Lab Manual 5.1

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#Looping through list
'''list1 = ["cherry", "orange", "kiwi", "mango"]
list2 = ["apple", "banana", "cherry"]
for x in list2:
  print(x)
  list1.append(x)
  print(list1)


for i in range(4):
  print(list1[i])

for i in range(4):
  print(list1[i], end=' ')'''
# Program to find the sum of all numbers stored in a list # List of
numbers
'''numbers = [6, 5, 3, 8, 4, 2, 5, 4, 11]
# variable to store the sum
sum = 0
pro = 0
# iterate over the list
for val in numbers:
    sum = sum + val
    pro = sum * val

print("The sum is", sum)
print("The product is", pro)'''
#Calculate the square of each number of list

'''numbers = [1, 2, 3, 4, 5]
# iterate over each element in list num
for i in numbers:
    # ** exponent operator
    square = i ** 2
    print("Square of:", i, "is:", square)'''

#Calculate the average of list of numbers

'''numbers = {10, 20, 30, 40, 50}

# definite iteration
# run loop 5 times because list contains 5 items
sum = 0
for i in numbers:
    sum = sum + i
list_size = len(numbers)
average = sum / list_size
print(average)'''




#Loop Through a Tuple

'''thistuple = ("apple", "banana", "cherry")
for x in thistuple:
  print(x)'''
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# Program to find the sum of all numbers stored in a tuple
'''numbers = (6, 5, 3, 8, 4, 2, 5, 4, 11)
# variable to store the sum
sum = 0
# iterate over the list
for val in numbers:
    sum = sum + val
    print("The sum is", sum)'''
#Loop throu sets

'''thisset = {"apple", "banana", "cherry"}
for x in thisset:
  print(x)
# Program to find the sum of all numbers stored in a set
numbers = {6, 5, 3, 8, 4, 2, 5, 4, 11}
# variable to store the sum
sum = 0
# iterate over the list
for val in numbers:
    sum = sum + val
    print("The sum is", sum)'''
#Loop Through a Dictionary


'''thisdict = {
  "brand": "Ford",
  "model": "Mustang",
  "year": 1964
}
for x in thisdict:
  print(x)

for x in thisdict.values():
  print(x)
for x in thisdict.keys():
  print(x)
for x, y in thisdict.items():
  print(x, y)'''

# Program to find the sum of all values and keys stored in a
dictionary

'''numbers = {1:6, 2:5, 3:3, 4:8, 5:4, 6:2, 7:5, 8:4, 9:11}
# variable to store the sum
sumv = 0
sumk = 0

product = 0
# iterate over the list
for x in numbers.values():
    sumv = sumv + x
    print("The sum of values", sumv)
for y in numbers.keys():
    sumk = sumk + y
    print("The sum of keys", sumk)


print(sumv)
print(sumk)
product = sumv*sumk
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print(product)'''


#Looping Through a String

'''for x in "Hello CyberSecurity":
  print(x, end=' ')'''

#With the break statement we can stop the loop before it has looped
through all the items:

'''fruits = ["apple", "banana", "cherry", "kiwi", "mango"]
for x in fruits:
  print(x)
  if x == "banana":
    break'''

#Exit the loop when x is "banana", but this time the break comes
before the print:

'''fruits = ["apple", "banana", "cherry", "kiwi", "mango"]
for x in fruits:
  if x == "cherry":
    break
  print(x)'''
#Example: break the loop if number a number is greater than 15

'''numbers = [1, 4, 7, 8, 15, 20, 35, 45, 55]
for i in numbers:
    if i > 15:
        # break the loop
        break
    else:
        print(i)'''
#With the continue statement we can stop the current iteration of the
loop, and continue with the next:

'''fruits = ["apple", "kiwi", "cherry"]
for x in fruits:
  if x == "kiwi":
    continue
  print(x)'''

#With the continue statement for more than two values
'''fruits = ["apple", "kiwi", "cherry", "mango"]
for x in fruits:
  if x == "kiwi":
    continue
  if x == "cherry":
    continue
  print(x)'''
#Count the total number of ‘m’ in a given string.

'''name = "mariya mennen"
count = 0
for char in name:
    if char != 'm':
        continue
    else:
        count = count + 1
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print('Total number of m is:', count)'''


#To loop through a set of code a specified number of times, we can
use the range() function,

'''for x in range(6):
  print(x)

print("all done")'''

#The range() function defaults to 0 as a starting value,
# however it is possible to specify the starting value by adding a
parameter:

'''for x in range(2, 6):
  print(x)

for x in range(2, 6, 2):
  print(x)'''

#The range() function defaults to increment the sequence by 1,
however it is possible
# to specify the increment value by adding a third parameter: range(2,
30, 3):

'''for x in range(2, 30, 3):
  print(x)'''


#The else keyword in a for loop specifies a block of code to be
executed when the loop is finished:

'''for x in range(6):
  print(x)
else:
  print("Finally finished!")'''

#The else block will NOT be executed if the loop is stopped by a
break statement.#

'''for x in range(6):
  if x == 3: break
  print(x)
else:
  print("Finally finished!")'''
#Print all even and odd numbers

'''for i in range(1, 11):
    if i % 2 == 0:
        print('Even Number:', i)
    else:
        print('Odd Number:', i)'''


#A nested loop is a loop inside a loop. The "inner loop" will be
executed one time for each iteration of the "outer loop":

'''adj = ["red", "big", "tasty"]
fruits = ["apple", "banana", "cherry"]
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for x in adj:
  for y in fruits:
    print(x, y)'''
#Programs to print number pattern
'''rows = 6
# if you want user to enter a number, uncomment the below line
# rows = int(input('Enter the number of rows'))
# outer loop
for i in range(rows):
    # nested loop
    for j in range(i):
        # display number
        print(i, end=' ')
    # new line after each row
    print('')'''

#In each row, every next number is incremented by 1.

'''rows = 6
for i in range(1, rows):
    print(i)
    for j in range(1, i + 1):
        print(j, end=' ')
    print('')'''
#star pattern
# number of rows
'''rows = 5
for i in range(0, rows):
    # nested loop for each column
    for j in range(0, i + 1):
        # print star
        print("***", end=' ')
    # new line after each row
    print("\r")'''
#for loops cannot be empty, but if you for some reason have a for
loop
# with no content, put in the pass statement to avoid getting an
error.

'''for x in [0, 1, 2]:
  pass'''

'''num = [1, 4, 5, 3, 7, 8]
for i in num:
    # calculate multiplication in future if required
    pass'''

#Backward Iteration using the reversed() function

# Reversed numbers using reversed() function
'''list1 = [10, 20, 30, 40]
for num in reversed(list1):
    print(num)'''
#Reverse for loop using range()

'''print("Reverse numbers using for loop")
num = 5
# start = 5
# stop = -1
# step = -1
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for num in (range(num, -1, -1)):
    print(num)'''
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