Tutorials on list structures in Python

Q 1> Predict the output:

```
x = "Bennett"

print(x[3])

print(x[1:4])

print(x[3: ])

print(x[ :4])

print(x[1 : -2])

print(x[-3 : ])

print(x[ : -2])

print(x[1:6:2])
```

Solution:

```
n
enn
nett
Benn
enne
ett
Benne
ent
```

Q 2> Predict the output:

```
x= "Bennett"

print(x[3])

x= ["I" ,  "Am" , "Ironman"]

print(x[2])

x= [["I", "Am"] , ["Ironman"]]

print(x[0][1])

print(x[1][0])
```

Solution:

```
n
Ironman
Am
Ironman
```

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Q 3> Predict the output

```
List = [['Python ', 'is' ], ['Easy']]

print("\nMulti-Dimensional List: ")

print(List)

List = [1, 2, 'Python', 4, 'is', 6, 'Easy']

print("\nList with the use of Mixed Values: ")

print(List)
```

Solution:

```
Multi-Dimensional List:
[['Python ', 'is'], ['Easy']]

List with the use of Mixed Values:
[1, 2, 'Python', 4, 'is', 6, 'Easy']
```

Q 4> Predict the output: (difference between append, insert and extend)

```
List = [1,2,3,4]

List.append(12)

print(List)

List.insert(3, 12)

print(List)

List.extend([ 'Bennett', 'University'])

print(List)
```

Solution:

```
[1, 2, 3, 4, 12]
[1, 2, 3, 12, 4, 12]
[1, 2, 3, 12, 4, 12, 'Bennett', 'University']
```

Q 5> Predict the output (difference between remove and pop)

```
List = [1, 2, 3, 4, 5, 6, 7, 8, 7, 10, 11, 12]

List.remove(7)

print(List)

for i in range(1, 5):
```


```
    List.remove(i)
print(List)
List = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12]
List.remove(7)
print(List)
List.pop(7)
print(List)
```

Solution:

```
[1, 2, 3, 4, 5, 6, 8, 7, 10, 11, 12]
[5, 6, 8, 7, 10, 11, 12]
[1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12]
[1, 2, 3, 4, 5, 6, 8, 10, 11, 12]
```

Q 6> What will be the output

```
data = [x for x in range(5)]
temp = [x for x in range(7) if x in data and x%2==0]
print(temp)
```

Solution:

```
[0, 2, 4]
```

Q 7> What will be the output?

```
Data = ['bennett', 'university', 'rocks']
Temp = [i[0].upper() for i in Data]
print(Temp)
```

Solution:

```
['B', 'U', 'R']
```

Q 8> What will be the output?

```
list1 = ['bennett', 'university', 1997, 2000]
print("list1[1][1]: ", list1[1][1])
```

print("list1[1][-1]: ", list1[1][-1])

Solution:

```
list1[1][1]:  n
list1[1][-1]:  y
```

Q 9> what will be the output? (justification of mutability of list)

```
x = [1]
print(id(x),':',x)
x.append(5)
x.extend([6,7])
print(id(x),':',x)
```

Solution:

```
2113424741312 : [1]
2113424741312 : [1, 5, 6, 7]
```

Q 10 > List stores values or pointers?

```
a = [1,2,3]
print( id(a))

print( id(a[0]))
print( id(a[1]))
```

Solution:

```
2113425990144
140737066645280
140737066645312
```

Q 11> Shallow coping of a list by copy()

```
round1 = ['chuck norris', 'bruce lee', 'sonny chiba']

round2 = round1.copy()

round1.remove('sonny chiba')

print(round1)

print(round2)
```

Solution:

```
['chuck norris', 'bruce lee']
['chuck norris', 'bruce lee', 'sonny chiba']
```

Q 12> Predict the output

```
from collections import Counter

list = ['blue', 'pink', 'green', 'green', 'yellow', 'pink', 'orange']

print(Counter(list))
```

Solution:

```
Counter({'pink': 2, 'green': 2, 'blue': 1, 'yellow': 1, 'orange': 1})
```

Q 13> Predict the output

```
lst = ['python', 'is', 'cool', 'language']

for i in range(len(lst)+1):

   print(lst[i])
```

Solution:

```
python
is
cool
language
```

Q 14> Predict the output

```
from functools import reduce

li = [5, 8, 10, 20, 50, 100]

sum = reduce((lambda x, y: x + y), li)

print (sum)
```

Solution:

```
193
```

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