

```
In [72]: a
```

```
Out[72]: <function __main__.funA.<locals>.<lambda>(x)>
```

```
In [73]: a(10)
```

```
Out[73]: 50
```

```
In [75]: # Applying a Lambda function to a list
```

```
# input [2,7,3,5,9]  
# output [4,14,9,25,81]
```

```
def applyToList (listA, lambFun):  
    return [lambFun(x) for x in listA]
```

```
In [76]: listB = [2,7,3,5,9]
```

```
applyToList(listB, lambda x : x**2)
```

```
Out[76]: [4, 14, 9, 25, 81]
```



JOSEPH KEDAR MADHUKAR
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In [76]:

```
def applyToList (listA, lambFun):
    return [lambFun(x) for x in listA]

In [76]: listB = [2,7,3,5,9]
applyToList(listB, lambda x : x*2)

Out[76]: [4, 14, 6, 10, 18]
```

In []:

```
In [ ]: cities = ['hyderabad', 'mumbai', 'mississippi', 'varanasi', 'gaya', 'bengaluru']
#Unique          7            5            4            6            3            7
```

In []:

```
def uniqueElements(x):
    s = set(x) #capturing unique elements
    return len(s) #number of unique elements
```

In []:

```
cities.sort(key = uniqueElements)
cities
```

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In [76]: `listB = [2,7,3,5,9]`
`applyToList(listB, lambda x : x*2)`

Out[76]: `[4, 14, 6, 10, 18]`

Sorting using key

In []: `cities = ['hyderabad', 'mumbai', 'mississippi', 'varanasi', 'gaya', 'bengaluru']`
#unique 7 5 4 6 3 7

In []: `def uniqueElements(x):`
 `s = set(x) #capturing unique elements`
 `return len(s) #number of unique elements`

In []: `cities.sort(key = uniqueElements)`
cities

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Sorting using key

```
In [1]: cities = ['hyderabad', 'mumbai', 'mississippi', 'varanasi', 'gaya', 'bengaluru']
         7          7          5          4          6          3          7
In [2]: cities
Out[2]: ['hyderabad', 'mumbai', 'mississippi', 'varanasi', 'gaya', 'bengaluru']

In [3]: def uniqueElements(x):
         s = set(x) #capturing unique elements
         return len(s) #number of unique elements

In [4]: cities.sort(key = uniqueElements)
         cities
Out[4]: ['gaya', 'mississippi', 'mumbai', 'varanasi', 'hyderabad', 'bengaluru']

In [ ]: |
```

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```
def applyToList (listA, lambFun):
    return [lambFun(x) for x in listA]
```

In [76]: listB = [2,7,3,5,9]
applyToList(listB, lambda x : x*2)

Out[76]: [4, 14, 6, 10, 18]

Sorting using key

```
In [1]: cities = ['hyderabad', 'mumhai', 'mississippi', 'varanasi', 'gaya', 'bengaluru']
#Unique      7        5        4        6        3        7
```

In [2]: cities

Out[2]: ['hyderabad', 'mumbai', 'mississippi', 'varanasi', 'gaya', 'bengaluru']

```
In [3]: def uniqueElements(x):
    s = set(x) #capturing unique elements
    return len(s) #number of unique elements
```

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In [4]: cities.sort(key = uniqueElements)

cities

Out[4]: ['gaya', 'mississippi', 'mumbai', 'varanasi', 'hyderabad', 'bengaluru']

In [5]: cities = ['hyderabad', 'mumbai', 'mississippi', 'varanasi', 'gaya', 'bengaluru']
#Unique 7 5 4 6 3 7

In [5]: cities.sort(key = lambda x: len(set(x)))

print(cities)

['gaya', 'mississippi', 'mumbai', 'varanasi', 'hyderabad', 'bengaluru']

In []:

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In [4]: cities.sort(key = len(set(x)))
print(cities)

Out[4]: ['gaya', 'mississippi', 'mumbai', 'varanasi', 'hyderabad', 'bengaluru']

In [5]: cities = ['hyderabad', 'mumbai', 'mississippi', 'varanasi', 'gaya', 'bengaluru']
#Unique 7 5 4 6 3 7

In [6]: cities.sort(key = lambda x: len(set(x)))
print(cities)

['gaya', 'mississippi', 'mumbai', 'varanasi', 'hyderabad', 'bengaluru']

In []: s1 = 'ississippi'

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print(set(s1))
{'i', 'p', 's', 'm'}

In [8]: numList = [(1,3,2), (3,6,9), (1,4,7), (4,1,5)]
Sorted list
[(4,1,5), (1,3,2), (1,4,7), (3,6,9)]

In [9]: numList.sort(key = lambda x: x[1])

In [10]: numList

Out[10]: [(4, 1, 5), (1, 3, 2), (1, 4, 7), (3, 6, 9)]

In []: #



PRASHANT LAIYANPAL
Can you please just a comment
that it is the ordered based on 2nd
element so that it remains in
increasing
order

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10:15 AM 18/10/2020

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print(set(s1))
{'i', 'p', 's', 'm'}

In [8]: # Sorting a List of tuples based on the 2nd element
numList = [(1,3,2), (3,6,9), (1,4,7), (4,1,5)]

Sorted list
[(4,1,5), (1,3,2), (1,4,7), (3,6,9)]

In [9]: numList.sort(key = lambda x: x[1])

In [10]: numList

Out[10]: [(4, 1, 5), (1, 3, 2), (1, 4, 7), (3, 6, 9)]

In []: #

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print(set(s1))
{'i', 'p', 's', 'm'}

In [8]: # Sorting a List of tuples based on the 2nd element

numList = [(1,3,2), (3,6,9), (1,4,7), (4,1,5)]

Sorted list
[(4,1,5), (1,3,2), (1,4,7), (3,6,9)]

In [9]: numList.sort(key = lambda x: x[1])

In [10]: numList
Out[10]: [(4, 1, 5), (1, 3, 2), (1, 4, 7), (3, 6, 9)]

In []: #



RAHUL GUPTA
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Run Cell Code

```
numList.append(randint(10, 100))

print(numList)
[77, 48, 76, 79, 78, 71, 34, 27, 22, 44]

In [ ]: # [77, 48, 76, 79, 78, 71, 34, 27, 22, 44]

In [12]: x = filter(lambda x: (x%2 == 0), numList)

evenList = list(x)

print(evenList)
[48, 76, 78, 34, 22, 44]
```

In []:





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In []:

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In []: # Three steps in file processing
Open a file for either reading (input) or writing (output)
Process
Close file

In []: ##### Writing data to a file
Open file

File Handling with Python

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In []: *### Writing data to a file*

```
# Open a file for either reading (input) or writing (output)
# Process
# Close file
```

```
# Open file
# outfile is a variable that refers to a file object
# mode - 'w' - writing, 'r' - reading

# If files doesn't exist in your current directory, python
# creates it for you

# If file exists

outfile = open("Games.txt", 'w')
```

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Python 3



```
# If file doesn't exist in your current directory, python
# creates it for you

