```
In [7]:  # print square of elements of list
         l1=[]
         l2=[]
         for i in range(1,11):
             l1.append(i)
             l2.append(i**2)
         print(l1)
         print(l2)

         [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
         [1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

Comprehensions

- shorthand for a loop ## Types of Comprehensions:

1.List comprehension

- syntax:[expression/condition for item in sequnece/range]
- ex:[i**2 for i in range(1,11)]

2.Set comprehension

- syntax:{expression/condition for item in sequnece/range}

3.Dictionary comprehension

- syntax :{key:value for item in sequence}
- ex:{i:i**2 for i in range(1,11)

```
In [19]:  l2=[(i**2) for i in range(1,11) ]
          print(l2)

          [1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

```
In [26]:  paragraph="Students from cse and ece branch are attending for mstp classes"
          print(paragraph.split())

          ['Students', 'from', 'cse', 'and', 'ece', 'branch', 'are', 'attending', 'for', '
          mstp', 'classes']
```

```
In [33]:  paragraph="Students from cse and ece branch are attending for mstp classes"
          list1=[paragraph.split()]
          print(list1)

          [['Students', 'from', 'cse', 'and', 'ece', 'branch', 'are', 'attending', 'for',
          'mstp', 'classes']]
```

List Comprehension using if Condition

- syntax:[expression for item in range(1,10) if condition]

In [52]:
```python
even=[i or i+1 for i in range(1,11) if i%2==0]
odd =[i for i in range(1,11) if i%2!=0]
```

In [53]:
```python
print(even)
```
```
[2, 4, 6, 8, 10]
```

In [49]:
```python
print(odd)
```
```
[1, 3, 5, 7, 9]
```

In [61]:
```python
for i in range(2,5):
    for j in range(1,11):
        print(i,"x",j,"=",i*j)
```
```
2 x 1 = 2
2 x 2 = 4
2 x 3 = 6
2 x 4 = 8
2 x 5 = 10
2 x 6 = 12
2 x 7 = 14
2 x 8 = 16
2 x 9 = 18
2 x 10 = 20
3 x 1 = 3
3 x 2 = 6
3 x 3 = 9
3 x 4 = 12
3 x 5 = 15
3 x 6 = 18
3 x 7 = 21
3 x 8 = 24
3 x 9 = 27
3 x 10 = 30
4 x 1 = 4
4 x 2 = 8
4 x 3 = 12
4 x 4 = 16
4 x 5 = 20
4 x 6 = 24
4 x 7 = 28
4 x 8 = 32
4 x 9 = 36
4 x 10 = 40
```

In [77]:
```python
l=[[i*j for j in range(1,11)] for i in range(2,5) ]
print(l)
```
```
[[2, 4, 6, 8, 10, 12, 14, 16, 18, 20], [3, 6, 9, 12, 15, 18, 21, 24, 27, 30],
[4, 8, 12, 16, 20, 24, 28, 32, 36, 40]]
```

write a program to check the even numbers in the range and print the square of even numbers

In [75]:
```python
even=[i**2 for i in range(1,11) if i%2==0]
print(even)
```
```
[4, 16, 36, 64, 100]
```

```
In [88]: l1=[1,2,3,4,5,6,7,8,9,10]
         l2=[]
         for i in l1:
             if(i%2==0):
                 l2.append('a')
             elif(i%3==0):
                 l2.append('b')
             else:
                 l2.append(i)
         print(l2)
```

```
[1, 'a', 'b', 'a', 5, 'a', 7, 'a', 'b', 'a']
```

```
In [90]: l11=['a' if i%2==0 else 'b' if i%3==0 else i for i in l1]
         print(l11)
```

```
[1, 'a', 'b', 'a', 5, 'a', 7, 'a', 'b', 'a']
```

write a program to check a number is prime or not

```
In [143]: n=int(input())
          s=["not prime" if n%i==0 else "prime" for i in range(2,n)]
          print(s[0])
```

```
5
prime
```

```
In [ ]:
```