=i*3
9         c.append(vv[i]*a[i])
10

```

range(5) = [0, 1, 2, 3, 4]

$\therefore c = [4, 5, 8, 7, 12]$

$i=0 \quad vv[i] + a[i] = 4$
 $i=1 \quad = 5$
 $i=2 \quad = 8$
 $i=3 \quad = 7$
 $i=4 \quad = 12$

17. What is m?

```

1 m = np.array([1,2,3,4,5,6])
2 m[0:2]=[10,11]
3

```

$m = [10, 11, 3, 4, 5, 6]$

18. What is v?

```

1 v=np.array([1,4,5,6])
2 v[0:2]=[8,9]
3

```

$v = [8, 9, 5, 6]$

19. What is v?

```

1 v=np.array([1,4,5,6])
2 w=np.array([20,15,10,5])
3 v[1:3]=w[0:2]
4

```

$v = [1, 20, 15, 6]$

20. What is m1[0,1]? = [6]

```

1 m1 = np.array([1,2,3])
2 m2 = np.array([5,4,3])
3 m3=m1+m2
4

```

$m3 = [6, 6, 6]$

21. What is a?

```

1 a = np.arange(5)
2 a[2]=8.5
3

```

$a = [0, 1, 8.5, 3, 4]$

22. What is a?

```

1 a = np.arange(5)
2 a = a*2.5
3 a[2]=7.7
4

```

$a = [0, 2.5, 7.7, 7.5, 10]$

23. What is a?

```

1 a = np.arange(5.)
2 a[2]=8.5
3

```

$a = [0, 1, 8.5, 3, 4]$

24. What is c?

```

1 a = np.arange(5)
2 b = np.arange(4)
3 c = a+b
4

```

$a = [0, 1, 2, 3, 4]$
 $b = [0, 1, 2, 3]$
 $c = a+b$

They have different size.