

# Practical - 5

## AIM

Use commands to compute the size of a matrix, size/length of a particular row/column, load data from a text file, store matrix data to a text file, finding out variables and their features in the current scope.

## CODE & OUTPUT

```
In [2]: import numpy as np
array = np.array([[1, 2, 3], [3, 4, 5]])
print(array.shape) # size of a matrix
```

(2, 3)

```
In [3]: print(array[0].shape)
```

(3,)

```
In [9]: import pandas as pd
data = pd.read_csv('file.txt', delimiter = ' ')
print(data)
```

```
      Akash  Rahul
0      Riya  Nakul
1  Preeti  Vikas
```

```
In [19]: # store a matrix data in a text file
x = np.arange(0.0,5.0,1.0)
np.savetxt('test.txt', x, delimiter=',')
```

```
In [20]: all_variables = dir()

# Iterate over the whole list where dir( ) is stored.
for name in all_variables:
    # Print the item if it doesn't start with '__'
    if not name.startswith('__'):
        myvalue = eval(name)
        print(name, "is", type(myvalue), "and is equal to ", myvalue)
```

```
In is <class 'list'> and is equal to ['', 'import numpy as np\narray = np.array([[1, 2, 3], [3, 4, 5]])\nprint(array.shape) # size of a matrix', 'import numpy as np\narray = np.array([[1, 2, 3], [3, 4, 5]])\nprint(array.shape) # size of a matrix', 'print(array[0].shape)', 'print(array[0][0].shape)', 'import pandas as pd\ndata = pd.read_table('file.txt', delimiter = ' ')", 'import pandas as pd\ndata = pd.read_table('file.txt', delimiter = ' ')\nprint(data)', 'import pandas as pd\ndata = pd.read_table('file.txt', delimiter = ' ')\nprint(data)', 'import pandas as pd\ndata = pd.read_csv('file.txt', delimiter = ' ')\nprint(data)', '# store a matrix data in a text file\nstudents = ["sahil", "rahul", "rohan", "riya", "ananya", "vikas"]\nnp.savetxt("text.txt", students, delimiter = ":")', '# store a matrix data in a text file\nstudents = ["sahil", "rahul", "rohan", "riya", "ananya", "vikas"]\nnp.savetxt("text.txt", students, delimiter = ":")', '# store a matrix data in a text file\nstudents = numpy.array(["sahil", "rahul", "rohan", "riya", "ananya", "vikas"])\nnp.savetxt("text.txt", students, delimiter = ":")', '# store a matrix data in a text file\nstudents = np.array(["sahil", "rahul", "rohan", "riya", "ananya", "vikas"])\nnp.savetxt("text.txt", student s, delimiter = ":")', '# store a matrix data in a text file\nstudents = np.array(["sahil",
```

```

"rahul", "rahul", "riya", "ananya", "vikas"])\nnp.savetxt("text.txt", students, delimiter
= ":"), '# store a matrix data in a text file\ns = np.array(["sahil", "rahul", "rohan",
"riya", "ananya", "vikas"])\nnp.savetxt("text.txt", s, delimiter = ":"), '# store a matri
x data in a text file\ns = np.array(["2", "4", "6", "8", "10", "12"])\nnp.savetxt("text.tx
t", s, delimiter = ":"), '# store a matrix data in a text file\ns = np.array(["2", "4",
"6", "8", "10", "12"])\nnp.savetxt("text.txt", s, delimiter = ","), "# store a matrix dat
a in a text file\nx = np.arange(0.0,5.0,1.0)\nnp.savetxt('test.out', x, delimiter=',')",
"# store a matrix data in a text file\nx = np.arange(0.0,5.0,1.0)\nnp.savetxt('test.txt',
x, delimiter=',')", 'all_variables = dir()\n\n# Iterate over the whole list where dir( )
