

National Forensic Sciences University

Knowledge | Wisdom | Fulfilment



School of Cyber Security & Digital Forensics

“Artificial intelligence”

“Practical”

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Basic python

Program 1

```
v1 = [1,2,3,4]
v2 = [2,3,4,5]
v3 = v1 + v2
print(v3)
print(type(v3))
```

Program 2

```
import numpy as np
a = np.array([1,2,3,4])
print(a)
print(type(a))
b = np.array([2,3,4,5])
print(b)
print(type(b))
print(a+b)
print(a-b)
print(a*b)
print(a/b)
```

Program 2.1

```
import numpy as np
a = np.array([1,"a",1.5])
print(a)
print(type(a))
b = np.array([2,"b",2.4])
print(b)
print(type(b))
# print(a+b)
print(a-b)
print(a*b)
print(a/b)
```

Program 3

```
import numpy as np
a = np.array([[1],[2],[3]])
print(type(a))
print(a)
print(a.shape)
```

Program 4

```
import numpy as np
a = np.array([[1,2,3],[4,5,6],[7,8,9]])
print(type(a))
print(a)
print(a.shape)
```

Program 5

```
import numpy as np
a = np.array ([[1,2,3],[4,5,6],[7,8,9]])
print(type(a))
print(a)
print(a.shape)
b = np.mat(a)
#b = np.matrix ([[1,2,3],[4,5,6],[7,8,9]])
print(type(b))
print(b)
print(b.shape)
```

Program 6

```
import numpy as np
a = np.matrix([[1,2,3],[4,5,6],[7,8,9]])
print(type(a))
print(a)
```

Program 7

```
import numpy as np
a=np.array([1,2,3,4,5,6,7,8,9,0])
print(a)
print("after slicing:")
b=a[0:7:3]
print(b)
b=a[1:3:1]
print(b)
```

Program 8

```
import numpy as np
a=np.array([[1,2,3],[4,5,6],[7,8,9]])
print(a)
print("After Slicing:")
print("everything")
```

```

b=a[:]
print(b)
print("everything till 1st row")
b=a[:1]
print(b)
print("everything except 1st row")
b=a[1:]
print(b)
print("[row,column] all row till 1st column")
b=a[:,1:]
print(b)
print("all row except 1st column")
b=a[:,1:]
print(b)
print("all row & last column")
b=a[:, -1:]
print(b)

```

Program 9

```

import numpy as np
a = np.arange(6).reshape((3, 2))
print(a)
print(a.shape)

```

Program 10

```

import numpy as np
a=np.zeros(3)
print(a)
a=np.ones(3)
print(a)
a=np.random.rand(3)
print(a)
a=np.eye(3)
print(a)

```

Program 11

```

import numpy as np
a = np.matrix([[1, 2, 3], [4, 5, 6], [7, 8, 9]])
b = np.matrix([[1, 2, 3], [4, 5, 6], [7, 8, 9]])
print(a+b)
print(a-b)
print(a/b)
print(a*b)

```

Program 12

```
import numpy as np
a = np.matrix([[1, 2, 3], [4, 5, 6], [7, 8, 9]])
print(a.max())
print(a.min())
print(a.prod())
print(a.mean())
print(a.std())
print(a.var())
print(a.transpose())
```

Program 13

```
import pandas as pd
import numpy as np
a=pd.Series([1,2,3,4])
print(a)
b=pd.Series([1,2.5,3,4])
print(b)
c=pd.date_range("20230801",periods=8)
print(c)
```

Program 14

```
import numpy as np
import pandas as pd
a=np.array([1,2,3,4,5])
b=pd.Series(a)
print(b)
```

Program 15

```
import numpy as np
import pandas as pd
v1 = np.matrix([[1,2,3],[4,5,6]])
a=pd.DataFrame(v1,columns=list("ABC"))
print(a)
```

Unit-1

Program 1

```
d = {'x': 10 , 'y': 2.5, 'z' : 'test'}  
print(d)  
print(d['x'])  
print(d.values())
```

Program 2

```
a = int ( input("Enter a number:"))  
if a>0:  
    print("Postive")  
elif a==0:  
    print("zero")  
else:  
    print("negative")
```

Program 3

```
for i in range (1,11):  
    print(i)
```

Program 4

```
for x in 'NFSU':  
    print(x)
```

Program 5

```
for x in range(1,10):  
    if x%2 == 0:  
        continue  
    print(x)
```

Program 6

```
for x in range (1,20):  
    if x ==15:  
        break  
    print(x)
```

Program 7

```
def my_print():  
    print("hello from function")  
print("this is before fuction call")  
my_print()  
print("this is after function call")
```

Program 8

```
def my_funtion(nm):  
    print("hello + nm")  
my_funtion("NFSU")
```

Program 9

```
def my_funtion(nm="MTCS"):  
    print("Hello" + nm)  
my_funtion("NFSU")  
my_funtion()
```

Program 10

```
def my_funtion(*nm):  
    for i in range(0,len(nm)):  
        print("Hello "+ nm[i])  
my_funtion("NFSU", "Gandhinagar", "MTCS")
```

Program 11

```
def my_cities(c):  
    for item in c:  
        print(item)  
cities = ["ahmedabad", "delhi", "mumbai"]  
my_cities(cities)
```

Program 12

```
def my_square(n):  
    return n*n  
ans = my_square(10)  
print(ans)
```