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Assignment-4
1.
Code:

```
n=int(input("Enter the number of elements"))
l=[]
print("Enter the numbers:")
for i in range(n):
   ele=int(input())
   print("The number is:",ele)
   f=1
   for i in range(1,ele+1):
       f*=i
   print("The factorial of the number is :", f)
```

```
Enter the numbers:
The number is: 2
The factorial of the number is : 2
The number is: 3
The factorial of the number is : 6
The number is: 4
The factorial of the number is : 24
The number is: 5
The factorial of the number is : 120
The number is: 6
The factorial of the number is : 720
```

2.
Code:

```
# 2.
li=input("Enter a sequence of comma-separated numbers").split(',')
print("The list of numbers is:",li)
tu=tuple(li)
print("The tuple of numbers is:",tu)
```

```
The list of numbers is: ['a', 'b', 'c', 'd', 'e', 'f']
The tuple of numbers is: ('a', 'b', 'c', 'd', 'e', 'f')
```

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3.

```
import math
c=50
h=30
li=input("Enter a sequence of comma-separated values of 'D'").split(',')
print("Values of D:",li)
for i in li:
   print("For D value",i,", the value of Q is ",math.sqrt((c*h*2)/int(i)))
```

```
Values of D: ['3000', '30']
For D value 3000 , the value of Q is  1.0
For D value 30 , the value of Q is  10.0
```

4.

```
li=input("Enter a sequence of comma-separated words").split(',')
li.sort()
print("The sorted list is:",li)
```

```
The sorted list is: ['cat', 'dog', 'home', 'mouse']
```

5.

```
li=input("Enter a sequence of comma-separated binary numbers").split(',')
print("The input list:",li)
print("The values divisible by 5 are:")
for i in li:
   d=int(i,2)
   if int(d)%5 == 0:
       print(i)
```

```
The input list: ['0100', '0011', '1010', '1001']
The values divisible by 5 are:
1010
```

6.

```
lis=[]
li=[]
n=int(input("Enter number of lists in nested list:"))
for i in range(n):
   str=input("Enter a sequence of comma-separated to form the list").split(',')
   lis.append(str)
   for j in str:
       li.append((j,))
print("The list of tuples is:",li)
```

```
The list of tuples is: [('5',), ('6',), ('4',), ('7',), ('10',), ('17',)]
```

7.

```
import operator
li=[]
lis=[]
n=int(input("Enter number of lists in nested list:"))
for i in range(n):
   str=input("Enter a sequence of comma-separated values of a tuple:")
```

```
    print(str)
    modified=tuple(str.split(","))
    li.append(modified)
li.sort(key=operator.itemgetter(2))
li.sort(key=operator.itemgetter(1))
li.sort(key=operator.itemgetter(0))
print(li)
```

```
Tom,19,80
John,20,90
Jony,17,91
Jony,17,93
Json,21,85
[('John', '20', '90'), ('Jony', '17', '91'), ('Jony', '17', '93'), ('Json', '21', '85'), ('Tom', '19', '80')]
```

8.

```
import math
dict={}
for i in range(4):
    str=input("Enter the sentence:").split()
    print(str)
    dict[str[0]]=str[1]
x=0
y=0
x=x+int(dict["UP"])
x=x-int(dict["DOWN"])
y=y+int(dict["RIGHT"])
y=y-int(dict["LEFT"])
print("Distance from current position:",int(math.sqrt(x*x+y*y)))
```

```
['UP', '5']
['DOWN', '3']
['LEFT', '3']
['RIGHT', '2']
Distance from current position: 2
```

9.

```
str=input("Enter the direction and steps:")
print(str)
lis=str.split()
lis.sort()
dict={}
for word in lis:
  dict[word]=lis.count(word)
print(dict)
for i in dict:
  print(i,":",dict[i])
#New to Python or choosing between Python 2 and Python 3? Read Python 2 or Python 3
```

```
New to Python or choosing between Python 2 and Python 3? Read Python 2 or Python 3
{'2': 2, '3': 1, '3?': 1, 'New': 1, 'Python': 5, 'Read': 1, 'and': 1, 'between': 1, 'choosing': 1, 'or': 2, 'to': 1}
2 : 2
3 : 1
3? : 1
New : 1
Python : 5
Read : 1
and : 1
between : 1
choosing : 1
or : 2
to : 1
```

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10.

```
lst=[(15,6),(16,7),(16,8),(16,10),(17,13)]
d={}
for i,j in lst:
   if i not in d:
       lst=[j]
       d[i]=lst
   else:
       d[i].append(j)
r=[]
for i,j in d.items():
   t=[]
   t.append(i)
   t.extend(j)
   r.append(tuple(t))
print("The list is:",r)
```

```
The list is: [(15, 6), (16, 7, 8, 10), (17, 13)]
```

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