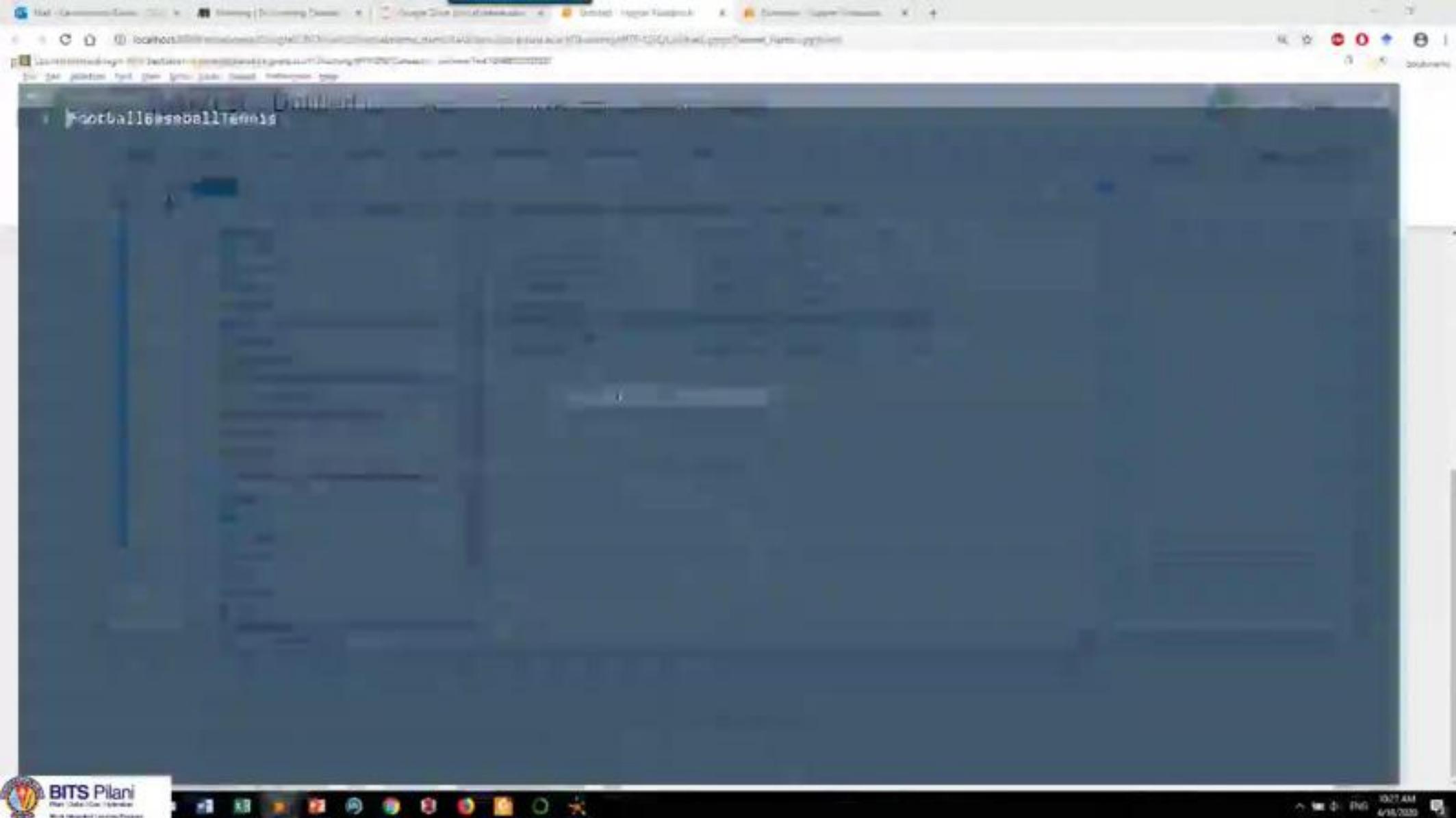
# If file exists, python overrides it

outfile = open("Games.txt", 'w')

# Process writing some names of games to the file
outfile.write("Football")
outfile.write("Baseball")
outfile.write("Tennis")

#Close file
outfile.close()
```

In []:



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Training Python 3



```
# If file doesn't exist in your current directory, it will  
# create it for you  
  
# If file exists, python overrides it  
  
outfile = open("Games.txt", 'w')  
  
# Process - writing some names of games to the file  
outfile.write("Football")  
outfile.write("Basketball")  
outfile.write("Tennis")  
  
# Close file  
outfile.close()
```

In []:

GALI SHIVA SHANKAR
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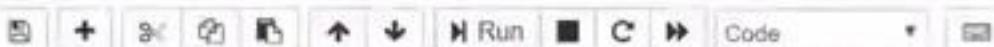


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Python 3



```
# If files doesn't exist in your current directory, python  
# creates it for you  
  
# If file exists, python overrides it  
  
outfile = open("Games.txt", 'w')  
  
# Process - writing some names of games to the file  
outfile.write("Football\n")  
outfile.write("Baseball\n")  
outfile.write("Tennis")  
  
#Close file  
outfile.close()
```

In []:



S.GANGADHARAN

@moga phata it will create in current path...
insert

File

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Python 3

A horizontal toolbar with various icons for file operations like new, open, save, and run.

```
# If files doesn't exist in your current directory, python
# creates it for you

# If file exists, python overrides it

outfile = open("Games.txt", 'w')

# Process - writing some names of games to the file
outfile.write("Football\n")
outfile.write("Baseball\n")
outfile.write("Tennis")

#Close file
outfile.close()
```

In []:

SHAILESH AGRAWAL
pts test me path
Imports

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File Cell Kernel Help

File Handling with Python

```
In [ ]: # Three steps in file processing  
  
# Open a file for either reading (input) or writing (output)  
# Process  
# Close file
```

```
In [2]: ### Writing data to a file  
  
# Open file  
# outfile is a variable that refers to a file object  
# mode - 'w' - writing, 'r' - reading  
  
# If files doesn't exist in your current directory, python  
# creates it for you  
  
# If file exists, python overrides it  
  
outfile = open("Games.txt", "w")  
  
# Process - writing some names of games to the file
```



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```
# If file exists, python overrides it

outfile = open("Games.txt", 'w')

# Process - writing some names of games to the file
outfile.write("Football\n")
outfile.write("Baseball\n")
outfile.write("Tennis")

#Close file
outfile.close()
```

Reading Files

In []:



NAGA PHANI KUMAR P
THIRUMAL
Instructor

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Python 3



```
# If file exists, python overrides it

outfile = open("Games.txt", "w")

# Process - writing some names of games to the file
outfile.write("Football\n")
outfile.write("Baseball\n")
outfile.write("Tennis")

#Close file
outfile.close()
```

Reading Files

In []:



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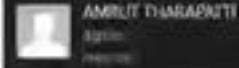
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`outfile.write("Baseball\n")
outfile.write("Tennis")

#Close file
outfile.close()`

Reading Files

```
In [ ]: ## Reading file using read() function  
# read() reads all the contents in one shot  
  
#Open file for input  
  
infile = open("Games.txt", 'r'):
```



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#Open file for input
infile = open("Games.txt", 'r')
print("1) Reading contents with read() function\n")
fileContents = infile.read()
print("Type of fileContents object = ", type(fileContents))

#close file
infile.close()
1) Reading contents with read() function
Type of fileContents object = <class 'str'>

In []:

SURE PAVAI PRAMODRAO
Can we get into error for help
opening
file.txt

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#Open file for input
infile = open("Games.txt", 'r')
print("1) Reading contents with read() function\n")
fileContents = infile.read()
print("Type of fileContents object = ", type(fileContents))
print(fileContents)

#close file
infile.close()

1) Reading contents with read() function

Type of fileContents object = <class 'str'>
Football
Baseball
Tennis

In []:

AISHIT GUPTA
display yes, you can do it using try
except
import

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Panjab University

9:34 AM 6/16/2020

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File Cell Kernel Help

Run Cell Code Cell

```
print("Type of fileContents object = ", type(fileContents))

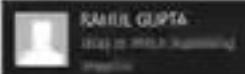
print(fileContents)

#close file
infile.close()

1) Reading contents with read() function

Type of fileContents object = <class 'str'>
Football
Baseball
Tennis
```

