CSE110 Lab Assignment 4

This Assignment is to help you develop your concept of Lists in Python.

Write your name, student ID and CSE110 theory section number below:

In [ ]:
```
#STUDENT NAME:M. ASADUZ ZAMAN
#STUDENT ID:21101050
#CSE110 THEORY SECTION: 10
```

Write the code in Python to do the following tasks:

[MUST MAINTAIN VARIABLE NAMING CONVENTIONS FOR ALL THE TASKS]

Task 1

Write a Python program that reads 10 numbers from the user into a list. After reading each number, print all the numbers that have been entered so far in the list.

Example:\ After the user enters 3, prints “Numbers in the list: [3]”\ After the user enters 5, prints “Numbers in the list: [3, 5]”\ After the user enters 34, prints “Numbers in the list: [3, 5, 34]”\ .... and so on

In [6]:
```
numlist=[]
for i in range(10):
    num=int(input("Enter an Element"))
    numlist.append(num)
    print(numlist)
```

```
Enter an Element3
[3]
Enter an Element1
[3, 1]
Enter an Element2
[3, 1, 2]
Enter an Element3
[3, 1, 2, 3]
Enter an Element4
[3, 1, 2, 3, 4]
Enter an Element5
[3, 1, 2, 3, 4, 5]
Enter an Element6
[3, 1, 2, 3, 4, 5, 6]
Enter an Element7
[3, 1, 2, 3, 4, 5, 6, 7]
Enter an Element8
[3, 1, 2, 3, 4, 5, 6, 7, 8]
Enter an Element9
[3, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

Task 2

Write a Python program that takes a list as an input from the user.Then creates a new list excluding the first and last two elements of the given list and prints the new list. If there are not enough elements in the list to do the task, the print "Not possible".

Note: You may use list slicing.

==========

Sample Input 1:
[10, 20, 24, 25, 26, 35, 70]
Sample Output 1:
[24, 25, 26]

==========

Sample Input 2:
[10, 20, 24, 25, 26]
Sample Output 2:
[24]

==========

Sample Input 3:
[10, 20, 24, 25]
Sample Output 3:
[]

==========

Sample Input 4:
[10, 20, 24]
Sample Output 4:
Not possible

==========

In [7]:
```
numlist=[]
num=input("Eamter a number").split(",")
lenght=(len(num))
if lenght<4 :
    print("Not Possible")
elif lenght ==4 :
    print([])
else:
    for index in range(2,lenght-2):
        print(num[index])
```

```
Eamter a number10, 20, 24
Not Possible
```

Task 3

Write a python program that reads 5 numbers from the user into a list, and then prints them in the reverse order.

Hint: You may create a list to store the input numbers and then use loop to print them in reverse order

==========

Sample Input:\ 5\ -5\ 100\ 1\ 0

Sample Output:\ 0\ 1\ 100\ -5\ 5

==========

In [3]:
```
numlist=[]
for i in range(5):
    num=int(input("Enter a number"))
    numlist+=[num]
for i in range (len(numlist)-1,-1,-1):
 print(numlist[i])
```

```
Enter a number5
Enter a number-5
Enter a number4
Enter a number6
Enter a number7
7
6
4
-5
5
```

Task 4

Assume, you have been given two lists. [Your program should work for any two given lists; change the following lists and check whether your program works correctly for the code you have written]

list_one = [1, 2, 3, 4, 5, 6, 7, 8, 9]\ list_two = [10, 11, 12, -13, -14, -15, -16]

Write a Python program that creates a new list with all the **even elements** of both of the given lists and prints the new list.

Hint: You may create a third list to store the even elements of the given lists.

==========

Output for the above lists: [2, 4, 6, 8, 10, 12, -14, -16]

==========

In [5]:
```
list_one = [1,2,3,4,5,6,7,8,9]
list_two = [10,11,12,-13,-14,-15,-16]
list_three= list_one+list_two
s=[]
for i in (list_three):
    if i%2==0:
       s+=[i]
print(s)
```