is stored.\nfor name in all_variables:\n    # Print the item if it doesn\'t start with \'_
_\'\n    if not name.startswith(\'__\'):\n        myvalue = eval(name)\n        print(nam
e, "is", type(myvalue), "and is equal to ", myvalue)']
Out is <class 'dict'> and is equal to {}
_ is <class 'str'> and is equal to
_dh is <class 'list'> and is equal to ['C:\\Users\\purnima\\OneDrive\\Documents\\GitHub
\\machine-learning\\05-Matrices']
_i is <class 'str'> and is equal to # store a matrix data in a text file
x = np.arange(0.0,5.0,1.0)
np.savetxt('test.txt', x, delimiter=',')
_il is <class 'str'> and is equal to import numpy as np
array = np.array([[1, 2, 3], [3, 4, 5]])
print(array.shape) # size of a matrix
_il0 is <class 'str'> and is equal to # store a matrix data in a text file
students = ["sahil", "rahul", "rohan", "riya", "ananya", "vikas"]
np.savetxt("text.txt", students, delimiter = ":")
_il1 is <class 'str'> and is equal to # store a matrix data in a text file
students = ["sahil", "rahul", "rohan", "riya", "ananya", "vikas"]
np.savetxt("text.txt", students, delimiter = ":")
_il2 is <class 'str'> and is equal to # store a matrix data in a text file
students = numpy.array(["sahil", "rahul", "rohan", "riya", "ananya", "vikas"])
np.savetxt("text.txt", students, delimiter = ":")
_il3 is <class 'str'> and is equal to # store a matrix data in a text file
students = np.array(["sahil", "rahul", "rohan", "riya", "ananya", "vikas"])
np.savetxt("text.txt", students, delimiter = ":")
_il4 is <class 'str'> and is equal to # store a matrix data in a text file
students = np.array(["sahil", "rahul", "rohan", "riya", "ananya", "vikas"])
np.savetxt("text.txt", students, delimiter = ":")
_il5 is <class 'str'> and is equal to # store a matrix data in a text file
s = np.array(["sahil", "rahul", "rohan", "riya", "ananya", "vikas"])
np.savetxt("text.txt", s, delimiter = ":")
_il6 is <class 'str'> and is equal to # store a matrix data in a text file
s = np.array(["2", "4", "6", "8", "10", "12"])
np.savetxt("text.txt", s, delimiter = ":")
_il7 is <class 'str'> and is equal to # store a matrix data in a text file
s = np.array(["2", "4", "6", "8", "10", "12"])
np.savetxt("text.txt", s, delimiter = ",")
_il8 is <class 'str'> and is equal to # store a matrix data in a text file
x = np.arange(0.0,5.0,1.0)
np.savetxt('test.out', x, delimiter=',')
_il9 is <class 'str'> and is equal to # store a matrix data in a text file
x = np.arange(0.0,5.0,1.0)
np.savetxt('test.txt', x, delimiter=',')
_i2 is <class 'str'> and is equal to import numpy as np
array = np.array([[1, 2, 3], [3, 4, 5]])
print(array.shape) # size of a matrix
_i20 is <class 'str'> and is equal to all_variables = dir()

# Iterate over the whole list where dir( ) is stored.
for name in all_variables:
    # Print the item if it doesn't start with '__'
    if not name.startswith('__'):
        myvalue = eval(name)
        print(name, "is", type(myvalue), "and is equal to ", myvalue)
_i3 is <class 'str'> and is equal to print(array[0].shape)
_i4 is <class 'str'> and is equal to print(array[][0].shape)
_i5 is <class 'str'> and is equal to import pandas as pd