In []:



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Python 3



```
In [ ]: # Reading specific number of characters
        infile = open("Games.txt", 'r')

        print("2) Reading using read(n) function\n")

        s1 = infile.read(4) #Read first four characters
        print(s1)

        infile.close()
```

In []:

In []:

In []:

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File Cell Kernel Help

Football
Baseball
Tennis

In [6]:

```
# Reading specific number of characters
infile = open("Games.txt", 'r')

print("2) Reading using read(n) function\n")

s1 = infile.read(4) #Read first four characters
print(s1)

infile.close()
```

2) Reading using read(n) function

Foot

In []:

In []:

In []:

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10:36 AM 6/1/2020

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Python 3



Football
Baseball
Tennis

```
In [6]: # Reading specific number of characters
infile = open("Games.txt", 'r')

print("2) Reading using read(n) function\n")

s1 = infile.read(4) #Read first four characters
print(s1)
]

s2 = infile

infile.close()

2) Reading using read(n) function
```

Foot

```
In [ ]:
```

```
In [ ]:
```



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Python 3



Baseball

Tennis

```
In [6]: # Reading specific number of characters
infile = open("Games.txt", 'r')

print("2) Reading using read(n) function\n")

s1 = infile.read(4) #Read first four characters
print(s1)

s2 = infile.read(10) # Read 10 characters
print(s2)

infile.close()

2) Reading using read(n) function
```

Foot

In []:

In []:

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Python 3

Tenniz

```
In [7]: # Reading specific number of characters
infile = open("Sports.txt", 'r')

print("2) Reading using read(n) function\n")

s1 = infile.read(4) #Read first four characters
print(s1)

s2 = infile.read(10) # Read 10 characters
print s2

infile.close()

2) Reading using read(n) function
```

Foot
ball
Baseb

In []:

In []:

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In [8]:

```
# Reading specific number of characters
infile = open("Games.txt", 'r')

print("2) Reading using read(n) function\n")

s1 = infile.read(4) #Read first four characters
print(s1)

s2 = infile.read(10) # Read 10 characters
print(s2)
print(repr(s2))

s

infile.close()

2) Reading using read(n) function
```

Foot
ball
Baseb
'ball\nBaseb'

In []:

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2) Reading using read(n) function

```
Foot  
ball  
Baseb  
'ball\nBaseb'  
all  
Tenn
```

In []: # Reading

In []:

In []:

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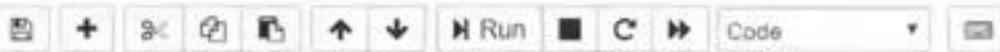
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Python 3



2) Reading using read(n) function

```
Foot  
ball  
Baseb  
'ball\nBaseb'  
all  
Tenn
```

```
In [ ]: # Reading a text file using readline() function  
  
infile = open("Games.txt", 'r')  
  
print("3) Reading file contents using readline() function")
```

In []:

In []:

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Code

Baseb
'ball\nBaseb'
all
Tenn

```
In [11]: # Reading a text file using readline() function
        infile = open("Games.txt", 'r')
        print("3) Reading file contents using readline() function")
        line1 = infile.readline()
        print(line1)
        print(repr(line1))
        infile.close()
        3) Reading file contents using readline() function
        Football
        'Football\n'
```

In []:

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App Testing Update Training and Demos Other notebooks

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Run Cell Code

```
print("3) Reading file contents using readline() function")

line1 = infile.readline()
#print(line1)
#print(repr(line1))

print(line1.rstrip())
lin| infile.close()

3) Reading file contents using readline() function
Football
```

In []:

In []:

Mail Assessment Demo Course Home Learning Document Details

C D I https://colab.research.google.com/drive/1GKwLWfCQzvJmZcUuXnA8yfjDfVgkM4d/Untitled.ipynb?usp=sharing

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In []:

In []:

print("3) Reading file contents using readline() function")
line1 = infile.readline()
#print(line1)
#print(repr(line1))

print(line1.rstrip())

line2 = infile.readline()
print(line2.rstrip())

line3 = infile.readline()
print()

infile.close()

3) Reading file contents using readline() function
Football
Baseball

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World's Best Engineering Program

9:42 AM APR 2020

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In [18]: # Reading text file using readlines() function

```
infile = open("Games.txt", 'r')
lineList = infile.readlines()
print(lineList)
infile.close()
```

['Football\n', 'Baseball\n', 'Tennis']

In []:

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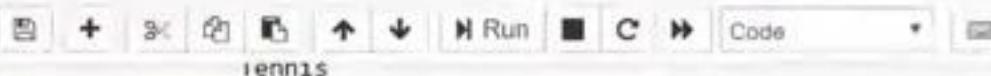
Apps Teaching SeState Learning and DataSci Other bookmarks

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Code



In []: # Reading text file by looping through it

```
infile = open("Games.txt", 'r')  
  
for line in infile:  
    print(line)
```

|

In []:

In []:

In []:

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Mohandas Shenoy P [Mohandas Shenoy P Python Fundamentals for Data Science](#) 10:12 AM
Suraj Kumar [unable to see today's link for Lecture in Canvas / Hispano...](#) 10:14 AM
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Important [Important - Upcoming lecture](#) 10:16 AM
Ashutosh Panigrahi [Important: Demo on Google Meet @ Sat Apr 18, 2020 6pm - 7pm \(IST\) \(ramakrishna.dantu@bits-pilani.ac.in\)](#) 10:18 AM
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Date: Saturday, April 18, 2020 6:00 PM - 7:00 PM IST (IST)
 Location: Anil Kumar's Meet
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 Participants

organizer
 participant
 participant

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for line in infile:
 print(line.rstrip())

infile.close()

Football
Baseball
Tennis

In []: # Calculating total number of words in a text file
infile = open("COVID-19.txt", 'r')
|

In []:

In []:

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Trustee



Python 3

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```
for line in infile:  
    print(line.rstrip())  
  
infile.close()
```

Football
Baseball
Tennis

```
In [ ]: # Calculating total number of words in a text file  
  
infile = open("COVID-19.txt", 'r')  
  
contents = infile.readlines()
```

In []:

In []:



MOHD SAFULLAH ANSARI

I don't think readlines loads
complete file at once.
Ansari

Mail - Ramkumar Dantu - Outlook | Home | Discreetly Done | Google Drive - Untitled | Untitled - Jupyter Notebook | Functions - Jupyter Notebook

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File Edit View Insert Cell Kernel Widgets Help Trusted Python 3

In [25]: # Calculating total number of words in a text file

```
infile = open("COVID_19.txt", 'r')
contents = infile.readlines()
#print(contents)
wordCount = 0
|
infile.close()
```

['Coronavirus disease (COVID-19) is an infectious disease caused by a new virus.\n', 'The disease causes respiratory illness, like the flu, with symptoms such as\n', 'a cough, fever, and in more severe cases, difficulty breathing.\n', 'You can protect yourself by washing your hands frequently, avoiding\n', 'touching your face, and avoiding close contact with people who are unwell.']}

In []:

In []:

Mail - Xanadu Demo Colab Notebook - Google Discovering Disease - Code Dev environment - Untitled - Jupyter Notebook - Summary - Jupyter Notebook

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In [25]: # Calculating total number of words in a text file

```
infile = open("COVID_19.txt", 'r')
contents = infile.readlines()
#print(contents)
wordCount = 0
for line in contents:
    wordCount += len(line.split())
print(wordCount)
infile.close()
```

['Coronavirus disease (COVID-19) is an infectious disease caused by a new virus.\n', 'The disease causes respiratory illness, like the flu, with symptoms such as\n', 'a cough, fever, and in more severe cases, difficulty breathing. \n', 'You can protect yourself by washing your hands frequently, avoiding\n', 'touching your face, and avoiding close contact with people who are unwell.']

In []:

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contents = infile.readlines()

```
#print(contents)

wordCount = 0

for line in contents:
    wordCount += len(line)

infile.close()

['Coronavirus disease (COVID-19) is an infectious disease caused by a new virus.\n', 'The disease causes respiratory illness, like the flu, with symptoms such as\n', 'a cough, fever, and in more severe cases, difficulty breathing.\n', 'You can protect yourself by washing your hands frequently, avoiding\n', 'touching your face, and avoiding close contact with people who are unwell.']