```
[2, 4, 6, 8, 10, 12, -14, -16]
```

Task 5

Write a Python program that takes numbers as input into a list, removes multiple occurences of any number and then finally prints a list **without duplicate values**.

Hint: You may create a third list to store the results. You can use membership operators (in, not in) to make sure no duplicates are added.

==========

Sample Input 1:
0, 0, 1, 2, 3, 4, 4, 5, 6, 6, 6, 7, 8, 9, 4, 4

Sample Output 1:
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]

==========

Sample Input 2:
7, 7, 7, 1, 0, 3, 3, 55, 9

Sample Output 2:
[7, 1, 0, 3, 55, 9]

==========

In [1]:
```
number_list=input("enter elements").split(",")
number=[]
for i in (number_list):
  if int(i) not in number:
     number+=[int(i)]
print(number)
```

```
enter elements7, 7, 7, 1, 0, 3, 3, 55, 9
[7, 1, 0, 3, 55, 9]
```

Task 6

Write a Python program that reads 5 numbers into a list and prints the largest number and its location or index position on the list. [You are not allowed to use the max(), sort(), sorted() function here]

Hint: Assume the first input to be the largest value initially and the largest value's location to be 0.

Note: You may need to be careful while printing the output. Depending on your code, you might need data conversion.

==========

Sample Input:\ 7, 13, 2, 10, 6

Sample Output:\ My list: [7, 13, 2, 10, 6]\ Largest number in the list is 13 which was found at index 1.

==========

In [4]:
```
numlist=input("enter a number").split(",")
for i in range(len(numlist)):
  numlist[i]=int(numlist[i])
max=numlist[0]
s=0
for i in range (1,len(numlist)):
  if numlist[i]> max:
    max=numlist[i]
    s=[i]
print("Largest number in the list is {",max,"} which was found at index {",s,
"}")
```

```
enter a number7, 13, 2, 10, 6
Largest number in the list is { 13 } which was found at index { [1] }
```

Task 7

Assume, you have been given two lists. [Your program should work for any two given lists; make changes to the lists below and check whether your program works correctly]

list_one = [1, 2 , 2, 4, 5, 5, 7, 99, 200, 303, 70]\ list_two = [1, 1, 2, 3, 3, 3, 4, 5, 200, 500, -5]

Write a Python program that creates a new list with all the **unique elements** of both the given lists. **You need to make sure that there are no duplicates in the resulting list.** Finally, print the updated list.

Hint: You may create a third list to store the results. You can use membership operators (in, not in) to make sure no duplicates are added.

==========

Output for the above two lists: [1, 2, 4, 5, 7, 99, 200, 303, 70, 3, 500, -5]

==========

In [2]:
```
list_one = [1,2,2,4,5,5,7,99,200,303,70]
list_two = [1,1,2,3,3,3,4,5,200,500,-5]
list_three = []
for i in (list_one):
    if i not in (list_three):
        list_three.append(i)
for i in (list_two):
    if i not in (list_three):
        list_three.append(i)
print(list_three)
```

```
[1, 2, 4, 5, 7, 99, 200, 303, 70, 3, 500, -5]
```

Task 8

Write a Python program that takes two lists and prints True if they have at least one common member.

==========

Sample Input 1:\ List_one : [1, 4, 3, 2, 6]\ List_two : [5, 6, 9, 8, 7]

Sample Output 1:\ True

==========

Sample Input 2:\ List_one : [1, 4, 3, 2, 5]\ List_two : [8, 7, 6, 9]

Sample Output 2:\ False

==========

In [3]:
```
List_one : [1, 4, 3, 2, 6]
List_two : [5, 6, 9, 8, 7]
s=0
for i in list_one:
  if i in list_two:
   s=1
   break
if s==1:
  print("True")
else:
    print("False")
```

```
True
```

Task 9

Write a Python program that reads 10 numbers into a list and prints the numbers of that specified list after removing **even numbers** from it.

==========

Sample Input:

7,12,4,55,96,2,11,61,33,42

Sample Output:

[7, 55, 11, 61, 33]

==========

In [1]:
```
number=[]
for i in range(10):
    numberlist=int(input("Enter a number"))
    number.append(numberlist)
s=[]
for i in (number):
    if i%2==1:
       s.append(i)
print(s)
```

