

(a)

```
[[0.103223  0.55818717 0.6389705  0.74127586]
 [0.69453685 0.60241268 0.41334138 0.30850843]
 [0.05353987 0.90058645 0.28693122 0.13551005]]

Mean : [0.51041413 0.50469983 0.3441419 ]
Standard Deviation : [0.24388048 0.15200603 0.33199412]
Variance : [0.05947769 0.02310583 0.1102201 ]
```

(b)

```
Enter the number of rows (m): 3
Enter the number of columns (n): 3
```

Random Array :

```
[[31 62 54]
 [ 9 16 75]
 [37 85 70]]
```

Shape: (3, 3)

Type: <class 'numpy.ndarray'>

Data Type: int32

Reshaped Array :

```
[[31 62 54]
 [ 9 16 75]
 [37 85 70]]
```

(c)

Zero Indices : [0]

Non-Zero Indices : [1 2 3 4 5]

NAN Indices : [4]

(d)

Covariance : 0.07799384693876393

Correlation : 0.9999999999999999

(e)

Sum of First Half of Both Arrays : 4.120796192154181

Product of Second Half of Both Arrays : 0.0004831725787975267

(f)

Random Array : [[0.122385 0.43323394 0.91406898 ... 0.7064269 0.58698817 0.21309824]
[0.62430568 0.61106518 0.34741217 ... 0.02185237 0.46355332 0.28347953]
[0.55010194 0.62966253 0.02003366 ... 0.7040883 0.78693908 0.30000451]
...
[0.1133827 0.3123779 0.83300556 ... 0.47213626 0.8965591 0.64770958]
[0.08718841 0.15285388 0.42182532 ... 0.34945303 0.52798785 0.81848802]
[0.3088789 0.34005172 0.89428465 ... 0.9392185 0.95830846 0.98407415]]

Memory Size : 80000

(g)

Random Array : [[71 72 89]
[19 48 63]
[45 60 96]
[88 71 16]]

Array with Rows Swapped and Column Reversed : [[71 72 89]
[19 48 63]
[45 60 96]
[88 71 16]]