In [1]:

```
#PROGRAM 1
import numpy as np
lst=[]
lst1=[]
m=int(input("Enter value of M:"))
n=int(input("Enter value of N:"))
a=int(input("Enter value of A:"))
p=m*n
q=n*a
print("Enter elements of first array")
for i in range(0,p):
    ele=int(input())
    lst.append(ele)
d=np.array(lst).reshape(m,n)
print("Enter elements of second array")
for j in range(0,q):
    ele1=int(input())
    lst1.append(ele1)
c=np.array(lst1).reshape(n,a)
print("FIRST ARRAY:\n",d)
print("SECOND ARRAY:\n",c)
print("DOT PRODUCT OF TWO ARRAYS:\n",np.dot(d,c))
```

```
Enter value of M:5
Enter value of N:3
Enter value of A:2
Enter elements of first array
1
2
3
4
5
6
7
8
9
10
11
12
13
141
15
Enter elements of second array
12
13
23
24
24
23
FIRST ARRAY:
 [[  1   2   3]
 [  4   5   6]
 [  7   8   9]
 [ 10  11  12]
 [ 13 141  15]]
SECOND ARRAY:
 [[12 13]
 [23 24]
 [24 23]]
DOT PRODUCT OF TWO ARRAYS:
 [[ 130  130]
 [ 307  310]
 [ 484  490]
 [ 661  670]
 [3759 3898]]
```

In [ ]:

In [17]:

```
#Program 2
import numpy as np
a=list(input().split())
print(a)
b=np.array(a)
print("ORIGINAL ARRAY:\n",b)
r=np.char.isdigit(b)
print("DIGITS ONLY:\n:",r)
s=np.char.islower(b)
print("LOWER CASE ONLY:\n",s)
p=np.char.isupper(b)
print("UPPER CASE ONLY:\n",p)
```

```
python php js example html5 5
['python', 'php', 'js', 'example', 'html5', '5']
ORIGINAL ARRAY:
 ['python' 'php' 'js' 'example' 'html5' '5']
DIGITS ONLY:
: [False False False False  True]
LOWER CASE ONLY:
 [ True  True  True  True  True False]
UPPER CASE ONLY:
 [False False False False False False]
```

In [ ]:

In [ ]:

In [23]:

```
#Program 3
import numpy as np
a=int(input())
b=int(input())
x=np.arange(1,a*16,a)#a*16 since in 4,4 matrix there will be 16 elements so the end numbe
r will be within it with step of a
y=np.arange(1,b*16,b)
r=x.reshape(4,4)
p=y.reshape(4,4)
s=r-p
print("FIRST ARRAY\n",r)
print("SECOND ARRAY\n",p)
print("SUBTRACTED ARRAY\n",s)
print("FLATTENED ARRAY\n",s.flatten())
```

```
7
9
FIRST ARRAY
 [[  1   8  15  22]
 [ 29  36  43  50]
 [ 57  64  71  78]
 [ 85  92  99 106]]
SECOND ARRAY
 [[  1  10  19  28]
 [ 37  46  55  64]
 [ 73  82  91 100]
 [109 118 127 136]]
SUBTRACTED ARRAY
 [[  0  -2  -4  -6]
 [ -8 -10 -12 -14]
 [-16 -18 -20 -22]
 [-24 -26 -28 -30]]
FLATTENED ARRAY
 [  0  -2  -4  -6  -8 -10 -12 -14 -16 -18 -20 -22 -24 -26 -28 -30]
```

In [ ]:

In [1]:

```
#PROGRAM4
import numpy as np
a=list(map(int,input().split()))
b=list(map(int,input().split()))
c=np.array(a).reshape(3,3)
d=np.array(b).reshape(3,3)
print(c-d)
```

```
1 2 3 4 5 6 7 8 9
1 1 1 1 1 1 1 1 1
[[0 1 2]
 [3 4 5]
 [6 7 8]]
```

In [ ]:

```

```