Py2.py - C:/asg/Py2.py (3.11.2)

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```
print("Sharan Shetty 60004220224 C151 C3-1")

rings = int(input("Enter the number of rings in the tower- "))
def hanoi(n, source, aux, target):
    if n==1:
        print(f"Ring 1 from {source} to {target}")
    else:
        hanoi(n-1, source, target, aux)
        print(f"Ring {n} from {source} to {target}")
        hanoi(n-1, aux, source, target)

hanoi(rings,'A','B','C')
```

Ln: 12 Col: 20

IDLE Shell 3.11.2

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```
Python 3.11.2 (tags/v3.11.2:878ead1, Feb  7 2023, 16:38:35) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:/asg/Py2.py ==========
Sharan Shetty 60004220224 C151 C3-1
Enter the number of rings in the tower- 3
Ring 1 from A to C
Ring 2 from A to B
Ring 1 from C to B
Ring 3 from A to C
Ring 1 from B to A
Ring 2 from B to C
Ring 1 from A to C
>>>
```

Ln: 14 Col: 0

Py2.py - C:/asg/Py2.py (3.11.2)

File Edit Format Run Options Window Help

```
print("Sharan Shetty 60004220224 C151 C3-1")

a=int(input("Enter first number: "))
b=int(input("Enter second number: "))

x=lambda a,b:(a if a>b else b)

print("Greater number: ",x(a,b))
```

Ln: 9 Col: 0

IDLE Shell 3.11.2

File Edit Shell Debug Options Window Help

```
Python 3.11.2 (tags/v3.11.2:878ead1, Feb  7 2023, 16:38:35) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:/asg/Py2.py ==========
Sharan Shetty 60004220224 C151 C3-1
Enter first number: 10
Enter second number: 15
Greater number:  15
>>>
```

Ln: 9 Col: 0

Py2.py - C:/asg/Py2.py (3.11.2)

File Edit Format Run Options Window Help

```
print("Sharan Shetty 60004220224 C151 C3-1")

addition=lambda x,y:x+y

l1=[]
l2=[]
n = int(input("Enter length of lists: "))

print("Enter elements of list one")
for i in range(n):
    a = int(input("Enter element: "))
    l1.append(a)
print("Enter elements of list two")
for i in range(n):
    b = int(input("Enter element: "))
    l2.append(a)

print("List one ",l1)
print("List two ",l2)

ans=list(map(addition,l1,l2))
print(ans)
```

Ln: 22 Col: 10

IDLE Shell 3.11.2

File Edit Shell Debug Options Window Help

```
Python 3.11.2 (tags/v3.11.2:878ead1, Feb  7 2023, 16:38:35) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:/asg/Py2.py ==========
Sharan Shetty 60004220224 C151 C3-1
Enter length of lists: 5
Enter elements of list one
Enter element: 1
Enter element: 2
Enter element: 3
Enter element: 4
Enter element: 5
Enter elements of list two
Enter element: 6
Enter element: 7
Enter element: 8
Enter element: 9
Enter element: 10
List one  [1, 2, 3, 4, 5]
List two  [5, 5, 5, 5, 5]
[6, 7, 8, 9, 10]
>>>
```

Ln: 22 Col: 0

Py2.py - C:/asg/Py2.py (3.11.2)

File Edit Format Run Options Window Help

```
print("Sharan Shetty 60004220224 C151 C3-1")

l=[]
n = int(input("Enter length of list: "))

for i in range(n):
    a = int(input("Enter element: "))
    l.append(a)
print(l)

oddnos=list(filter(lambda x: x%2!=0,l))
cube=list(map(lambda x: x**3,oddnos))
print("Answer ",cube)
```

Ln: 13 Col: 16

IDLE Shell 3.11.2

File Edit Shell Debug Options Window Help

```
Python 3.11.2 (tags/v3.11.2:878ead1, Feb  7 2023, 16:38:35) [MSC v.1934 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
========== RESTART: C:/asg/Py2.py ==========
Sharan Shetty 60004220224 C151 C3-1
Enter length of list: 5
Enter element: 1
Enter element: 2
Enter element: 3
Enter element: 4
Enter element: 5
[1, 2, 3, 4, 5]
Answer  [1, 27, 125]
>>>
```

Ln: 14 Col: 0

Shaaa Shetty

Experiment-2

* Lambda function:- A lambda f^n in Python also is a compact and anonymous way to define small and simple functions.
Lambda functions are typically used for a quick one-time f^n for a short operation.
  - Key operations of lambda functions:-
    i. Concise.
    ii. Anonymous
    iii. Limited scope

eg:- add = lambda x,y : x+y
result = add(2,3)

* Map function:- Mapping refers to process of applying a given function to each element of a collection to transform or derive a new collection of results.
  - Characteristics of map function:-
    i. Transform data
    ii. Apply a function to each element
    iii. Return a new iterable.

eg:- square = lambda x : x*x
l = [1,2,3,4,5]
print(list(map(square, l)))
output = [1,4,9,16,25]

* Filter function:- Filter function is used to filter elements from an iterable (such as list) based on specific condition or function.
It creates a new iterable containing only the elements that satisfy the given condition, effectively removing elements that do not match the criteria.

- Key characteristics of filter function:-

i. Filters based on conditions

eg:-

```
no=[1,2,3,4,5]
def is_even(x)
  return x%2==0

even_no=list(filter(is_even, no))
print(even_no)
```

output:- [2, 4]

* Tower of Hanoi:- We solved tower of hanoi using recursive function whose main objective is to move entire stack from one peg to another.

Conclusion:- Recursive function was implemented and we also learnt map and filter functions and their use in question.