In [ ]:
```

In []:

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```
contents = infile.readlines()
```

```
#print(contents)
```

```
wordCount = 0
```

```
for line in contents:
```

```
    wordList = line.split()
```

```
|
```

```
I
```

```
infile.close()
```

```
['Coronavirus disease (COVID-19) is an infectious disease caused by a new virus.\n', 'The disease causes respiratory illness, like the flu, with symptoms such as\n', 'a cough, fever, and in more severe cases, difficulty breathing. \n', 'You can protect yourself by washing your hands frequently, avoiding\n', 'touching your face, and avoiding close contact with people who are unwell.']}
```

In []:

In []:

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In []:

In []:

```
#print(contents)

wordCount = 0

for line in contents:
    # Create a wordlist for each line
    wordList = line.split()
    |

    #Update word count
    wordCount += len(wordList)
    |



print("Total number of words = ", wordCount)

infile.close()

Total number of words =  56
```

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print(contents)

wordCount = 0

for line in contents:

Create a wordlist for each line

wordList = line.split()

print(wordList)

#Update word count

wordCount += len(wordList)

print("Total number of words = ", wordCount)

infile.close()

['Coronavirus', 'disease', '(COVID-19)', 'is', 'an', 'infectious', 'disease', 'caused', 'by', 'a', 'new', 'virus.']

['The', 'disease', 'causes', 'respiratory', 'illness,', 'like', 'the', 'flu,', 'with', 'symptoms', 'such', 'as']

['a', 'cough,', 'fever,', 'and', 'in', 'more', 'severe', 'cases,', 'difficulty', 'breathing.']

['You', 'can', 'protect', 'yourself', 'by', 'washing', 'your', 'hands', 'frequently,', 'avoiding']

['touching', 'your', 'face,', 'and', 'avoiding', 'close', 'contact', 'with', 'people', 'who', 'are', 'unwell.]



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Python 3



```
# Program takes the name of the country as input
# and display the number of social media users in 2018 and 2023
```

```
INPUT_FILE = "SocialMediaUsers.txt"

country = input("Enter a country: ")

try:
    infile = open(INPUT_FILE, 'r')

except IOError as ioe:
    print(ioe)

else: #Clean case - a no error situation
    try:
        line, found = getSocialMediaUsers(infile, country)

        displayOutput
```



VIKASH KUMAR

bio - you have 500+ connections
email
connect

Untitled - Jupyter Notebook

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INPUT_FILE = 'socialmediausers.txt'

```
country = input("Enter a country: ")

try:
    infile = open(INPUT_FILE, 'r')

except IOError as ioe:
    print(ioe)

else: #Clean case - a no error situation
    try:
        line, found = getSocialMediaUsers(infile, country)

        displayOutput(line, found)

    finally:
        |
```



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Python 3



```
except IOError as ioe:  
    print(ioe)  
  
else: #Clean case - a no error situation  
    try:  
        line, found = getSocialMediaUsers(infile, country)  
  
        displayOutput(line, found)  
  
    finally:  
        infile.close()  
  
##=====##  
  
def getSocialMediaUsers(infile, country):  
  
    [redacted]
```

In []:

In []:

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File Edit View Insert Cell Kernel Widgets Help Trusted | Python 3

In []:

In []:

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```

finally:
    infile.close()

##=====

def getSocialMediaUsers(infile, country):
    found = False #Assume record doesn't exist

```

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Python 3

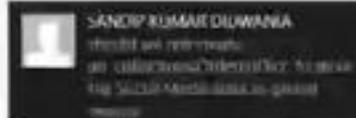


```
finally:  
    infile.close()  
  
##-----  
  
def getSocialMediaUsers(infile, country):  
  
    found = False #Assume record doesn't exist  
  
    for line in infile:  
        found = searchCountry(line.rstrip(), country)  
  
        if(found):  
            break  
  
    return line, found
```

In []:

In []:

In []:



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and display the number of social media users in 2018 and 2023

```
INPUT_FILE = "SocialMediaUsers.txt"

country = input("Enter a country: ")

try:
    infile = open(INPUT_FILE, 'r')

except IOError as ioe:
    print(ioe)

else: #Clean case - a no error situation
    try:
        line, found = getSocialMediaUsers(infile, country)

        displayOutput(line, found)

    finally:
        infile.close()

##=====

def getSocialMediaUsers(infile, country):
```

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```
INPUT_FILE = "SocialMediaUsers.txt"

country = input("Enter a country: ")

try:
    infile = open(INPUT_FILE, 'r')

except IOError as ioe:
    print(ioe)

else: #Clean case - a no error situation
    try:
        line, found = getSocialMediaUsers(infile, country)

        displayOutput(line, found)

    finally:
        infile.close()

#-----

def getSocialMediaUsers(infile, country):
    found = False #Assume record doesn't exist

    for line in infile:
```

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```
displayOutput(line, found)

finally:
    infile.close()

##
```

```
def getSocialMediaUsers(infile, country):

    found = False #Assume record doesn't exist

    for line in infile:
        found = searchCountry(line.rstrip(), country)

        if(found):
            break

    return line, found

##
```

```
def searchCountry(line, searchString):

    lineList = line.split(',') #List of elements
```

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Python 3

```
try:  
    infile = open(INPUT_FILE, 'r')  
  
except IOError as ioe:  
    print(ioe)  
  
else: #Clean case - a no error situation  
    try:  
        line, found = getSocialMediaUsers(infile, country)  
  
        displayOutput(line, found)  
  
    finally:  
        infile.close()  
  
#-----  
  
def getSocialMediaUsers(infile, country):  
  
    found = False #Assume record doesn't exist  
  
    for line in infile:  
        found = searchCountry(line.rstrip(), country)  
  
        if(found):  
            break
```

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try:
 line, found = getSocialMediaUsers(infile, country)

 displayOutput(line, found)

finally:
 infile.close()

##=====

def getSocialMediaUsers(infile, country):

 found = False #Assume record doesn't exist

 for line in infile:
 found = searchCountry(line.rstrip(), country)

 if(found):
 break

 return line, found

##=====

def searchCountry(line, searchString):



DEVAOGA SNEHA VITRAL
PADMANABH
function should be defined before being called
Inference

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Other Data Science Projects

11:44 AM 6/16/2020

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App: Teaching DataScience Training and Development Other bookmarks

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File Edit View Insert Cell Kernel Widgets Help Trusted Python 3

INPUT_FILE = "SocialMediaUsers.txt"
country = input("Enter a country: ")

try:
 infile = open(INPUT_FILE, 'r')

except IOError as ioe:
 print(ioe)

else: #Clean case - a no error situation
 try:
 line, found = getSocialMediaUsers(infile, country)

 displayOutput(line, found)

 finally:
 infile.close()

##-----

def getSocialMediaUsers(infile, country):

 found = False #Assume record doesn't exist

 for line in infile:

 jupyter Untitled1 Last Checkpoint: 2 minutes ago (unsaved changes)

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Python 3



