

Practice from Last Time

 Write a while loop that prints all divisors of 30.
 Your code should print out the following: 1, 2, 3, 5, 6, 10, 15, 30

2. Modify this loop to print out all common divisors of 30 AND 50 $\,$

3. Now let the user select any 2 integers and print out the common divisors of these 2 integers

4. Challenge: Print out only the largest of the common divisors of these 2 numbers

The for Loop

<u>Count-Controlled loop</u>: iterates a specific number of times

- Use a for statement to write count-controlled loop
 - Designed to work with sequence of data items – Iterates once for each item in the sequence
 - General format:
 - for variable in [val1, val2, etc]:
 statements

	The for loop
1st iteration:	for num in [1, 2, 3, 4, 5]: print(num)
2nd iteration:	for num in [1, 2, 3, 4, 5]: print(num)
3rd iteration:	for num in [1, 2, 3, 4, 5]: print(num)
4th iteration:	for num in [1, 2, 3, 4, 5]: print(num)
5th iteration:	for num in [1, 2, 3, 4, 5]: print(num) 5



- range returns an iterable object
 - <u>Iterable</u>: contains a sequence of values that can be iterated over

range characteristics:

- One argument: used as ending limit
- Two arguments: starting value and ending limit
- Three arguments: third argument is step value

Using range Function

Using the **range** function, how do we write the same code as the previous example?

<pre>for num in range(1, print(num)</pre>	<pre>6): for num in range(5):</pre>
1	0
2	1
3	2
4	3
5	4
	7

From Highest to Lowest

The range function can be used to generate a sequence with numbers in descending order

- Make sure starting number is larger than end limit, and step value is negative
- Example: range (10, 0, -1)

[10, 9, 8, 7, 6, 5, 4, 3, 2, 1]

For Loop Example 1

for	num in range(1, 10, 1):		
	square = num * num		
	if square % 5 != 0:		
	print("The square of", num,	"is",	square)

Output

The square of 1 is 1 The square of 2 is 4 The square of 3 is 9 The square of 4 is 16 The square of 6 is 36 The square of 7 is 49 The square of 8 is 64 The square of 9 is 81



For Loop Example 3

def f_to_c(degrees_f): $c = (degrees_f - 32) * 5/9$ return c

```
def main():
fmin = int(input("Min temp: "))
fmax = int(input("Max temp: " ))
```

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for fah_temp in range(fmin, fmax+1, 10):
cel_temp = f_to_c(fah_temp)
print(fah_temp, cel_temp)
```

main()

Class Activity

Compute the sum of the first n odd positive integers using a for loop Example:

- if n is 5, you should compute 1 + 3 + 5 + 7 + 9.