Truthiness of values in Python, Repetition - whlie and for loops and range() function

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1 Truthiness of values in Python

```
[1]: if 10 > 20:
         print("Yes")
     else:
         print("No")
```

```
No
```

```
[2]: 10 > 20
```

```
[2]: False
```

```
[3]: if 100 > 20:
         print("Yes")
     else:
         print("No")
```

```
Yes
```

```
[4]: 100 > 20
```

```
[4]: True
```

```
[8]: if True:
         print('Yes')
     else:
         print('No')
```

```
Yes
```

```
[79]: if False:
          print('No')
      else:
          print('Yes')
```

```
Yes
```

```
[9]: if 147:
         print('Yes')
     else:
         print('No')
```

Yes

```
[10]: bool(147)
```

[10]: True

```
[11]: bool(-147)
```

[11]: True

```
[12]: bool(0)
```

[12]: False

```
[13]: if 10 - 20 + 10:
         print('Yes')
     else:
         print('No')
```

NO

```
[15]: if 0.0:
         print('Yes')
     else:
         print('No')
```

No

```
[16]: bool(0.0000000)
```

[16]: False

```
[17]: bool(0.1)
```

[17]: True

```
[18]: bool(-0.1)
```

[18]: True

```
[19]: lst = [10, 20, 30]
      bool(lst)
```

[19]: True

```
[20]: lst = []
      bool(lst)
```

[20]: False

```
[21]: string = "hello"
      bool(string)
```

[21]: True

```
[22]: string = ""
      bool(string)
```

[22]: False

```
[23]: if 'a' > 'A': # 97, 65
          print('Yes')
      else:
          print('No')
```

Yes

```
[ ]: # ASCII Code Point values of characters in python
     'a'-'z' --> 97-122
     'A'-'Z' --> 65-90
     '0'-'9' --> 48-57
```

```
[24]: ord('a')
```

[24]: 97

```
[25]: ord(' ')
```

[25]: 32

```
[26]: ord('#')
```

[26]: 35

```
[27]: chr(97)
```

[27]: 'a'

```
[28]: chr(118)
```

[28]: 'v'

```
[29]: chr(int(input()))
```

48

```
[29]: '0'
```

```
[30]: ord('ab')
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
~\AppData\Local\Temp\ipykernel_9516\308877286.py in <cell line: 1>()
----> 1 ord('ab')

TypeError: ord() expected a character, but string of length 2 found
```

```
[31]: ord(input())
```

y

```
[31]: 121
```

2 string comparisons

```
[32]: if 'thor' > 'ironman': # 116 > 105
          print("thor is stronger than ironman")
      else:
          print("ironman is stronger than thor")
```

thor is stronger than ironman

```
[34]: ord('i')
```

```
[34]: 105
```

```
[35]: if 'Thor' > 'ironman': # 84 > 105
          print("thor is stronger than ironman")
      else:
          print("ironman is stronger than thor")
```

ironman is stronger than thor

```
[36]: ord('T')
```

```
[36]: 84
```

```
[38]: if 'aaa' > 'aaaa':
          print('Yes')
      else:
          print('No')
```

No

```
[39]: # stmt1 if condition else stmt2
      n = int(input())
      if n % 2 == 0:
          print('Even')
      else:
          print('Odd')
```

```
15
Odd
```

```
[40]: n = int(input())
      print('Even') if n % 2 == 0 else print('Odd')
```

```
15
Odd
```

```
[41]: "Yes" if 20 > 10 else "No"
```

```
[41]: 'Yes'
```

```
[42]: result_string = "Yes" if 20 > 10 else "No"
      print(result_string)
```

```
Yes
```

```
[44]: a, b = map(int, input().split())
      max_of_ab = a if a > b else b
      print(max_of_ab)
```

```
20 10
20
```