```
INPUT_FILE = "SocialMediaUsers.txt"

country = input("Enter a country: ")

try:
    infile = open(INPUT_FILE, 'r')

except IOError as ioe:
    print(ioe)

else: #Clean case - a no error situation
    try:
        line, found = getSocialMediaUsers(infile, country)

        displayOutput(line, found)

    finally:
        infile.close()

#####
#-----#
def getSocialMediaUsers(infile, country):
    found = False #Assume record doesn't exist
```

ROHIT ARTHAM JAGANNATH
RETURN MISSING
Report

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```
# and display the number of social media users in 2018 and 2023

INPUT_FILE = "SocialMediaUsers.txt"

country = input("Enter a country: ")

try:
    infile = open(INPUT_FILE, 'r')

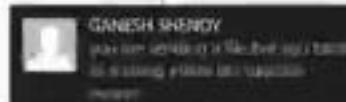
except IOError as ioe:
    print(ioe)

else: #Clean case - a no error situation
    try:
        line, found = getSocialMediaUsers(infile, country)

        displayOutput(line, found)

    finally:
        infile.close()

#####
# def getSocialMediaUsers(infile, country):
#     found = False #assume second doesn't exist
```



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Python 3



```
# and display the number of social media users in 2018 and 2023
```

```
INPUT_FILE = "SocialMediaUsers.txt"
```

```
country = input("Enter a country: ")
```

```
try:
    infile = open(INPUT_FILE, 'r')
```

```
except IOError as ioe:
    print(ioe)
```

```
else: #Clean case - a no error situation
```

```
    try:
        line, found = getSocialMediaUsers(infile, country)
```

```
        displayOutput(line, found)
```

```
    finally:
        infile.close()
```

```
##=====
```

```
def getSocialMediaIcons(infile, country):
```



ROHIT ARTHAM JAGANNATH
return missing
injection

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Python 3



```
# and display the number of social media users in 2018 and 2023
```

```
INPUT_FILE = "SocialMediaUsers.txt"
```

```
|
```

```
country = input("Enter a country: ")
```

```
try:
```

```
    infile = open(INPUT_FILE, 'r')
```

```
except IOError as ioe:
```

```
    print(ioe)
```

```
else: #Clean case - a no error situation
```

```
    try:
```

```
        line, found = getSocialMediaUsers(infile, country)
```

```
        displayOutput(line, found)
```

```
    finally:
```

```
        infile.close()
```

```
##-----
```

```
def getSocialMediaUsers(infile, country):
```



BONI ARTHAM MACHANNATH
SOCIAL MEDIA
Student

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Code

```
# and display the number of social media users in 2018 and 2023

INPUT_FILE = "SocialMediaUsers.txt"

def ma|
```

country = input("Enter a country: ")

```
try:
    infile = open(INPUT_FILE, 'r')
```

except IOError as ioe:

```
    print(ioe)
```

else: #Clean case - a no error situation

```
    try:
        line, found = getSocialMediaUsers(infile, country)

        displayOutput(line, found)

    finally:
        infile.close()
```

```
=====
```

```
def getSocialMediaUsers(infile, country):
```

SHEIKH ISKAR AHMED ANSAR HUSSAIN

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Code

```
## =====
def displayOutput(line, found):
    if(found):
        data = line.split(',')
        print("Social media users in: %s\n2018: %s Millions\n 2023: %s Millions"
              %(data[0],data[1],data[2]))
    else:
        print("Data not found for the given country")
    I
|
```

Enter a country: xyz

```
NameError Traceback (most recent call last)
<ipython-input-1-a04a6a83848d> in <module>
      15 else: #Clean case - a no error situation
      16     try:
--> 17         line, found = getSocialMediaUsers(infile, country)
      18
      19         displayOutput(line, found)
```



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Python 3



```
## =====
def displayOutput(line, found):

    if(found):
        data = line.split(',')
        print("Social media users in: %s\n2018: %s Millions\n 2023: %s Millions"
              %(data[0],data[1],data[2]))
    else:
        print("Data not found for the given country")

main()
```

```
Enter a country: xyzz
Data not found for the given country
```

In []:

In []:

In []:



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Python 3



```
## =====

def displayOutput(line, found):

    if(found):
        data = line.split(',')
        print("Social media users in: %s\n2018: %s Millions\n 2023: %s Millions"
              %(data[0],data[1],data[2]))
    else:
        print("Data not found for the given country")

main()
```

Enter a country:

In []:

In []:

In []:

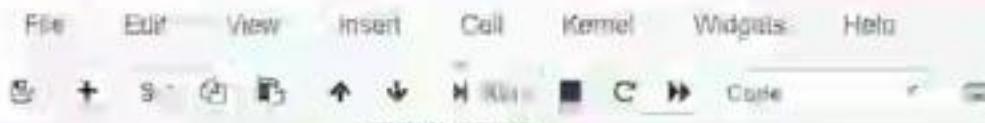
Training

Python 3



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```
## =====  
  
def displayOutput(line, found):  
  
    if(found):  
        data = line.split(',')  
        print("Social media users in: %s\n2018: %s Millions\n 2023: %s Millions"  
              %(data[0],data[1],data[2]))  
    else:  
        print("Data not found for the given country")  
  
main()  
  
Enter a country: 
```

In []:

In []:

In []:

RAHUL GUPTA
India
Imports



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Python 3



return False

```
## = = = = =  
def displayOutput(line, found):  
  
    if(found):  
        data = line.split(',')  
        print("Social media users in: %s\n2018: %s Millions\n 2023: %s Millions"  
              %(data[0],data[1],data[2]))  
    else:  
        print("Data not found for the given country")  
  
main()
```

```
Enter a country: India  
Social media users in: India  
2018: 326.1 Millions  
2023: 447.9  
Millions
```

In []:

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Program takes the name of the country as input
and display the number of social media users in 2018 and 2023

```
INPUT_FILE = "SocialMediaUsers.txt"

def main():

    country = input("Enter a country: ")

    try:
        infile = open(INPUT_FILE, 'r')

    except IOError as ioe:
        print(ioe)

    else: #Clean case - a no error situation
        try:
            line, found = getSocialMediaUsers(infile, country)

            displayOutput(line, found)

        finally:
            infile.close()

    ##
```

PRASHANT LAKHANPAL
Is python case sensitive example if I create a file Inputfile.txt it same as INPUTFILE??
Inputfile



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Python 3



```
In [3]: # Program to read SocialMediaUsers.txt
# Program takes the name of the country as input
# and display the number of social media users in 2018 and 2023
```

```
INPUT_FILE = "SocialMediaUsers.txt"

def main():

    country = input("Enter a country: ")

    try:
        infile = open(INPUT_FILE, 'r')

    except IOError as ioe:
        print(ioe)

    else: #Clean case - a no error situation
        try:
            line, found = getSocialMediaUsers(infile, country)

            displayOutput(line, found)

        finally:
```



Minal Kanti SARKAR
Last login: 04/06/2020
11:16 AM

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Python 3



```
try:  
    infile = open(INPUT_FILE, 'r')  
  
except IOError as ioe:  
    print(ioe)  
  
else: #Clean case - a no error situation  
    try:  
        line, found = getSocialMediaUsers(infile, country)  
  
        displayOutput(line, found)  
  
    finally:  
        infile.close()  
  
