Nested Loop/For/Matrix Exercises!

(60 pts) Due Sunday at Midnight

Try doing these on paper without using Python's IDLE.

When I say, what are all the values that x becomes, I mean in essence show me what the x column in the table of variable values would look like.

Problem 1: (2 pts) What is printed? _____

(4 pts) Show the table of variable values:

```
def nonefunc(str):
   s2 = "i"
   ct = 2
   while (ct >= 0):
      ct2 = 0
      while (ct2 < 2):
         s2 = s2 + str[ct]
         ct2+= 1
      s2 =  s2+"i"
      ct -=1
   s2 = "M" + s2
   return s2

str1 = "pss";
print(nonefunc(str1))
```

##

Problem 2: (2)What is printed? _____

(2)What are all values that x becomes (in other words, show what x becomes for each of the loops, like with the tables)? _____

(2)What are the values that y becomes? _____

```
def test2(ls1):
   ls2 = []
   for x in ls1:
      if x not in ls2:
         ls2.append(x)
   for y in ls2:
      print(y, end = "")
   print()

test2(["p","u","p","p","gg","u","le","p"])
```

##

Useful information 1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z

1 2 4 8 16 32 64 128 256 512 1024 2048 4096 8192 16384 32768 65536

Left Right

Problem 3 : (2)What is printed? _____
(2) What are all values that k become? _____

```
def f3(x):
   y = ""
   for k in range(len(x)-2,-1,-3):
      y+= x[k]
   return y

print(f3("ebalcitaerpheerys"))
```

##

Problem 4: (2)What is printed out? _____
(2)What all values does x become? _____

```
def f(message):
    newmessage = ""
    for x in message:
        if x == "w":
            newmessage += "a"
        else:
            newmessage += x
    return(newmessage)
mvar = "wbrwcwdwbrw"
print(f(mvar))
```

##

Problem 5:
(2)What is printed out? _____
(2)What is the type of what is returned? _____

```
def func7(x):
   y = ['d']
   for k in (7,3,15,2,8):
      y.append(x[k])
   for k in (5,17,16,15,0):
      y.insert(0,x[k])
   return y
y = "psychogalvanometer"
print(func7(y))
```

##

Useful information

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z

1 2 4 8 16 32 64 128 256 512 1024 2048 4096 8192 16384 32768 65536

Left Right

Problem 6:

(2)What is printed out? _____

(2)What is lv[y][y] each time the loop loops? _____

```
def func(lv):
   x = len(lv)
   ls = []
   for y in range(0,x):
      if "e" in lv[y] or "a" in lv[y]:
         ls.insert(0,lv[y][y])
   return ls
listvar = ['kongoni','oxen','lion','skunk','kiskadee','squirrel','hedgehog','tarantula']
print(func(listvar))
```

##

Problem 7

(2)What is printed out? _____

(2)Show ls at each interation of the loop: _____

```
def f4b(x,y):
            k = len(x)//2
            ls= x[k:] +'b'+ x[:k]
            for m in ls:
               if m in y:
                  i = ls.index(m)
                  ls = ls[:i]+ls[i+1:]
             ls= ls[:-1]+'t'+ls[-1:]
             return(ls)
print(f4b("vasjdwpokm","kvpjd"))
```

##

Useful information

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z

1 2 4 8 16 32 64 128 256 512 1024 2048 4096 8192 16384 32768 65536

Left Right

#Problem 8
(2)What is returned? _____
(2)What type is returned? _____
(2)What is this function doing? _____

```
def f5(x,y):
   k = 0
   v = ""
   while k < len(y):
      if y[k] not in x:
         v+=y[k]
      k+=1
   print(v)
   k = 0
   z = True
   q = len(v)
   while k < q:
      if v[k] != v[q-k-1]:
         z = False
      k+=1
   return(z)

print(f5("?.,!","udel.edu"))
```

##

Problem 9: (4)Show what is created and returned.

```
def k(m,n):
   v = []
   for x in range(m):
      ls = []
      for y in range(n):
         ls.append(abs(x-y))  #returns the absolute difference between x and y
      v.append(ls)
   return(v)

mat = k(5,5)
```

Useful information

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z

1 2 4 8 16 32 64 128 256 512 1024 2048 4096 8192 16384 32768 65536

Left Right

##
Problem 10:
(4) What is created and returned?

(4)For each of the inner loops, show a table for what is multiplied and appended (as marked)

_____

```
def mm(x,y):
   m = []
   for k in range(len(x)):
      ls = []
      for j in range(len(x[k])):
         ls.append(x[k][j] * y[k][j])   #Here
      m.append(ls)
   return(m)
n = mm([[3,2,4],[7,5,4]],[[2,4,8],[1,6,5]])
```

##
Problem 11:
(4) What is created and returned?

```
def mi(m):
   n = []
   for x in range(len(m[x])):
      t = []
      for y in range(len(m)):
         t.append(m[y][x])
      n.append(t)
   return(n)

mi([[6,4,24],[1,-9,8]])
```

##

Useful information

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z

1 2 4 8 16 32 64 128 256 512 1024 2048 4096 8192 16384 32768 65536

Left Right

Problem 17:
(4)What is returned? _____
(2)What is x*4+y for each iteration? _____

```
def f8(s):
   m = []
   for x in range(4):
      n=[]
      for y in range(4):
         n.append(s[x*4+y])    #here
      m.append(n)
   k = ""
   for z in range(len(m)):
      k+=m[z][z]
   return k

print(f8("laekvoprsaohtwup"))
```

Useful information

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z

1 2 4 8 16 32 64 128 256 512 1024 2048 4096 8192 16384 32768 65536

Left Right