

## Comprehensions

- Comprehensions is the shortest way to creating collections

*Comprehensions in Python. Comprehensions in Python provide us with a short and concise way to construct new sequences (such as lists, set, dictionary etc.) using sequences which have been already defined*

- List comprehension
  - Syn: [ <expression> for variable in iterable ]

### Example:

#List comprehension

#[<exp> for <variable> in <iterable> ]

```
lst3=[]  
for i in range(1,11):  
    lst3.append(i)  
print("List ",lst3)
```

```
lst4=[i for i in range(1,11) ]  
print("Result is : ",lst4)
```

### Example 2 :

```
lst_sq=[i*i for i in range(1,11) ]  
print("Result is : ",lst_sq)
```

**Example 3:**

```
#[<exp> for <variable> in <iterable> if <test> ]  
lst=[i for i in range(1,21) if i%2==0]  
print("Type is : ",type(lst))  
print("Result is : ",lst)
```

**Example 4:**

```
lst=["anu","madhu","mamatha","Anusha","sudha"]  
print("Data is : ",lst)  
lst_a=[i for i in lst if i[0]=='A' or i[0]=='a']  
print("Result is : ",lst_a)
```

**Example 5:**

```
lst=["anu","madhu","mamatha","Anusha","sudha"]  
print("Data is : ",lst)  
  
lst_a=[i for i in lst if i.startswith('a') or i.startswith('A') ]  
print("Result is : ",lst_a)  
  
lst_a2=[i for i in lst if i.upper().startswith('A') ]  
print("Result is : ",lst_a2)
```

**Example:**

```
print("enter 3 nos with space")
lst2=[int(i) for i in input().split() ]
    #sum(iterable) -> sum
s=sum(lst2)
print("Result is : ",s)
```

➤ **Tuple comprehension will return generator object**

○ **Syn: ( <expression> for variable in iterable )**

Example :

```
t=(i for i in range(1,11))
print("type is : ",type(t)) #<class 'generator'> | iterable
t1=tuple(t)
print("Result is : ",t1)
```

➤ **Set comprehension**

**#{<exp> for <var> in <iterable> if <test>}**

```
s={i for i in range(1,11)}
print("type is : ",type(s))
print("Result is : ",s)
```

➤ Dict comprehension

```
d={i:i*i for i in range(1,6) }
```

```
print("type is : ",type(d))
```

```
print("Result is : ",d)
```

```
lst=["madhu","anu","sudha","radha"]
```

```
stu={i[0].upper():i for i in lst }
```

```
print(stu)
```