##-----  
  
def getSocialMediaUsers(infile, country):  
  
    found = False #Assume record doesn't exist  
  
    for line in infile:  
        found = searchCountry(line.rstrip(), country)
```



SAI SATISH BABU N

Best fit to use dict structure may be
infinite

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NumPy (Numerical Python)

NumPy Array

```
In [ ]: import numpy as np
```



RAVI ALWADHI
not visible
Instructor

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NumPy (Numerical Python)

NumPy Array

```
In [1]: import numpy as np
```

```
In [2]: # Creating a NumPy array using array function
arr1 = np.array([1,2,3,4])
arr1
```

```
Out[2]: array([1, 2, 3, 4])
```

```
In [ ]:
```



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In [1]:

```
list1 = [1, 3.4, '5', "BITS", True]
np.array(list1)
```

Out[1]: array(['1', '3.4', '5', 'BITS', 'True'], dtype='|<U32')

In [2]:

```
# Checking NumPy array data type
arr1.dtype
```

Out[2]: dtype('int32')

In [3]:

```
arr2 = np.array([1.2, 2.8, 3.6, 4.1])
arr2
```

Out[3]: array([1.2, 2.8, 3.6, 4.1])

In [4]:

```
type(arr2)
```

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Python 3



```
list1 = [1, 3.4, '5', "BITS", True]
np.array(list1)
```

```
Out[3]: array(['1', '3.4', '5', 'BITS', 'True'], dtype='<U32')
```

```
In [5]: # Checking NumPy array data type
arr1.dtype
```

```
Out[5]: dtype('int32')
```

```
In [6]: arr2 = np.array([1.2, 2.8, 3.6, 4.1])
arr2
```

```
Out[6]: array([1.2, 2.8, 3.6, 4.1])
```

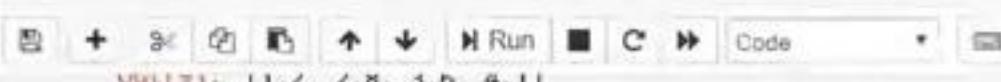
```
In [ ]: type(arr2) |
```



RAHUL GUPTA
this will give class
inputs

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URL [?] [1.2, 2.8, 3.6, 4.1]

Comparing times between Python List and NumPy array

In []: myArray = np.arange(1000000)

my

In []:

In []:

In []:

In []:



VISHAL GUPTA
@Mengj but list can also hold many
data types
https://



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Python 3



Comparing times between Python List and NumPy array

```
In [10]: myArray = np.arange(100000) #NumPy array  
myList = list(range(100000)) #Python List
```

In []:

In []:

In []:

In []:

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Python 3



Comparing times between Python List and NumPy array

```
In [11]: myArray = np.arange(100000) #NumPy array  
myList = list(range(100000)) #Python List
```

```
In [12]: %time for _ in range(10): myArray2 = myArray**2  
Wall time: 1.5 ms
```

```
In [13]: %time for _ in range(10): myList2 = [x**2 for x in myList]  
Wall time: 133 ms
```

Properties of NumPy Array

In []:

PRASHANT LAKHMANI
DATA SCIENCE SPECIALIST
Simplilearn

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Python 3



In [11]: myArray = np.arange(100000) #NumPy array

myList = list(range(100000)) #Python List

In [12]: %time for _ in range(10): myArray2 = myArray**2

Wall time: 1.5 ms

In [13]: %time for _ in range(10): myList2 = [x**2 for x in myList]

Wall time: 133 ms

Properties of NumPy Array

In []: # dtype
shape

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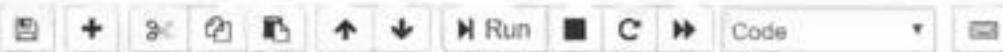
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```
In [ ]: # dtype --> data type of elements  
# shape --> (a tuple that indicates the size of each dimension)  
# ndim --> (number of dimensions of the array)  
# size --> number of elements in the array
```

```
In [ ]: arr1 = np.ar
```

```
In [ ]:
```

```
In [ ]:
```

```
In [ ]:
```

PRASHANT LAKHANPAL
DATA SCIENCE
BITS Pilani

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In [14]: arr1 = np.array([3,1,5,7,2])
arr1

Out[14]: array([3, 1, 5, 7, 2])

In [15]: arr1.dtype

Out[15]: dtype('int32')

In [16]: arr1.ndim

Out[16]: 1

In []:

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```
In [14]: arr1 = np.array([3,1,5,7,2])  
arr1
```

```
Out[14]: array([3, 1, 5, 7, 2])
```

```
In [15]: arr1.dtype
```

```
Out[15]: dtype('int32')
```

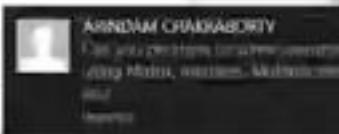
```
In [16]: arr1.ndim
```

```
Out[16]: 1
```

```
In [17]: arr1.shape
```

```
Out[17]: (5,)
```

```
In [ ]:
```



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Python 3



In [18]: arr1.size

Out[18]: 5

Two-Dimensional Arrays

In [20]: arr2 = np.array([[1,2,3], [4,5,6]])

arr2

Out[20]: array([[1, 2, 3],
 [4, 5, 6]])

In []: # Creating 2D NumPy array with python Lists

11 = [1,2,3]
12 , [4,5,6]

RAHUL GUPTA

shape give the how many rows and
columns value
Important

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In []:

Out[21]: array([[1, 2, 3],
[4, 5, 6]])

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Code

```
11 = [1,2,3]
12 = [4,5,6]

arr3 = np.array([11, 12])
arr3
```

Out[21]: array([[1, 2, 3],
 [4, 5, 6]])

In []: 11 = [1,2,3]
12 = [4,5,6]

In []:

In []:

In []:

In []:

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Python 3



In [23]: arr4.dtype

Out[23]: dtype('int32')

In [24]: arr4.ndim

Out[24]: 2

In [26]: arr4.shape

Out[26]: (3, 3)

In [27]: arr3.share

AttributeError:

Traceback (most recent call last)

<ipython-input-27-91de61a69a69> in <module>

----> 1 arr3.share

AttributeError: 'numpy.ndarray' object has no attribute 'share'

In []:

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In [23]: arr4.dtype
Out[23]: dtype('int32')

In [24]: arr4.ndim
Out[24]: 2

In [26]: arr4.shape
Out[26]: (3, 3)

In [28]: arr3.shape
Out[28]: (2, 3)

In []:

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In [22]: arr4

Out[22]: array([[1, 2, 3],
 [4, 5, 6],
 [7, 8, 9]])

In [23]: arr4.dtype

Out[23]: dtype('int32')

In [24]: arr4.ndim

Out[24]: 2

In [26]: arr4.shape

Out[26]: (3, 3)

In [28]: arr3.shape

Out[28]: (2, 3)

In []:



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11:40 AM 4/18/2020

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Python 3



data

```
Out[31]: array([[ 0.69443714, -0.04218747,  1.11397502],
   [ 1.59784775, -1.06656276, -0.01730846]])
```

In []:

I

In []:

In []:

In []:

In []:



S GANGADHARAN
@sushil_ndm returns no of
dimensions of the array
import



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data

Out[31]: array([[0.69443714, -0.84218747, 1.11397502],
 [1.59784775, -1.86656276, -0.01730846]])In [35]: print(type(data))
print(data.dtype)
print(data.ndim)
print(data.shape) I

<class 'numpy.ndarray'>
float64
2
(2, 3)

In []:

In []:

In []:

In []:

SUSHIL CHANDWANI
10.2019.442.218.3.19407
[redacted]

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Python 3



data

