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**Section - K22EP**

**Project - Matrix of  $n \times n$  (with equal sum row , column and diagonal)**

**Roll no.- 60**

**Project 20:**

A basket is given to you in the shape of a matrix. If the size of the matrix is  $N \times N$  then the range of number of eggs you can put in each slot of the basket is 1 to  $N^2$ . Your task is to arrange the eggs in the basket such that the sum of each row, column and the diagonal of the matrix remain same.

Test case for your reference:

Input by the user dimension of the basket i.e.,  $N = 3$

So, number of eggs you can put at each slot are in the range of 1 to  $3^2$  (1 to 9)

**Input:**

6 3 6

5 5 5

4 7 4

**Explanation:**

Now the value of the sum of  
any row or column as well as diagonal is 15

Note:  $2 \leq N \leq 100$

**(Student is free to decide the input and output layout for this mini project)**

*#n is no of rows and column*

```
import random
```

```
n=int(input("size of the matrix to be printed: "))
```

```
list2=[1,2,3,4,5,6,7,8,9]
```

```
m=random.choice(list2)
```

```
if n==1:
```

```
    list1=[1,2,3,4,5,6,7,8,9]
```

```
    print(random.choice(list1))
```

```
if n==2:
```

```
    a=[[2,3],[3,2]]
```

```
    for i in range(n):
```

```
        for j in range(n):
```

```
            print(m*a[i][j],end=" ")
```

```
        print()
```

```
if n==3:
```

```
    b=[[6,3,6],[5,5,5],[4,7,4]]
```

```
    for i in range(n):
```

```
        for j in range(n):
```

```
            print(m*b[i][j],end=" ")
```

```
        print()
```

```
if n==4:
```

```
    c=[[22,12,18,87],[88,17,9,25],[10,24,89,16],[19,86,23,11]]
```

```
    for i in range(n):
```

```
        for j in range(n):
```

```
            print(m*c[i][j],end=" ")
```

```
        print()
```

```
if n==5:
```

```
    d=[[2,4,3,1,5],[1,5,2,3,4],[5,3,1,4,2],[4,1,5,2,3],[3,2,4,5,1]]
```

```
    for i in range(n):
```

```
        for j in range(n):
```

```
            print(m*d[i][j],end=" ")
```

```
        print()
```

```
if n==6:
```

```
e=[[5,2,4,6,1,3],[1,3,6,4,5,2],[2,6,1,5,3,4],[3,4,5,2,6,1],[6,1,2,3,4,5],[4,5,3,1,2,6]]
```

```
    for i in range(n):
```

```
        for j in range(n):
```

```
            print(m*e[i][j],end=" ")
```

```
        print()
```

```
if n==7:
```

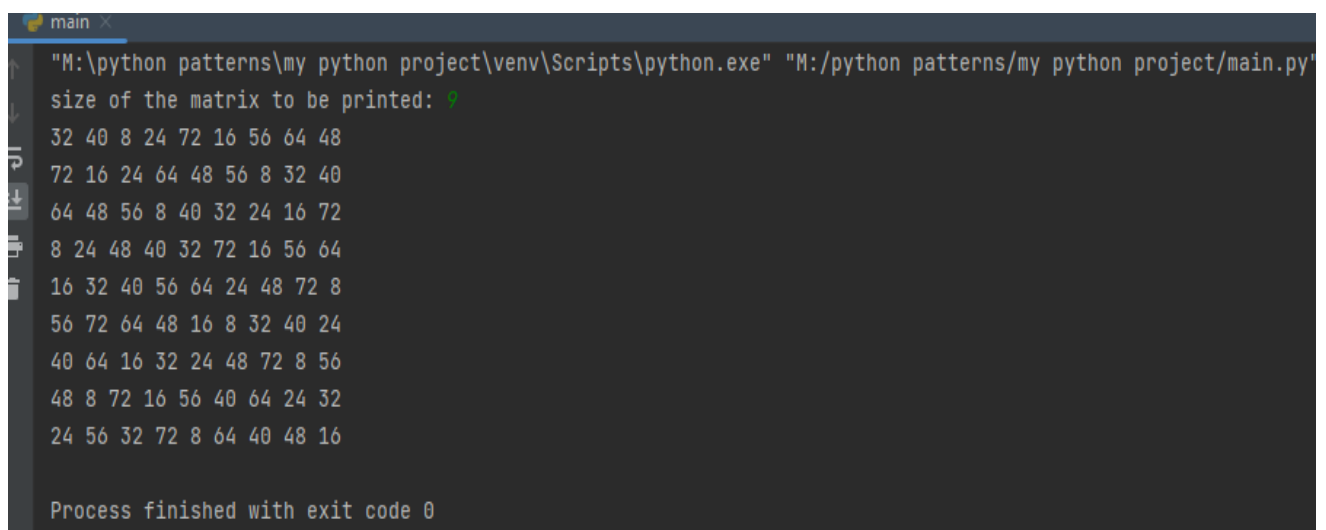
```

f=[[5,7,2,4,6,1,3],[6,1,3,5,7,2,4],[7,2,4,6,1,3,5],[1,3,5,7,2,4,6],[2,4,6,1,3,5,7],[
3,5,7,2,4,6,1],[4,6,1,3,5,7,2]]
    for i in range(n):
        for j in range(n):
            print(m*f[i][j],end=" ")
        print()
if n==8:

g=[[4,8,6,2,1,5,3,7],[3,7,5,1,6,2,4,8],[8,3,2,6,5,1,7,4],[7,4,1,5,8,6,2,3],[6,2,8,7
,3,4,5,1],[5,1,4,3,7,8,6,2],[1,5,7,4,2,3,8,6],[2,6,3,8,4,7,1,5]]
    for i in range(n):
        for j in range(n):
            print(m*g[i][j],end=" ")
        print()
if n==9:

h=[[4,5,1,3,9,2,7,8,6],[9,2,3,8,6,7,1,4,5],[8,6,7,1,5,4,3,2,9],[1,3,6,5,4,9,2,7,8],
[2,4,5,7,8,3,6,9,1],[7,9,8,6,2,1,4,5,3],[5,8,2,4,3,6,9,1,7],[6,1,9,2,7,5,8,3,4],[3,
7,4,9,1,8,5,6,2]]
    for i in range(n):
        for j in range(n):
            print(m*h[i][j],end=" ")
        print()
elif n<=0 or n>=9:
    print("Input is invalid")
else:
    print("Input Invalid")

```



```

main x
"M:\python patterns\my python project\venv\Scripts\python.exe" "M:/python patterns/my python project/main.py"
size of the matrix to be printed: 9
32 40 8 24 72 16 56 64 48
72 16 24 64 48 56 8 32 40
64 48 56 8 40 32 24 16 72
8 24 48 40 32 72 16 56 64
16 32 40 56 64 24 48 72 8
56 72 64 48 16 8 32 40 24
40 64 16 32 24 48 72 8 56
48 8 72 16 56 40 64 24 32
24 56 32 72 8 64 40 48 16

Process finished with exit code 0

```