In [ ]:
```
1 l=[1,3,4,6,445,67,8,1,9]
```

In [11]:
```
l1=l.copy()
```

In [12]:
```
l1
```

Out[12]:
```
[1, 2, 3, 4, 5, 6, 7, 8]
```

In [14]:
```
l2=['abc','cde','fgh']
```

In [15]:
```
l1.append(l2)
```

In [16]:
```
l1
```

Out[16]:
```
[1, 2, 3, 4, 5, 6, 7, 8, ['abc', 'cde', 'fgh']]
```

In [17]:
```
l1.extend(l2)
```

In [18]:
```
l1
```

Out[18]:
```
[1, 2, 3, 4, 5, 6, 7, 8, ['abc', 'cde', 'fgh'], 'abc', 'cde', 'fgh']
```

In [19]:
```
l.clear()
```

In [20]:
```
l
```

Out[20]:
```
[]
```

In [21]:
```
l1
```

Out[21]:
```
[1, 2, 3, 4, 5, 6, 7, 8, ['abc', 'cde', 'fgh'], 'abc', 'cde', 'fgh']
```

In [22]:
```
l1.clear()
```

In [23]:
```
l1
```

Out[23]:
```
[]
```

In [26]:
```
# take 5 integer inputs from the user and store them into alist and print the lis
l=[]
for i in range(5):
    a=int(input())
    l.append(a)
print(l)
```

```
56
67
89
34
1
[56, 67, 89, 34, 1]
```

In [27]:
```
l=[1,2,3,4,5,6,7,8]
l1=[]
for i in l:
    if i%2==0:
        l1.append(i)
print(l1)
```

```
[2, 4, 6, 8]
```

In [37]:
```
#l=[1,2,3,4,5,6,7,8,9,10]
def prime(n):
    c=0
    for i in range(1,n+1):
        if n%i==0:
            c+=1
    if c==2:
        return 1
    else:
        return 0
prime(3)
```

Out[37]:
```
1
```

In [38]:
```
l1=[]
for i in l:
    if prime(i)==1:
        l1.append(i)
    else:
        print(l1)
```

```
[]
[2, 3]
[2, 3, 5]
[2, 3, 5, 7]
[2, 3, 5, 7]
[2, 3, 5, 7]
```

Tuples

- ordered
- immutable
- represented with ()

In [39]:
```
t=()
```

In [40]:
```
print(type(t))
```

```
<class 'tuple'>
```

In [41]:
```
t=("a","b",1,45,67,89,100.25)
```

In [42]:
```
t
```

Out[42]:
```
('a', 'b', 1, 45, 67, 89, 100.25)
```

In [43]:
```
t[0]
```

Out[43]:
```
'a'
```

In [44]:
```
t[-3]
```

Out[44]:
```
67
```

In [45]:
```
t[0:len(t):2]
```

Out[45]:
```
('a', 1, 67, 100.25)
```

In [49]:
```
for i in range(0,len(t)):
                print(t[i],end=" ")
```

```
a b 1 45 67 89 100.25
```

In [50]:
```
for i in t:
    print(i,end=" ")
```

```
a b 1 45 67 89 100.25
```

In [51]:
```
t[0]='z'
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-51-b0324bd1ea47> in <module>
----> 1 t[0]='z'

TypeError: 'tuple' object does not support item assignment
```

In [52]:
```
t.index('a')
```

Out[52]:
```
0
```

In [53]:
```
t.count('a')
```

Out[53]:
```
1
```

In [54]:
```
dir(tuple)
```

Out[54]:
```
['__add__',
 '__class__',
 '__contains__',
 '__delattr__',
 '__dir__',
 '__doc__',
 '__eq__',
 '__format__',
 '__ge__',
 '__getattribute__',
 '__getitem__',
 '__getnewargs__',
 '__gt__',
 '__hash__',
 '__init__',
 '__init_subclass__',
 '__iter__',
 '__le__',
 '__len__',
 '__lt__',
 '__mul__',
 '__ne__',
 '__new__',
 '__reduce__',
 '__reduce_ex__',
 '__repr__',
 '__rmul__',
 '__setattr__',
 '__sizeof__',
 '__str__',
 '__subclasshook__',
 'count',
 'index']
```

Dictionaries

- represent with {}
- access with some keys and values
- keys are immutable
- values are mutable
- unordered