```
Enter a number7
Enter a number12
Enter a number4
Enter a number55
Enter a number96
Enter a number2
Enter a number11
Enter a number61
Enter a number22
Enter a number42
[7, 55, 11, 61]
```

Task 10

Write a Python program that reads an integer N. After, read N inputs from the user and create a list of N items and print the list. Then remove the Empty strings from the list and print the new list.

==========

Sample Input:

8
hey
there

what's

up

?

Sample Output:

Original List: ["hey", "there", " ", "what's", " ", "up", " ", "?"]

Modified List: ["hey", "there", "what's", "up", "?"]

==========

In [8]:
```
original = int(input('How may times: '))
modified = []

for i in range(original ):
    num = input('Enter names:')
    if num != '' and num != ' ':
        modified.append(num)
print(modified)
```

```
How may times: 8
Enter names:hey
Enter names:
Enter names:there
Enter names:
Enter names:how
Enter names:are
Enter names:
Enter names:you
['hey', 'there', 'how', 'are', 'you']
```

Task 11

Write a Python program that replaces the last element of first list with second list.

==========

Sample Input 1:\ List_one : [1, 4, 7, 5]\ List_two : [6, 1, 3, 9]

Sample Output 1:\ [1, 4, 7, 6, 1, 3, 9]

==========

Sample Input 2:\ List_one : [1, 3, 5, 7, 9, 10]\ List_two : [2, 4, 6, 8]

Sample Output 2:\ [1, 3, 5, 7, 9, 2, 4, 6, 8]

==========

In [2]:
```
list1=[1,4,7,5]
list2=[6,1,3,9]
list1[-1:]=list2
print(list1)
```

```
[1, 4, 7, 6, 1, 3, 9]
```

Task 12

Write a Python program that turns every item of a list into its square.

==========

Sample Input 1:\ [1, 2, 3, 4, 5, 6, 7]

Sample Output 1:\ [1, 4, 9, 16, 25, 36, 49]

==========

Sample Input 2:\ [3, 5, 1, 6]

Sample Output 2:\ [9, 25, 1, 36]

==========

In [1]:
```
squers=[a**2 for a in range(1,8)]
print(squers)
```

```
[1, 4, 9, 16, 25, 36, 49]
```

Optional Tasks (13-15) [Ungraded]

Task 13

Write a Python program that reads 5 numbers into a list and prints the smallest and largest number and their locations in the list. [You are not allowed to use the max(), min(), sort(), sorted() functions here]

Hint: You may assume the first input to be the largest value initially and the largest value's location to be 0. Similarly, you can assume the first input to be the smallest value initially and the smallest value's location to be 0.

Note: You may need to be careful while printing the output. Depending on your code, you might need data conversion.

==========

Sample Input:\ 7, 13, -5, 10, 6

Sample Output:\ My list: [7, 13, -5, 10, 6]\ Smallest number in the list is -5 which was found at index 2\ Largest number in the list is 13 which was found at index 1

==========

In [ ]:
```
#to do
```

Task 14

Write a Python program that takes two lists as an input from the user. Then print a new list with the **common elements** of both the input lists.

Hint: You may need to create a third list to store the results. You can use membership operators (in, not in) to make sure similar elements are added.

==========

Sample Input 1:
A, B, C, D

C, E , F, B

Sample Output 1:
['C', 'B']

==========

Sample Input 2:
1, 3, A, H, P

A, G, 1, P, O

Sample Output 2:
['1', 'A', 'P']

==========

```
In [ ]: # to do
```

Task 15

Write a Python program that reads 5 numbers into a list and prints the second largest number and its location or index position on the list. [You are not allowed to use the max(), sort(), sorted() function here]

==========

Sample Input:\ 7, 13, 2, 10, 6

Sample Output:\ My list: [7, 13, 2, 10, 6]\ Second largest number in the list is 10 which was found at index 3.

==========

```
In [ ]: # to do
```