



Subject: PWP -01CT1309

Lab 9

Name: Shashank Bagda Date: 03 / 08 / 22

Enrollment No: 92100133020

```
# LAB 9
# Shashank Bagda - 92100133020
print("\n")
n = np.ones((3,3))
print(n)
print("\n")
d = np.eye(10)
print(d)
print("\n")
e = np.random.random((2,2))
print(e)
print("\n")
t = np.random.randint(100, size=(5,5))
print(t)
print("\n")
```





```
[[1. 1. 1.]
[1. 1. 1.]
[1. 1. 1.]]
[[1. 0. 0. 0. 0. 0. 0. 0. 0. 0.]
[0. 1. 0. 0. 0. 0. 0. 0. 0. 0.]
[0. 0. 1. 0. 0. 0. 0. 0. 0. 0.]
[0. 0. 0. 1. 0. 0. 0. 0. 0. 0.]
[0. 0. 0. 0. 1. 0. 0. 0. 0. 0.]
[0. 0. 0. 0. 0. 1. 0. 0. 0. 0.]
[0. 0. 0. 0. 0. 0. 1. 0. 0. 0.]
[0. 0. 0. 0. 0. 0. 0. 1. 0. 0.]
[0. 0. 0. 0. 0. 0. 0. 0. 1. 0.]
[0. 0. 0. 0. 0. 0. 0. 0. 0. 1.]]
[[0.16061951 0.54319324]
[0.54722934 0.63105593]]
[[17 22 58 19 95]
[92 33 56 22 90]
[52 52 56 66 22]
[44 75 35 19 26]
 [31 53 67 54 38]]
```





```
a = np.array([1,2,3])
print(type(a))
print("\n")
print(a.shape)
print("\n")
print(a[0],a[1],a[2])
print("\n")
a[0] = 5
print(a)
print("\n")
b = np.array([[1,2,3],[4,5,6]])
print(b.shape)
print("\n")
print(b[0,0],b[0,1],b[1,0])
print("\n")
v = np.array([[1,2,3,4],[5,6,7,8],[9,10,11,12]])
print(v)
```

```
<class 'numpy.ndarray'>
(3,)
1 2 3
[5 2 3]
(2, 3)
1 2 4
[[ 1 2 3 4]
[ 5 6 7 8]
[ 9 10 11 12]]
```





```
v = np.array([[1,2,3,4],[5,6,7,8],[9,10,11,12]])
print(v)
print("\n")
b = v[:2,1:3]
print("matrix : \n",b)
print("\n")

print(v[0,1])
print("\n")
b[0,0] = 77
print(v[0,1])
print(v[0,1])
print(v[0,1])
```

```
matrix:
[[2 3]
[6 7]]
2
```





```
row_r1 = v[1, :]
row_r2 = v[1:2, :]

print(row_r1, row_r1.shape)
print("\n")
print(row_r2, row_r2.shape)
print("\n")

col_r1 = v[: , 1]
col_r2 = v[: , 1:2]

print(col_r1, col_r1.shape)
print("\n")
print(col_r2, col_r2.shape)
print("\n")
```

```
[5 6 7 8] (4,)

[[5 6 7 8]] (1, 4)

[77 6 10] (3,)

[[77]
[6]
[10]] (3, 1)
```



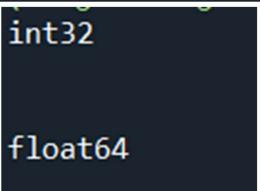
FACULTY OF TECHNOLOGY

Information & Communication Technology

```
# DATATYPES

x = np.array([1,2])
print(x.dtype)
print("\n")

x = np.array([1.0,2.0])
print(x.dtype)
print("\n")
```







```
# ARRAY MATH

x = np.array([[1,2],[3,4]], dtype=np.float64)
y = np.array([[5,6],[7,8]], dtype=np.float64)

print(x+y)
print(np.add(x,y))
print("\n")

print(x-y)
print(np.subtract(x,y))
print("\n")

print(x*y)
print(np.multiply(x,y))
print("\n")

print(x/y)
print(x/y)
print(x/y)
print(np.divide(x,y))
print("\n")
```

```
[[ 6. 8.]
[10. 12.]]
[[ 6. 8.]
[10. 12.]]
[[-4. -4.]
[-4. -4.]]
[[-4. -4.]
[-4. -4.]]
[[ 5. 12.]
[21. 32.]]
[[ 5. 12.]
[21. 32.]]
[[0.2
          0.333333333]
[0.42857143 0.5 ]]
[[0.2 0.33333333]
 [0.42857143 0.5
                     ]]
```



FACULTY OF TECHNOLOGY

Information & Communication Technology

```
print(np.sqrt(x))
print("\n")

v = np.array([9,10])
w = np.array([11,12])

print(v.dot(w))
print(np.dot(v,w))
```

```
[[1. 1.41421356]
[1.73205081 2. ]]
219
219
```