3 Repetition

- while loop and
- for loop

3.1 while loop

syntax:

```
while condition:
    block of stmts
```

```
[46]: i = 1
      while i <= 5: # 6 <= 5
          print(i, end=' ')
          i += 1 # 6
```

```
1 2 3 4 5
```

```
[47]: i
```

```
[47]: 6
```

```
[48]: i = 1
      while i <= 100: # 6 <= 5
          print(i, end=' ')
          i += 1 # 6
```

```
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57
58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84
85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
```

```
[50]: i = 1
      n = int(input())
      while i <= n: # 6 <= 5
          print(i, end=' ')
          i += 1 # 6
```

```
16
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
```

```
[52]: i = 1
      n = int(input())
      while i <= n: # 6 <= 5
          print("Pavan")
          i += 1 # 6
```

```
15
Pavan
Pavan
Pavan
Pavan
Pavan
Pavan
Pavan
Pavan
Pavan
Pavan
Pavan
Pavan
Pavan
Pavan
Pavan
```

```
[57]: i = 1
      n = int(input())
      while i <= 12:
```

```
#     print(5, "x", i, "=", 5 * i)
    print(f'{n} x {i} = {n * i}')
    i += 1
```

```
147
147 x 1 = 147
147 x 2 = 294
147 x 3 = 441
147 x 4 = 588
147 x 5 = 735
147 x 6 = 882
147 x 7 = 1029
147 x 8 = 1176
147 x 9 = 1323
147 x 10 = 1470
147 x 11 = 1617
147 x 12 = 1764
```

[58]:
```
i = 1
n = int(input())
r = int(input())
while i <= r:
#     print(5, "x", i, "=", 5 * i)
    print(f'{n} x {i} = {n * i}')
    i += 1
```

```
7
4
7 x 1 = 7
7 x 2 = 14
7 x 3 = 21
7 x 4 = 28
```

[59]:
```
n = int(input())
i = int(input())
r = int(input())
while i <= r:
#     print(5, "x", i, "=", 5 * i)
    print(f'{n} x {i} = {n * i}')
    i += 1
```

```
8
14
27
8 x 14 = 112
8 x 15 = 120
8 x 16 = 128
8 x 17 = 136
8 x 18 = 144
```

```
8 x 19 = 152
8 x 20 = 160
8 x 21 = 168
8 x 22 = 176
8 x 23 = 184
8 x 24 = 192
8 x 25 = 200
8 x 26 = 208
8 x 27 = 216
```

[60]:
```python
i = 10
while i >= 1:
    print(i, end = ' ')
    i -= 1
```

```
10 9 8 7 6 5 4 3 2 1
```

3.2   for loop in python

- in python for loop works on iterables

Syntax

```python
for element in iterable:
    do something
```

[61]:
```python
lst = [10, 20, 30, 40]
for i in lst:
    print(i)
```

```
10
20
30
40
```

[63]:
```python
string = "hello all"
for each_character in string:
    print(each_character)
```

```
h
e
l
l
o

a
l
l
```

```python
[66]: string = "hello all"
      for each_character in string:

          print(f'{each_character} --> {ord(each_character)}')
```

```
h --> 104
e --> 101
l --> 108
l --> 108
o --> 111
  --> 32
a --> 97
l --> 108
l --> 108
```

```python
[ ]: # in range() end bound is always excluded
     # range(stop)
     # start --> 0, step --> 1

     # range(start, stop)
     # step --> 1

     # range(start, stop, step)
```

```python
[67]: for i in range(10): # range(stop) --> start 0 step = 1
          print(i, end = ' ')
```

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

```python
[68]: for i in range(1, 11): # range(start, stop) step = 1
          print(i, end = ' ')
```

```
1 2 3 4 5 6 7 8 9 10
```

```python
[69]: for i in range(1, 11, 2): # range(start, stop, step)
          print(i, end = ' ')
```

```
1 3 5 7 9
```

```python
[71]: for i in range(10, 0, -1):
          print(i, end = ' ')
```

```
10 9 8 7 6 5 4 3 2 1
```

```python
[73]: n, a, b = map(int, input().split())
      for i in range(a, b + 1):
          print(n, "x", i, "=", n*i)
```

```
5 12 17
5 x 12 = 60
```

```
5 x 13 = 65
5 x 14 = 70
5 x 15 = 75
5 x 16 = 80
5 x 17 = 85
```

[78]:
```python
print(10)
print(20)
```

```
10
20
```

[77]:
```python
print(10,end=" ")
print(20)
```

```
10 20
```