In [55]:
```
d={}
```

In [56]:
```
print(type(d))
```

```
<class 'dict'>
```

In [57]:
```
d={"m1":20,"m2":30,"m3":75,"english":65}
```

In [58]:
```
d
```

Out[58]:
```
{'m1': 20, 'm2': '30', 'm3': 75, 'english': 65}
```

In [59]:
```
d1={1:"siddu",2:"indu",3:"vemu"}
```

In [60]:
```
d1
```

Out[60]:
```
{1: 'siddu', 2: 'indu', 3: 'vemu'}
```

In [61]:
```
d['m1']
```

Out[61]:
```
20
```

In [62]:
```
d["english"]
```

Out[62]:
```
65
```

In [63]:
```
d['m2']
```

Out[63]:
```
'30'
```

In [64]:
```
d["m1"]=100
```

In [65]:
```
d
```

Out[65]:
```
{'m1': 100, 'm2': '30', 'm3': 75, 'english': 65}
```

In [66]:
```
l=[]
```

In [67]:
```
l.append(1)
```

In [68]:
```
l.append(2)
```

In [69]:
```
l
```

Out[69]:
```
[1, 2]
```

In [70]:
```
d={}
```

In [71]:
```
d["maths"]=20
```

In [72]:
```
d
```

Out[72]:
```
{'maths': 20}
```

In [73]:
```
d["physics"]=56
```

In [74]:
```
d
```

Out[74]:
```
{'maths': 20, 'physics': 56}
```

In [75]:
```
#{1:1,2:4,3:9,4:16}
```

In [76]:
```
d={}
for i in range(10):
    d[i]=i**2
print(d)
```

```
{0: 0, 1: 1, 2: 4, 3: 9, 4: 16, 5: 25, 6: 36, 7: 49, 8: 64, 9: 81}
```

In [77]:
```
dir(dict)
```

Out[77]:
```
['__class__',
 '__contains__',
 '__delattr__',
 '__delitem__',
 '__dir__',
 '__doc__',
 '__eq__',
 '__format__',
 '__ge__',
 '__getattribute__',
 '__getitem__',
 '__gt__',
 '__hash__',
 '__init__',
 '__init_subclass__',
 '__iter__',
 '__le__',
 '__len__',
 '__lt__',
 '__ne__',
 '__new__',
 '__reduce__',
 '__reduce_ex__',
 '__repr__',
 '__reversed__',
 '__setattr__',
 '__setitem__',
 '__sizeof__',
 '__str__',
 '__subclasshook__',
 'clear',
 'copy',
 'fromkeys',
 'get',
 'items',
 'keys',
 'pop',
 'popitem',
 'setdefault',
 'update',
 'values']
```

In [78]:
```
d.items()
```

Out[78]:
```
dict_items([(0, 0), (1, 1), (2, 4), (3, 9), (4, 16), (5, 25), (6, 36), (7, 49),
(8, 64), (9, 81)])
```

In [79]:
```
d.keys()
```

Out[79]:
```
dict_keys([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
```

In [80]:
```
d.values()
```

Out[80]:
```
dict_values([0, 1, 4, 9, 16, 25, 36, 49, 64, 81])
```

In [81]:
```
for i in d.keys():
    print(i)
```

```
0
1
2
3
4
5
6
7
8
9
```

In [82]:
```
for i in d:
    print(i)
```

```
0
1
2
3
4
5
6
7
8
9
```

In [86]:
```
for i in d.keys():
    print(i,end=" ")
```

```
0 1 2 3 4 5 6 7 8 9
```

In [88]:
```
for i in d.items():
    print(i[1])
```

```
0
1
4
9
16
25
36
49
64
81
```

In [90]:
```
d={"vrsec":23,"lbrce":56,"gvpce":78,"gitam":54}
```

In [91]:
```
d
```

Out[91]:
```
{'vrsec': 23, 'lbrce': 56, 'gvpce': 78, 'gitam': 54}
```

In [92]:
```
d.update({"vemu":34,"nsrit":35,"srkr":67})
```

In [93]:
```
d
```

Out[93]:
```
{'vrsec': 23,
 'lbrce': 56,
 'gvpce': 78,
 'gitam': 54,
 'vemu': 34,
 'nsrit': 35,
 'srkr': 67}
```

In [94]:
```
d["vignan"]
```

```
---------------------------------------------------------------------------
KeyError                                  Traceback (most recent call last)
<ipython-input-94-b20ca9f67977> in <module>
----> 1 d["vignan"]

KeyError: 'vignan'
```

In [95]:
```
print(d.get("vignan"))
```

```
None
```

In [97]:
```
d.pop()
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
<ipython-input-97-663961784a31> in <module>
----> 1 d.pop()

TypeError: pop expected at least 1 argument, got 0
```

In [98]:
```
d.pop('srkr')
```

Out[98]:
```
67
```

In [99]:
```
d
```

Out[99]:
```
{'vrsec': 23, 'lbrce': 56, 'gvpce': 78, 'gitam': 54, 'vemu': 34, 'nsrit': 35}
```

In [100]:
```
d.popitem()
```

Out[100]:
```
('nsrit', 35)
```

In [*]:
```
a=["vemu","sdc","college","lb"]
```

In [ ]: