Programming Questions (lists):

1. Write a python program to create a list and print all the items in reverse index order(without using reverse() method) ?

program

```
#program to print items in reverse order without reverse
method
ls=[]
n=1
while(n<=10):
    x=input("enter element:")
    ls.append(int(x))
    n=n+1
print(ls[::-1])
```

output

```
enter element:6
enter element:6
enter element:4
enter element:5
enter element:8
enter element:9
enter element:5
enter element:6
enter element:3
enter element:7
[7, 3, 6, 5, 9, 8, 5, 4, 6, 6]
```

2. Write a Python function that takes two lists and returns True if they have at least one common member

program

```
def common(list1, list2):
    result = False
    for x in list1:
        for y in list2:
            if x == y:
                result = True
                return result
lst1 = []
lst2 = []
n = int(input("range="))
for i in range(0, n):
    ele = int(input("%d element=" %i))

    lst1.append(ele)

for i in range(0, n):
    ele = int(input("%d element=" %i))

    lst2.append(ele)

print(common(lst1, lst2))
```

output

```
range=5
0 element=2
1 element=3
2 element=4
3 element=4
4 element=5
0 element=6
1 element=4
2 element=3
3 element=5
4 element=7
True
```

```
range=4
0 element=2
1 element=3
2 element=4
3 element=5
0 element=6
1 element=7
2 element=8
3 element=9
None
```

3. Write a Python program to illustrate operations of queues using list

program

```
queue = [20,-9,-3,2,1]
print("stack originally:", stack)
queue.append(15)
queue.append(100)
print("stack after push operation:", queue)
queue.pop(0)
print("stack after pop operation:", queue)
print("value obtained after peek operation:",
queue[len(queue)-1])
```

output

```
queue originally: [20, -9, -3, 2, 1]
queue after push operation: [20, -9, -3, 2, 1, 15, 100]
queue after pop operation: [-9, -3, 2, 1, 15, 100]
value obtained after peek operation: 100
```

4. Write a Python program to illustrate operations of stacks using list

program

```
stack = [20,-9,-3,2,1]
print("stack originally:", stack)
stack.append(15)
stack.append(100)
print("stack after push operation:", stack)
stack.pop()
print("stack after pop operation:", stack)
print("value obtained after peek operation:", stack[len(stack)1])
```

output

```
stack originally: [20, -9, -3, 2, 1]
stack after push operation: [20, -9, -3, 2, 1, 15, 100]
stack after pop operation: [20, -9, -3, 2, 1, 15]
value obtained after peek operation: 15
```

5. Write a Python Program that finds the sum of all even numbers and odd numbers in a predefined list

program

```
ls=[2,3,4,6,7,8]
sum1=0
sum2=0
for item in ls:
    if(item%2==0):
        sum1=sum1+item
    else:
        sum2=sum2+item
print("sum of even numbers:",sum1)
print("sum of odd numbers:",sum2)
```

output

```
sum of even numbers: 20
sum of odd numbers: 10
```

6. Write a Python Program that creates a list of 10 integers. Then create two lists-Odd List and Even List that has all odd and even values in the list respectively

program

```
List=[]
even = []
odd = []
a = 10
n=int(a)
for i in range(1, n+1):
    value=int(input("%d st Element: " %i))
    List.append(value)

for i in range(n):
    if(List[i]%2==0):
        even.append(List[i])
    else:
        odd.append(List[i])
print("list of even numbers= ",even)
print("list of odd numbers= ",odd)
```

output

```
1 st Element: 1
2 st Element: 2
3 st Element: 3
4 st Element: 4
5 st Element: 4
6 st Element: 5
7 st Element: 6
8 st Element: 6
9 st Element: 4
10 st Element: 2
list of even numbers=  [2, 4, 4, 6, 6, 4, 2]
list of odd numbers=  [1, 3, 5]
```

7. Write a Python Program that creates a list of 20 numbers and then create a list that contains all the numbers from the original list that are divisible by 3

program

```
ls=[]
divisibleby3 = []
a = 20
n=int(a)
for i in range(1, 21):
    value=int(input("enter the Element:"))
    ls.append(value)

for item in ls:
    if(item%3==0):
        divisibleby3.append(item)
print("list of numbers divisible by 3 = ", divisibleby3)
```

output

```
enter the Element:3
enter the Element:2
enter the Element:4
enter the Element:5
enter the Element:6
enter the Element:7
enter the Element:3
enter the Element:4
enter the Element:5
enter the Element:8
enter the Element:4
enter the Element:5
enter the Element:2
enter the Element:4
enter the Element:5
enter the Element:6
enter the Element:6
enter the Element:4
enter the Element:3
enter the Element:4
list of numbers divisible by 3 =  [3, 6, 3, 6, 6, 3]
```

8. Write a Python Program that counts the number of times a value appears in the list without using built in function

program

```
n=int(input("total number of list elements:"))
List = []
for i in range(1, n+1):
    value=int(input("%d st Eleement:" %i))
    List.append(value)
y = int(input("element to be searched:"))
count = 0
for item in List:
    if(item == y):
        count = count + 1
print("the number of times", y ,"has repeated in the list is",
count)
```

output

```
total number of list elements:5
1 st Eleement:4
2 st Eleement:5
3 st Eleement:6
4 st Eleement:6
5 st Eleement:7
element to be searched:4
the number of times 4 has repeated in the list is 1
```

9. Python program to find smallest number from list

program

```
n=int(input("total number of list elements: "))
List = []
for i in range(0, n):
    value=int(input("%d st Element: " %i))
    List.append(value)
List.sort()
print(List[0])
```

```
total number of list elements: 5
0 st Element: 4
1 st Element: 6
2 st Element: 8
3 st Element: 3
4 st Element: 4
3
```

10. Write Python program to swap two numbers using functions. (Write without using intermediate/temporary variables). Prompt the user for input.

program

```
def swap(A,B):
    A,B = B,A
    print("after swapping")
    print("a:", A, "b:", B)
a = int(input("enter A:"))
b = int(input("enter B:"))
print("a:", a, "b:", b)
swap(a,b)
```

output

```
enter A:20
enter B:50
a: 20 b: 50
after swapping
a: 50 b: 20
```

11. Find the area and perimeter of a circle using functions. Prompt the user for input

program

```
#find area and perimeter of circle using functions
import math
def circle(r):
    area=math.pi*r*r
    print("area of circle:",area)

    p=2*math.pi*r
    print("perimeter of circle:",p)
r=eval(input("enter radius:"))
circle(r)
```

output

```
enter radius:4
area of circle: 50.26548245743669
perimeter of circle: 25.132741228718345
```

```
enter radius:2
area of circle: 12.566370614359172
perimeter of circle: 12.566370614359172
```

12. Write a Python Program to check whether the number is prime or not

program

```
#to check wether the number is prime or not
n=eval(input("enter a number:"))
if(n>1):
   for i in range(2,n):
      if(n%i==0):
         print(n,"is not a prime number(composite)")
         break
   else:
      print(n,"is a prime number")
else:
   print("neither prime nor composite")
```

```
enter a number:7
7 is a prime number
```

```
enter a number:4
4 is not a prime number(composite)
```

```
enter a number:0
neither prime nor composite
```

13. Implement a python program using lists to store and display the average of ‘n’ numbers accepted from the user

program

```
n=eval(input("enter number of elements to be entered:"))
ls=[]
sum=0
for i in range(1,n+1):
    x=eval(input("enter element:"))
    ls.append(x)
    sum=sum+x
avg=sum/len(ls)
ls1=[avg]
print("the average of numbers entered:",avg)
```

output

```
enter number of elements to be entered:5
enter element:5
enter element:7
enter element:6
enter element:4
enter element:5
the average of numbers entered: 5.4
```

14. Write a python program to accept ‘n’ numbers from the user, find sum of all even numbers and product of all odd numbers in the entered list

program

```
n=eval(input("enter number of elements to be entered:"))
ls=[]
sum1=0
product=1
for i in range(1,n+1):
    x=eval(input("enter element:"))
    ls.append(x)
    if(x%2==0):
        sum1=sum1+x
    else:
        product=product*x
print("the sum of even numbers entered:",sum1)
print("the product of odd numbers entered:",product)
```

output

```
enter number of elements to be entered:5
enter element:3
enter element:4
enter element:5
enter element:6
enter element:7
the sum of even numbers entered: 10
the product of odd numbers entered: 105
```

15. Write a Python Program that reads ‘n’ elements from the user and creates a list, and then display the same

program

```
n=eval(input("enter number of elements to be entered:"))
ls=[]
for i in range(1,n+1):
    x=eval(input("enter element:"))
    ls.append(x)
print(ls)
```

output

```
enter number of elements to be entered:5
enter element:4
enter element:6
enter element:7
enter element:4
enter element:2
[4, 6, 7, 4, 2]
```