import numpy as np

In [ ]:
```
Array a: [1 2 3]
```

In [19]:
```
a=np.array([1,2,3])
print("Array a:",a)
```

```
Array a: [1 2 3]
```

In [9]:
```
b=np.arange(0,10,2)
print("Array b:",b)
```

```
Array b: [0 2 4 6 8]
```

In [11]:
```
c=np.linspace(0,1,5)
print("Array c:",c)
```

```
Array c: [0.   0.25 0.5  0.75 1.  ]
```

In [13]:
```
d=np.zeros((2,3))
print("Array d:\n",d)
```

```
Array d:
 [[0. 0. 0.]
 [0. 0. 0.]]
```

In [15]:
```
e=np.ones((3,2))
print("Array e:\n",e)
```

```
Array e:
 [[1. 1.]
 [1. 1.]
 [1. 1.]]
```

In [17]:
```
f=np.eye(4)
print("identity matrix f:\n",f)
```

```
identity matrix f:
 [[1. 0. 0. 0.]
 [0. 1. 0. 0.]
 [0. 0. 1. 0.]
 [0. 0. 0. 1.]]
```

In [21]:
```
#Reshape an array
a1=np.array([1,2,3])
reshaped=np.reshape(a1,(1,3))
print("reshaped array:",reshaped)
```

```
reshaped array: [[1 2 3]]
```

In [23]:
```
#flatten an array
f1=np.array([[1,2],[3,4]])
flattened=np.ravel(f1)
print("flattened array:",flattened)
```

```
flattened array: [1 2 3 4]
```

In [16]:
```
#transpose an array
import numpy as np
```

```
e1=np.array([[1,2],[3,4]])
transposed=np.transpose(e1)
print("transposed array:\n",transposed)
```

```
transposed array:
 [[1 3]
 [2 4]]
```

In [18]:
```
#stack arrays vertically
import numpy as np
a2=np.array([1,2])
b2=np.array([3,4])
stacked=np.vstack([a2,b2])
print("stacked arrays:\n",stacked)
```

```
stacked arrays:
 [[1 2]
 [3 4]]
```

In [20]:
```
#add two arrays
import numpy as np
g=np.array([1,2,3,4])
added=np.add(g,2)
print("added 2 to g:",added)
```

```
added 2 to g: [3 4 5 6]
```

In [22]:
```
#square each element
import numpy as np
squared=np.power(g,2)
print("squared g:",squared)
```

```
squared g: [ 1  4  9 16]
```

In [24]:
```
import numpy as np
sqrt_val=np.sqrt(g)
print("square root of g:",sqrt_val)
```

```
square root of g: [1.         1.41421356 1.73205081 2.        ]
```

In [30]:
```
a=np.array([1,2,3])
a1=np.array([1,2,3])
print(a)
print(a1)
```

```
[1 2 3]
[1 2 3]
```

In [32]:
```
import numpy as np
a3=np.array([1,2,3])
dot_product=np.dot(a1,a)
print("dot product of a1 and a:",dot_product)
```

```
dot product of a1 and a: 14
```

In [40]:
```
#mean of array
import numpy as np
s=np.array([1,2,3,4])
mean=np.mean(s)
print("mean of s:",mean)
```

```
mean of s: 2.5
```

In [42]:
```
#standard deviatin of an array
import numpy as np
std_dev=np.std(s)
print("standard deviation of s:",std_dev)
```

```
standard deviation of s: 1.118033988749895
```

In [44]:
```
#minimize element of an array
import numpy as np
minimum=np.min(s)
print("min of s:",minimum)
```

```
min of s: 1
```

In [46]:
```
#maximum element of an array
import numpy as np
maximum=np.max(s)
print("max of s:",maximum)
```

```
max of s: 4
```

In [50]:
```
#create a matrix
import numpy as np
matrix=np.array([[1,2],[3,4]])
print("matrix:",matrix)
```

```
matrix: [[1 2]
 [3 4]]
```

In [52]:
```
#determinant of a matrix
import numpy as np
determinant=np.linalg.det(matrix)
print("determinant of matrix:",determinant)
```

```
determinant of matrix: -2.0000000000000004
```

In [54]:
```
#inverse of a matrix
import numpy as np
inverse=np.linalg.inv(matrix)
print("inverse of matrix:\n",inverse)
```

```
inverse of matrix:
 [[-2.   1. ]
 [ 1.5 -0.5]]
```

In [ ]: