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----------PRACTICAL 6----------

- **Question-1 :**

Shyam is a zookeeper at XYZ Zoo. Zoo has finite no. of animals and birds and infinite cages to accommodate them. One fine day, few amount of animals are transferred from ABC to XYZ. The animals group consists of: -- A lion (being king) --Rest all animal families consisting of K members per group. K != 1(1<K<100) The lion has to be given separate cage, rest were given one cage per group .Mr. Shyam has an unordered list of randomly arranged cage entries. The list consists of the cage numbers for all of the animals. The cage numbers will appear times per group except for the lion’s room. Mr. Shyam needs you to help him find the Captain's room number. You do not know the total number of tourists or the total number of groups of families. You only know the value of and the room number list.

- ✓ **Source Code :**

```
import random
t1 = {"Panther": 0, "Tiger": 0, "Cheetah": 0, "Gorilla": 0, "Elephant":
0,
      "Bear": 0, "Panda": 0, "Bengal Tiger": 0, "Jaguar": 0, "Lion": 0}
k1 = []
beginrandom = 1
endrandom = 10
endloop = len(t1)
for i in range(endloop):
```

```
    p = random.randint(beginrandom, endrandom)
    k1.append(p)
    if (p == 1):
        index = i
        t1['Lion'] = 1
        beginrandom = 2
        endloop = endloop-1
print(k1)
j = 0
for item in t1:
    if (k1[j] == 1):
        a = k1[9]
        k1[j] = a
        k1[9] = 1
        t1[item] = k1[j]
        j += 1
if 1 not in k1:
    t1['Lion'] = 1
    k1[9] = 1
    print("Lion was Assigned Cage 10.")
else:
    print("Lion was Assigned Cage :", index+1)
    print(t1)
```

✓ **Output :**

```
PS C:\Users\tusha\Documents\SEM 4\PYTHON\CODES OF PRACTICALS\6> python -u "c:\Users\tusha\Documents\SEM 4\PYTHON\CODES OF PRACTICALS
[8, 5, 4, 6, 4, 6, 6, 10, 2, 9]
Lion was Assigned Cage 10.
PS C:\Users\tusha\Documents\SEM 4\PYTHON\CODES OF PRACTICALS\6> python -u "c:\Users\tusha\Documents\SEM 4\PYTHON\CODES OF PRACTICALS
[6, 1, 10, 7, 2, 7, 4, 7, 10, 8]
Lion was Assigned Cage : 2
{'Panther': 0, 'Tiger': 0, 'Cheetah': 0, 'Gorilla': 0, 'Elephant': 0, 'Bear': 0, 'Panda': 0, 'Bengal Tiger': 0, 'Jaguar': 0, 'Lion':
```

✓ **Question-2 :**

A device generates 100 random characters at an instance. The input to the machine will be randomly generated characters (combination of lowercase + uppercase characters). The machine needs to return the occurrence of each character considering both cases (lowercase and uppercase) same. Kindly build a machine, which meet the requirements mentioned above.

Sample: The lowercase letters are:

E Y L S R I B K J V J H A B Z N W B T V s c c k r d w a m p w v u n q a m p l o A Z G D E G F I N D x m z o u l o z j v h w i w N T G X W c d o t x h y v z y z q e a m f w p g u q T R E N N W F c r f

The occurrences of each letter are:

5 a 3 b 4 c 4 d 4 e 4 f 4 g 3 h 3 i 3 j 2 k 3 l 4 m 6 n 4 o 3 p 3 q 4 r 2 s 4 t 3 u 5 v 8 w 3 x 3 y 6 z

- ✓ **Source Code :**

```
import random
characterset = ['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', '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']

charactersetsmall = ['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']
t = len(characterset)
t3 = []
t1 = []
t2 = []
for i in range(100):
    f = random.randrange(t)
    temp = characterset[f].lower()
    t1.append(temp)
    t3.append(characterset[f])

print(t3)
for i in range(len(charactersetsmall)):
    temp2 = t1.count(charactersetsmall[i])
    t2.append(temp2)

print("The Occurence of each letter are :")
for i in range(len(charactersetsmall)):
    print(t2[i], charactersetsmall[i], end="    ")
```

- ✓ **Output :**

```
PS C:\Users\tusha\Documents\SEM 4\PYTHON\CODES OF PRACTICALS\6> python -u "c:\Users\tusha\Documents\SEM 4\PYTHON\CODES OF PRACTICALS
['m', 'z', 'y', 'W', 'a', 'z', 'I', 'H', 'P', 'E', 'j', 'd', 'Y', 'p', 'y', 'K', 'M', 'Z', 'G', 'l', 'R', 'q', 'l', 'M', 'X', 'q', '
', 'g', 'L', 'c', 't', 'R', 'S', 'w', 'e', 'i', 'V', 'i', 'S', 'R', 's', 'q', 'Y', 'm', 'g', 'h', 'C', 'v', 'i', 'g', 'j', 'W', 'u',
'L', 'K', 'R', 'g', 'j', 'w', 'V', 'E', 'p', 'E', 'Z', 'v', 'j', 'U', 'u', 'j', 'D', 'z', 'M', 'r', 'r', 'j', 'e', 'S', 'B', 'w', 't
, 'Y', 'M']
The Occurence of each letter are :
4 a  1 b  4 c  3 d  6 e  0 f  6 g  2 h  5 i  7 j  3 k  5 l  8 m  0 n  0 o  4 p  3 q  7 r  5 s  3 t  4 u  4 v
```

- **Question-3 :**

A game is being developed by a toy company, which helps the kids to learn maths table easily. Given a positive integer number n, kid has to simply enter the power value corresponding to that number. Kindly help the kid to play this game in a smooth way.

✓ **Source Code :**

```
import random

t = random.randint(1, 10)
k = random.randint(1, 5)
f = t**k
print(t, "^ ? = ", f)
u = int(input("Enter Value for ? : "))
if (t == 1):
    print("Correct Answer.")
elif (u == k):
    print("Correct Answer.")
else:
    print("Wrong Answer!")
```

✓ **Output :**

```
PS C:\Users\tusha\Documents\SEM 4\PYTHON\CODES OF PRACTICALS\6> python -u "c:\Users\tusha\Documents\SEM 4\PYTHON\CODES OF PRACTICALS
6\prac_6_3.py"
8 ^ ? =  4096
Enter Value for ? : 5
Wrong Answer!
PS C:\Users\tusha\Documents\SEM 4\PYTHON\CODES OF PRACTICALS\6> python -u "c:\Users\tusha\Documents\SEM 4\PYTHON\CODES OF PRACTICALS\6\prac_6_3.py"
1 ^ ? =  1
Enter Value for ? : 1
Correct Answer.
PS C:\Users\tusha\Documents\SEM 4\PYTHON\CODES OF PRACTICALS\6> python -u "c:\Users\tusha\Documents\SEM 4\PYTHON\CODES OF PRACTICALS\6\prac_6_3.py"
8 ^ ? =  4096
Enter Value for ? : 2
Wrong Answer!
```