```

```

data = pd.read_table('file.txt', delimiter = '')
_i6 is <class 'str'> and is equal to import pandas as pd
data = pd.read_table('file.txt', delimiter = '')
print(data)
_i7 is <class 'str'> and is equal to import pandas as pd
data = pd.read_table('file.txt', delimiter = ' ')
print(data)
_i8 is <class 'str'> and is equal to import pandas as pd
data = pd.read_table('file.txt', delimiter = ' ')
print(data)
_i9 is <class 'str'> and is equal to import pandas as pd
data = pd.read_csv('file.txt', delimiter = ' ')
print(data)
_ih is <class 'list'> and is equal to [' ', 'import numpy as np\narray = np.array([[1, 2,
3], [3, 4, 5]])\npint(array.shape) # size of a matrix', 'import numpy as np\narray = np.ar
ray([[1, 2, 3], [3, 4, 5]])\npint(array.shape) # size of a matrix', 'print(array[0].shap
e)', 'print(array[][0].shape)', "import pandas as pd\ndata = pd.read_table('file.txt', del
imiter = ')", "import pandas as pd\ndata = pd.read_table('file.txt', delimiter = ')\npr
int(data)", "import pandas as pd\ndata = pd.read_table('file.txt', delimiter = ' )\nprin
t(data)", "import pandas as pd\ndata = pd.read_table('file.txt', delimiter = ' )\nprin
t(data)", "import pandas as pd\ndata = pd.read_csv('file.txt', delimiter = ' )\nprin
t(data)", '# store a matrix data in a text file\nstudents = ["sahil", "rahul", "rohan", "riya", "ana
nya", "vikas"]\nnp.savetxt("text.txt", students, delimiter = ":")', '# store a matrix data
in a text file\nstudents = ["sahil", "rahul", "rohan", "riya", "ananya", "vikas"]\nnp.sav
etxt("text.txt", students, delimiter = ":")', '# store a matrix data in a text file\nstuden
ts = numpy.array(["sahil", "rahul", "rohan", "riya", "ananya", "vikas"])\nnp.savetxt("text.
txt", students, delimiter = ":")', '# store a matrix data in a text file\nstudents = np.ar
ray(["sahil", "rahul", "rohan", "riya", "ananya", "vikas"])\nnp.savetxt("text.txt", student
s, delimiter = ":")', '# store a matrix data in a text file\nstudents = np.array(["sahil",
"rahul", "rohan", "riya", "ananya", "vikas"])\nnp.savetxt("text.txt", students, delimiter
= ":")', '# store a matrix data in a text file\ns = np.array(["sahil", "rahul", "rohan",
"riya", "ananya", "vikas"])\nnp.savetxt("text.txt", s, delimiter = ":")', '# store a matri
x data in a text file\ns = np.array(["2", "4", "6", "8", "10", "12"])\nnp.savetxt("text.tx
t", s, delimiter = ":")', '# store a matrix data in a text file\ns = np.array(["2", "4",
"6", "8", "10", "12"])\nnp.savetxt("text.txt", s, delimiter = ",")', "# store a matrix dat
a in a text file\nx = np.arange(0.0,5.0,1.0)\nnp.savetxt('test.out', x, delimiter=',')",
"# store a matrix data in a text file\nx = np.arange(0.0,5.0,1.0)\nnp.savetxt('test.txt',
x, delimiter=',')", 'all_variables = dir()\n\n# Iterate over the whole list where dir( )
is stored.\nfor name in all_variables:\n    # Print the item if it doesn\'t start with \'_
_\'\n    if not name.startswith(\'__\'):\n        myvalue = eval(name)\n        print(nam
e, "is", type(myvalue), "and is equal to ", myvalue)']
_ii is <class 'str'> and is equal to # store a matrix data in a text file
x = np.arange(0.0,5.0,1.0)
np.savetxt('test.out', x, delimiter=',')
_iii is <class 'str'> and is equal to # store a matrix data in a text file
s = np.array(["2", "4", "6", "8", "10", "12"])
np.savetxt("text.txt", s, delimiter = ",")
_oh is <class 'dict'> and is equal to {}
array is <class 'numpy.ndarray'> and is equal to [[1 2 3]
[3 4 5]]
data is <class 'pandas.core.frame.DataFrame'> and is equal to      Akash  Rahul
0    Riya  Nakul
1  Preeti  Vikas
exit is <class 'IPython.core.autocall.ZMQExitAutocall'> and is equal to <IPython.core.aut
ocall.ZMQExitAutocall object at 0x0000023E19E44760>
get_ipython is <class 'method'> and is equal to <bound method InteractiveShell.get_ipytho
n of <ipykernel.zmqshell.ZMQInteractiveShell object at 0x0000023E19DE34C0>>
np is <class 'module'> and is equal to <module 'numpy' from 'C:\\Users\\purnima\\anaconda
3\\lib\\site-packages\\numpy\\__init__.py'>
pd is <class 'module'> and is equal to <module 'pandas' from 'C:\\Users\\purnima\\anacond
a3\\lib\\site-packages\\pandas\\__init__.py'>
quit is <class 'IPython.core.autocall.ZMQExitAutocall'> and is equal to <IPython.core.aut
ocall.ZMQExitAutocall object at 0x0000023E19E44760>
s is <class 'numpy.ndarray'> and is equal to ['2' '4' '6' '8' '10' '12']
students is <class 'numpy.ndarray'> and is equal to ['sahil' 'rahul' 'rohan' 'riya' 'anan

```

```
ya' 'vikas']  
x is <class 'numpy.ndarray'> and is equal to [0. 1. 2. 3. 4.]
```

In [ ]: