**LISTS**

**Q) Print 9 random numbers**

Import random

randList = []

for i in range(9):

randList.append(random.randrange(1,9))

print(randList)

**Q) Bubble sort (goal is to have largest number at the end of the list) check if List[index] > List[index] +1 if so,swap**

**import** random  
randList = []  
**for** i **in** range(5):  
 randList.append(random.randrange(1,10))  
i = len(randList) - 1  
**while** i > 1:  
 j = 0  
 **while** j < i:  
 **if** randList[j] > randList[j+1]:  
 temp = randList[j]  
 randList[j] = randList[j+1]  
 **else**:  
 print()  
 j +=1  
 *# you are re-assigning j=0 again* i -=1 *# if list size is 5 then perform this iteration 5 times*print()  
**for** k **in** randList:  
 print(k,end=**','**)

**Q) Other list functions**

randList.sort()

randList.reverse()

randList.insert(5,10) # index 5 doesn’t exist previously

randList.remove(10)

randList.opo(2) # remove a value using an index number

**List comprehension:**

a = [i\*2 for i in range(10)]

# Create a multi-dimensional array

**import** math  
a = [i\*2 **for** i **in** range(10)]  
b = [[math.pow(i,2),math.pow(i,3),math.pow(i,4)]  
 **for** i **in** a]  
print(b)

**Q) create a 10x10 matrix with some number, say 7**

multiDList = [[7]\*10 **for** i **in** range(10)]  
multiDList[0][1] = 25  
*# in the same way, you can edit the numbers in the list*

**Q) Check y u need second for loop here**

multiDList = [[1]\*5 **for** i **in** range(5)]  
*# in the same way, you can edit the numbers in the list***for** i **in** range(1,5):  
 **for** j **in** range(1,5):  
 multiDList[i][j] = i\*j  
  
**for** k **in** range(1,5):  
 **for** l **in** range(1,5):  
 print(multiDList[k][l],end=**', '**)

**Recursive function: (fibinoci and factorial)**

Factorial:

**def** fact(num):  
 **if** num <= 1:  
 **return** 1  
 **elif** num > 1:  
 x = num \* fact(num -1)  
 **return** x  
print(fact(5))

def fib(n):

a,b = 0,1

while b<n:

print(b, end =’ ’)

a,b = b, a+b

print()

**def** fib\_recursive(n):  
 **if** n == 0:  
 **return** 0  
 **elif** n == 1:  
 **return** 1  
 **else**:  
 **return** fib\_recursive(n-1) + fib\_recursive(n-2)  
  
print([fib\_recursive(i) **for** i **in** range(20)])

**Read write file**

**import** os  
os.chdir(**"C:\\Users\\Rahul\\Desktop\\Python Learning\\"**)  
  
**with** open(**"abc.txt"**, mode= **"w"**,encoding= **"utf-8"**) **as** myFile:  
 myFile.write(**"hey hi how r u doing?\nAm doing good buddy\nThats sounds great\nahaann\nuhuuuunnn"**)  
**with** open(**"abc.txt"**, encoding= **"utf-8"**) **as** urFile:  
 x = urFile.readlines() *# will read all the lines in a list* print(urFile.read()) *# will read all the lines* print(urFile.readline()) *# will read each line in a file*print(len(x))  
y = 0  
**for** i **in** x:  
 **if** y<2:  
 print(i)  
 y +=1  
print(urFile.name)  
print(urFile.closed)  
print(urFile.mode)

os.rename(“abc.txt”,”bbc.txt”)

os.remove(“bbc.txt”)

os.mkdir(“week1”)

os.chdir(“week1”)