Solution 1:

```
stars = int(input('Enter number of stars:'))

#looping to print * in incremental pattern
for i in range (stars):
    print('*'*(i+1))

#looping to print * in decremental pattern
for j in range (stars):
    print('*'*(stars-j-1))
```

Output:

```
Enter number of stars:5
*
**
***
****
*****
****
***
**
*
```

Explanation:

Firstly declared ‘stars’ to input the maximum range of stars to print. Then looping to print the stars in incremental fashion till the input ‘stars’ and then looping to print the stars in decremental fashion.

Solution 2:

```
my_list = [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]

count=len(my_list)

#looping to print the odd indices by incrementing by 2
for i in range(1, count,2):
    print(my_list[i])
```

Output:

```
20
40
60
80
100
```

Explanation:

Used len() built-in function to count the list. Looped to print the values of odd indices in the given list by incrementing by 2 till the count.

Solution 3:

```
x = [23, 'Python', 23.98]

#declaring an empty list
l=[]

#looping to append the type of elements in list with type() built-in function
for i in x:
    l.append(type(i))
print(l)
```

Output:

```
[<class 'int'>, <class 'str'>, <class 'float'>]
```

Explanation:

Declared an empty list ‘l’. Then looped in the given list ‘x’ to append the type of elements (using type() built-in function) to the empty list ‘l’ and then printed ‘l’.

Solution 4:

```
def sample_list(l):

    #declaring an empty list
    l2=[]

    #looping to append the unique list in l2 empty list
    for i in l:
        if i not in l2:
            l2.append(i)
    return l2

print('The unique list from the given sample list is:', sample_list([1,2,3,3,3,3,4,5]))
```

Output:

```
The unique list from the given sample list is: [1, 2, 3, 4, 5]
```

Explanation:

Defined a parameterized function ‘sample_list(l)’ and declared an empty list ‘l2’. Looped to append the unique elements to empty list by using if condition where in the elements to be appended only if the elements are not already present in ‘l2’ list. Finally printed the output by calling the ‘sample_list()’ function by providing the parameters.

Solution 5:

```
enter_string = input('Enter a string to calculate count of upper and lower case characters:')

upper_case_count = 0
lower_case_count = 0

#looping to count the lower and upper case characters using built-in functions
for letter in enter_string:
    if letter.islower():
        lower_case_count+=1

    elif letter.isupper():
        upper_case_count+=1

print('No. of Upper-case characters:', upper_case_count)
print('No. of Lower-case characters:', lower_case_count)
```

Output:

```
Enter a string to calculate count of upper and lower case characters:The quick Brow Fox
No. of Upper-case characters: 3
No. of Lower-case characters: 12
```

Explanation:

Declared ‘enter_string’ to input the string. Looped each and every character in ‘enter_string’ to count the lower and upper case characters by using islower() and isupper() built-in functions with the help of if condtion. If the character is lower case the ‘lower_case_count’ will be incremented by 1 else if the character is upper case the ‘upper_case_count’ will be incremented by 1 in the loop.

Video Link:

https://drive.google.com/file/d/1idpH9UjdMOkb7rLSVHnWcWkFnqMyt5KI/view?usp=drive_link

GitHub Link:

https://github.com/shruthikatkam26/MachinelearningICP2.git