# *Exploratory Data Analysis Using Python - Lab Manual*

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## List of Programs

## 0 - Get the Largest Number from a List

Write a python program to get the largest number from a list.

```
Program - Version 1
-------------------
list=[10,20,30]
print("List:", list)
print("The largest element is:", max(list))

Program - Version 2
-------------------
list1=[]
while True :
  print("Enter an integer to the list:")
  element = int(input())
  list1.append(element)
  print("Is it end of list?(y/n)")
  flag = input()
  if flag == "y" :
    break
print("The List =", list1)
print("Maximum Value in this list:", max(list1))
```

## 0 - Remove Duplicates from a List

Write a python program to remove duplicates from a list.

```
Program - Version 1
-------------------
list1=[20,20,10,30,30]
print("Duplicated List:", list1)
list2=[]
for i in list1:
    if i not in list2:
        list2.append(i)
print("Deduplicated List:", list2)

Program - Version 2
-------------------
list1 = [9,9,5,6,3,4,1,9,2,4,2]
```

```
print("Original List:", list1)
list2 = list(set(list1))
print("Duplicates Removed List : ", list2)
```

## 0 - Conversion of Tuple to Dictionary

Write a python program to convert a tuple to a dictionary.

```
Program
-------
tuple = ((’Rajesh’, 75),(’Vasudevan’, 80), (’Thomas’, 85))
print("Tuple=",tuple)
dictionary = dict(tuple)
print("Dictionary=",dictionary)
```

## 0 - Merging Dictionaries

Write a python program to merge two python dictionaries.
***Hint - Use update() method or ** operator or | operator***

```
Program - Version 1
-------------------
dict1 = {’a’: 1, ’b’: 2}
print("Dictionary 1=",dict1)
dict2 = {’c’: 3, ’d’: 4}
print("Dictionary 2=",dict2)

# Merging dict2 into dict1
dict1.update(dict2)

print(dict1)

Program - Version 2
-------------------
dict1 = {’a’: 1, ’b’: 2}
print("Dictionary 1=",dict1)
dict2 = {’c’: 3, ’d’: 4}
print("Dictionary 2=",dict2)
```

```
# Merging dictionaries
merged_dictionary = {**dict1, **dict2}

print("Merged Dictionary=", merged_dictionary)

Program - Version 3
-------------------
dict1 = {’a’: 1, ’b’: 2}
print("Dictionary 1=",dict1)
dict2 = {’c’: 3, ’d’: 4}
print("Dictionary 2=",dict2)

# Merging dictionaries
merged_dictionary = dict1|dict2

print("Merged Dictionary=", merged_dictionary)
```

## 0 - Checking Common Member in Lists

Write a python program that takes two lists and returns true if they have at least one common member.

```
Program
-------
list1=[10,20,30]
# list is converted to set to make the elements unique
# and to perform set operations
set1=set(list1)
list2=[40,50,60]
set2=set(list2)
result=set1 & set2
# If there is no common element, then result = set()
if (result== set()):
    print("False")
else :
    print("True")
```

## 0 - Find Earlier Date

Write a python program to determine which one is the earlier date from the two given dates.

```
Program
-------
date1="2025-01-26"
date2="2025-08-15"
if date1<date2 :
    print("Earlier date is", date1)
elif date1>date2 :
    print("Earlier date is", date2)
else:
    print("Two dates are equal")
```

## 0 - Subtract 5 Days from Current Date

Write a python program to subtract 5 days from current date.

```
Program
-------
import datetime
today=datetime.date.today()
no_of_days=datetime.timedelta(days=5)
print(today-no_of_days)
```

## 0 - File Copy Operation

Write a Python program to open a file and copy the contents to another file.

```
Program
-------
source_file=open("file1.txt","r")
contents=source_file.read()
source_file.close()
destination_file=open("file2.txt","w")
destination_file.write(contents)
destination_file.close()
```

## 0 - Capitalise Each Word in a File

Write a python program to capitalise each word in a file.
***Hint - Use str.upper() method***

```
Program
-------
file=open("file1.txt","r")
contents=file.read()
new_contents=contents.upper()
file.close()
file=open("file1.txt","w")
file.write(new_contents)
file.close()
```

## 0 - Search and Replace in a File

Write a Python program to search for a word in a file and replace it with another word.
***Hint - Use str.replace("old text","new text") method***

```
Program
-------
file=open("file1.txt","r")
contents=file.read()
new_contents=contents.replace("Python","C")
file.close()
file=open("file1.txt","w")
file.write(new_contents)
file.close()
```

## 0 - Count Number of Lines in a File

Write a python program to count number of lines in a file.

```
Program
-------
count = 0
file = open("file1.txt", "r")
for line in file:
 count = count + 1
print("Number of Lines:", count)
```

## 0 - Retrieve Lines Having Two Consecutive 1’s

Write a python program to retrieve lines having two consecutive 1′s.

```
Program
-------
lines_with_consecutive_ones = []
file = open("file1.txt", "r")
for line in file:
    if ’11’ in line:  # Check for two consecutive ’1’s
        lines_with_consecutive_ones.append(line.strip()) # remove leading
                                                         # and trailing
                                                         # white space
print(lines_with_consecutive_ones)
print("Lines containing two consecutive ’1’s:")
for line in lines_with_consecutive_ones:
    print(line)
```

## 0 - Matrix Operations Using Vectorisation

Write python programs to perform the following matrix operations using vectorisation. (Use matrices of order 3 X 3 )

1. addition
2. subtraction
3. multiplication
4. scalar multiplication
5. transpose

```
Program
-------
import numpy
matrix1=numpy.matrix([[1,2,3],[1,1,1],[1,1,1]])
matrix2=numpy.matrix([[1,0,0],[0,1,0],[0,0,1]])
print("Matrix 1=\n",matrix1)
print("Matrix 2=\n",matrix2)
```

```
matrix3 = numpy.add(matrix1,matrix2)
matrix4 = numpy.subtract(matrix1,matrix2)
matrix5 = numpy.matmul(matrix1,matrix2)
matrix6 = numpy.transpose(matrix1)
print("Matrix 1 + Matrix 2=\n", matrix3)
print("Matrix 1 - Matrix 2=\n", matrix4)
print("Matrix 1 * Matrix 2=\n", matrix5)
print("2 * Matrix 1=\n", 2*matrix1)
print("Transpose of Matrix 1=\n", matrix6)
```