```
Out[31]: array([[ 0.69443714, -0.04218747,  1.11397502],
   [ 1.59784775, -1.06656276, -0.01730846]])
```

```
In [36]: print(type(data))
print(data.dtype)
print(data.ndim)
print(data.shape)
print(data.size)

<class 'numpy.ndarray'>
float64
2
(2, 3)
6
```

In []:

In []:

In []:

VUPPALA SMARAN
2 days ago
ipython

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Python 3



Code

[] 1.34/104.0 - 0.01% - C:////68.66.1.1

```
In [36]: print(type(data))
print(data.dtype)
print(data.ndim)
print(data.shape)
print(data.size)

<class 'numpy.ndarray'>
float64
2
(2, 3)
6
```

In []:

In []:

In []:

In []:

VUPPALA SRAJAN
DataCamp Learning
Instructor

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print(data.size)

```
<class 'numpy.ndarray'>
float64
2
(2, 3)
6
```

In []: # Generate a 3 x 3 array of random samples from a normal

In []:

In []:

In []:

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print(data.size)

```
<class 'numpy.ndarray'>
float64
2
(2, 3)
6
```

In []: # Generate a 3 x 3 array of random samples from a normal
distribution with a standard deviation of 4.5 (sigma)

In []:

In []:

In []:

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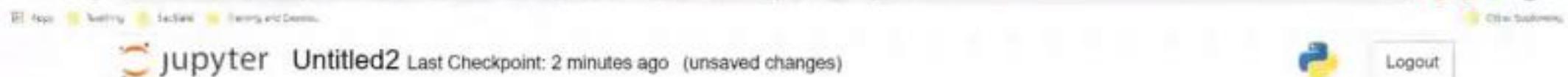
<class 'numpy.ndarray'>
float64
2
(2, 3)
6

In []: # Generate a 3 x 3 array of random samples from a normal
distribution with a standard deviation of 4.5 (sigma)
and mean of 5

In []:

In []:

In []:



In [37]: `data2 = 4.5 * np.random.randn(3,3) + 5`
`data2`

Out[37]: `array([[0.8656938 , 7.91793673, 11.66629953],
 [4.56798654, -1.93103744, 4.91157796],
 [6.6678527 , 15.50840539, 5.00657579]])`

Prepopulated Arrays

In []:



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In []: `[0.0085277 , 15.0000000 , 5.0000000]]`

Prepopulated Arrays

```
In [38]: a1 = np.array([1,2,3,4,5])
a1
Out[38]: array([1, 2, 3, 4, 5])

In [39]: a2 = np.asarray(a1)
a2
Out[39]: array([1, 2, 3, 4, 5])

In [40]: a2 is a1
Out[40]: True
```

In []:

In []:

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In [39]: `a2 = np.asarray(a1)`
a2

Out[39]: `array([1, 2, 3, 4, 5])`

In [40]: `a2 is a1`

Out[40]: `True`

In []: `x = np.array([1,3,5], dtype=np.float32)`

In []:

In []:

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In [39]: `a2 = np.asarray(a1)`
a2

Out[39]: `array([1, 2, 3, 4, 5])`

In [40]: `a2 is a1`

Out[40]: `True`

In [41]: `x = np.array([1,3,5], dtype=np.float32)`
`y = np.asarray(x, dtype=np.float32)`
`y is x`

TypeError Traceback (most recent call last)
<ipython-input-41-a346b6ed3b52> in <module>
 1 x = np.array([1,3,5], dtype=np.float32)
 2
----> 3 y = np.asarray(x, dtype=np.float32)
 4
 5 y is x

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In [40]: a2 is a1

Out[40]: True

In [41]: x = np.array([1,3,5], dtype=np.float32)

y = np.asarray(x, dtype=np.float32)

y is x

TypeError Traceback (most recent call last)
<ipython-input-41-a346b6ed3b52> in
 1 x = np.array([1,3,5], dtype=np.float32)
 2
----> 3 y = np.asarray(x, dtype=np.float32)
 4
 5 y is x

TypeError: asarray() got an unexpected keyword argument 'dtype'

In []:

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In [42]: `y = np.asarray(x, dtype=np.float32)`

y is x

Out[42]: True

In [43]: `y is a1`

Out[43]: False

In [44]: `z = np.asarray(x)`

z

Out[44]: array([1., 3., 5.], dtype=float32)

In []: |



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In [42]: `y = np.asarray(x, dtype=np.float32)`

y is x

Out[42]: True

In [43]: `y is a1`

Out[43]: False

In [44]: `z = np.asarray(x)`

z

Out[44]: array([1., 3., 5.], dtype=float32)

In []: # creating zeros



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A classmate from BITS Pilani
Kharagpur

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In [42]: `y is x`

Out[42]: True

In [43]: `y is a1`

Out[43]: False

In [44]: `z = np.asarray(x)`
z

Out[44]: array([1., 3., 5.], dtype=float32)

In []: `# creating an array of 0s`
zeros =

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In [44]: `array([1., 3., 5.], dtype=float32)`

In [45]: `# creating an array of 0s`
`zeros = np.zeros(6)`
`zeros`

Out[45]: `array([0., 0., 0., 0., 0., 0.])`

In [46]: `zeros_ints = np.zeros(6, dtype=int)`
`zeros_ints`

Out[46]: `array([0, 0, 0, 0, 0, 0])`

In []:

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In [45]: # creating an array of 0s

```
zeros = np.zeros(6)
```

zeros

Out[45]: array([0., 0., 0., 0., 0., 0.])

In [46]: zeros_ints = np.zeros(6, dtype=int)

```
zeros_ints
```

Out[46]: array([0, 0, 0, 0, 0, 0])

In []:

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zeros_ints

Out[46]: array([0, 0, 0, 0, 0, 0])

In [47]: ones = np.ones(3)

ones

Out[47]: array([1., 1., 1.])

In [48]: ones_ints = np.ones(6, dtype=int)

ones_ints

TypeError

Traceback (most recent call last)

<ipython-input-48-0ec7d4a586f1> in <module>()
----> 1 ones_ints = np.ones(6, dtype=int)
 2
 3 ones_ints

TypeError: ones() got an unexpected keyword argument 'dtype'


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Out[46]: array([0, 0, 0, 0, 0, 0])

In [47]: ones = np.ones(3)
ones

Out[47]: array([1., 1., 1.])

In [49]: ones_ints = np.ones(6, dtype=int)
ones_ints

Out[49]: array([1, 1, 1, 1, 1, 1])

In []:

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Out[49]: array([1, 1, 1, 1, 1, 1])

In []:

np.

In []:



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In [55]: #zeros_Like
arr3 = np.array([[3,5,2], [6,3,1]])
arr3

Out[55]: array([[3, 5, 2],
[6, 3, 1]])

In [56]: two_d_zeros = np.zeros_like(arr3)
two_d_zeros

Out[56]: array([[0, 0, 0],
[0, 0, 0]])

In []:

In []:

In []:

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In [57]: two_d_ones = np.ones_like(arr3)

two_d_ones

Out[57]: array([[1, 1, 1],
[1, 1, 1]])

In []:

In []:

In []:

In []:

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In []:

```
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```

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In [58]: two_d_full = np.full((2,3), 45)

two_d_full

Out[58]: array([[45, 45, 45],
 [45, 45, 45]])

In [59]: two_d_full_float = np.full((2,3), 25, dtype=float)

two_d_full_float

Out[59]: array([[25., 25., 25.],
 [25., 25., 25.]])

In [60]: # full_like
fill

arr3.fill(99)

arr3

Out[60]: array([[99, 99, 99],
 [99, 99, 99]])

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In [61]: arr4 = np.eye(3,3)
arr4

Out[61]: array([[1., 0., 0.],
[0., 1., 0.],
[0., 0., 1.]])

