1 .Write code snippet to perform following on List

a)Program to illustrate basic operations on List

```
List = []
for i in range(1, 10):
    List. append(i)
print("List after Addition of elements from 1-10: ")
print(List)
List.extend([11,12,13])
print(List)
List.insert(14,25)
print(List)
List.remove(4)
print(List)
List.pop(4)
print(List)
print("the reverse",List[::-1])
print("List after Repetition")
print (List * 2)
print("List after Concatenation")
print( List + [11,12,13])
print("List membership operator")
print( 10 in List)
print( 6 in List)
print("The length of the list" ,len(List))
```

Output:
```
List after Addition of elements from 1-10:
[1, 2, 3, 4, 5, 6, 7, 8, 9]
[1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13]
[1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 25]
[1, 2, 3, 5, 6, 7, 8, 9, 11, 12, 13, 25]
[1, 2, 3, 5, 7, 8, 9, 11, 12, 13, 25]
the reverse [25, 13, 12, 11, 9, 8, 7, 5, 3, 2, 1]
List after Repetition
[1, 2, 3, 5, 7, 8, 9, 11, 12, 13, 25, 1, 2, 3, 5, 7, 8, 9, 11, 12, 13, 25]
List after Concatenation
[1, 2, 3, 5, 7, 8, 9, 11, 12, 13, 25, 11, 12, 13]
List membership operator
False
False
The length of the list 11
```

b) Programs to illustrate indexing and slicing
```
list = [1,2,3,4,5,6,7]
print(list[0])
print(list[1])
print(list[-2])
print(list[-3])
# Slicing the elements
print(list[0:6])
```

```
print(list[:])
print(list[2:5])
print(list[1:6:2])
```
Output:
```
1
2
6
5
[1, 2, 3, 4, 5, 6]
[1, 2, 3, 4, 5, 6, 7]
[3, 4, 5]
[2, 4, 6]
```

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c) Programs to illustrate List Comprehension

1. Program to add odd elements in a list
```
number=[x for x in range(20) if x%2!=0]
print(number)
```
output
```
[1, 3, 5, 7, 9, 11, 13, 15, 17, 19]
```

2. Program to print even or odd for first 10 whole numbers in a list
```
number1=["even" if y%2==0 else "odd" for y in range(10)]
print(number1)
```

output
```
['even', 'odd', 'even', 'odd', 'even', 'odd', 'even', 'odd', 'even', 'odd']
```

3. Program to find square root of first 10 natural numbers
```
sqroot=[x**2 for x in range(1,11)]
print(sqroot)
```
output
```
[1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

4. Program to find first 10 powers of 2
```
tworoot=[2**x for x in range(1,11)]
print(tworoot)
```
output
```
[2, 4, 8, 16, 32, 64, 128, 256, 512, 1024]
```

5. Program to print the string
```
h = [ i for i in 'human' ]
print( h)
```

output
```
['h', 'u', 'm', 'a', 'n']
```