In [62]: arr5 = np.eye(3, dtype=int)
arr5

Out[62]: array([[1, 0, 0],
[0, 1, 0],
[0, 0, 1]])

In []:

In []:

In []:

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[Code [0, 0, 1]]])

In [63]: arr6 = np.identity(3, dtype=int)
arr6

Out[63]: array([[1, 0, 0],
 [0, 1, 0],
 [0, 0, 1]])

Type casting to convert an array from one dtype to another

In []:

In []:

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In [63]: arr6 = np.identity(3, dtype=int)

arr6

Out[63]: array([[1, 0, 0],
[0, 1, 0],
[0, 0, 1]])

Type casting to convert an array from one dtype to another

In []:

In []:

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In [64]: `int_arr1 = np.array([1, 2, 3, 4, 5])`

Out[64]: `array([1, 2, 3, 4, 5])`

In [65]: `int_arr1.dtype`

Out[65]: `dtype('int32')`

In [66]: `#Convert this array to a floating point array
float_arr1 = int_arr1.astype(np.float64)`

float_arr1

Out[66]: `array([1., 2., 3., 4., 5.])`

In []:



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In [65]: `int_arr1.dtype`

Out[65]: `dtype('int32')`

In [66]: `#Convert this array to a floating point array`
`float_arr1 = int_arr1.astype(np.float64)`

float_arr1

Out[66]: `array([1., 2., 3., 4., 5.])`

In []: `#Converts from a float array to an integer array`
`#int_arr = float_arr.astype(np.int32)`

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```
float_arr1 = int_arr1.astype(np.float64)

float_arr1
```

Out[66]: array([1., 2., 3., 4., 5.])

```
In [ ]: #Converts from a float array to an integer array

#int_arr = float_arr.astype(np.int32)
```

```
In [67]: str_arr1 = np.array(['1.25', '-2.5', '18'], dtype=np.string_)

str_arr1
```

Out[67]: array([b'1.25', b'-2.5', b'18'], dtype='|S4')

```
In [ ]:
```

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In [67]: str_arr1 = np.array(['1.25', '-2.5', '18'], dtype=np.string_)

str_arr1

Out[67]: array([b'1.25', b'-2.5', b'18'], dtype='|S4')

In [68]: str_arr1.dtype

Out[68]: dtype('S4')

In [69]: float_arr3 = str_arr1.astype(float)

float_arr3

Out[69]: array([1.25, -2.5 , 18.])

In []:

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In [67]: str_arr1 = np.array(['1.25', '-2.5', '18'], dtype=np.string_)

str_arr1

Out[67]: array([b'1.25', b'-2.5', b'18'], dtype='|S4')

In [68]: str_arr1.dtype

Out[68]: dtype('S4')

In [69]: float_arr3 = str_arr1.astype(float)

float_arr3

Out[69]: array([1.25, -2.5 , 18.])

In []:



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In []:



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In [1]: `import numpy as np`

In []: `# create an array of 25 values from 1 to 50 with step 2`
`arr = np.arange(1, 50, 2)`

NumPy Computations

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In [4]: # reshape this 1-D to 2-D array

```
arr2 = arr.reshape(5,5)  
arr2
```

Out[4]: array([[1, 3, 5, 7, 9],
 [11, 13, 15, 17, 19],
 [21, 23, 25, 27, 29],
 [31, 33, 35, 37, 39],
 [41, 43, 45, 47, 49]])

Accessing individual elements of a NumPy Array

In []:



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arr2

```
Out[4]: array([[ 1,  3,  5,  7,  9],
 [11, 13, 15, 17, 19],
 [21, 23, 25, 27, 29],
 [31, 33, 35, 37, 39],
 [41, 43, 45, 47, 49]])
```

Accessing individual elements of a NumPy Array

```
In [ ]: #          0  1  2  3  4
# arr1 = (([4, 7, 3, 1, 9]))
#          -5 -4 -3 -2 -1
```

I

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Code

```
[21, 23, 25, 27, 29],  
[31, 33, 35, 37, 39],  
[41, 43, 45, 47, 49]))
```

Accessing individual elements of a NumPy Array

```
In [5]: #          0 1 2 3 4  
# arr1 = (([4, 7, 3, 1, 9]))  
#          -5 -4 -3 -2 -1  
  
arr1 = np.array([4,7,3,1,9]).  
arr1
```

```
Out[5]: array([4, 7, 3, 1, 9])
```

```
In [ ]:
```

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In [5]: # 0 1 2 3 4
arr1 = (([4, 7, 3, 1, 9]))
-5 -4 -3 -2 -1

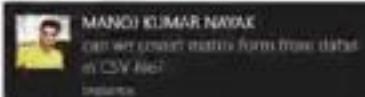
arr1 = np.array([4,7,3,1,9])
arr1

Out[5]: array([4, 7, 3, 1, 9])

In [6]: arr1[2]

Out[5]: 3

In []:



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In [6]: arr1[2]

Out[6]: 3

In [7]: arr1[-3]

Out[7]: 3

In [8]: *# Modifying elements of a NumPy array*
arr1[3] = 786

arr1

Out[8]: array([4, 7, 3, 786, 9])

In []:

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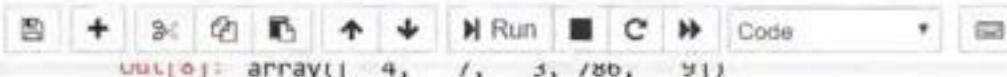
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```
In [1]: arr = array([ 4, 1, 3, 186, 9])
```

Arithmetic with NumPy Arrays

In []:

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Run Cell Code

In [9]: array([4, 1, 3, 186, 9])

a

NameError

Traceback (most recent call last)

<ipython-input-9-0ebc85f8dcdd> in <module>
----> 1 arr3

NameError: name 'arr3' is not defined

In []:

In []:

In []:

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In [10]: `array([1, 2, 3], [4, 5, 6])`

Out[10]: `array([[1, 2, 3],
[4, 5, 6]])`

In []:

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BITS Pilani
Mumbai Campus

12:18 PM 09/06/2020

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In [11]: # Let's take a deep copy of arr3
arr4 = np.copy(arr3)
arr4

Out[11]: array([[1, 2, 3],
[4, 5, 6]])

In []: # Adding two NumPy Arrays

In []:

In []:

In []:

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arr2 = np.copy(arr1)

arr4

Out[11]: array([[1, 2, 3],
 [4, 5, 6]])

In [13]: # Adding two NumPy Arrays
| arr3 + arr4

Out[13]: array([[2, 4, 6],
 [8, 10, 12]])

In []:

In []:

In []:

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In [1]: arr1 = array([[1, 2, 3],
[4, 5, 6]])

In [2]: arr2 = array([[1, 4, 9],
[16, 25, 36]])

In [3]: #Inversing each element of the array (1/x)
Floating point division

1/arr1

In [4]: arr3 = array([[1.0, 0.5, 0.33333333],
[0.25, 0.2, 0.16666667]])

In [5]:

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15//arr3

```
Out[21]: array([[15, 7, 5],  
                 [ 3, 3, 2]], dtype=int32)
```

In [22]: # Scalar multiplication
Multiplying each element of the array with a scalar value
arr4

```
Out[22]: array([[1, 2, 3],  
                 [4, 5, 6]])
```

In [23]: arr4 * 2.5

```
Out[23]: array([[ 2.5,  5. ,  7.5],  
                 [10. , 12.5, 15. ]])
```

In []: