

PROGRAMMING FUNDAMENTALS REVISION LECTURE



SOFT6018 – WEEK 10

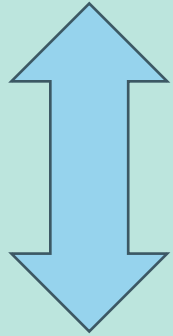
NEW TOPICS



ASCII CHARACTERS

NESTED LOOPS

```
>>> ord('a')
97
>>> ord('€')
8364
```



```
>>> chr(97)
'a'
>>> chr(8364)
'€'
```

ASCII VALUES IN PYTHON

`ord(character)` return an integer representing the Unicode code of that character

`chr(i)` returns the character (glyph) whose Unicode is the integer `i`

EXERCISE

- Write a program to read a number **n** from the user.
- The user is asked to input **n words**.
- The program should display each letter in each word alongside its ASCII code

```
position:absolute; z-index:999; top:0; left:0; width:1px; height:1px; border:1px solid #ccc; background-color:#ccc; display:block; position:absolute; top:5px; left:5px; *opacity:1; *top:-2px; *left:-5px; opacity:1\0; top:-4px\0; left:-6px\0; right:-6px\0; bottom:-4px\0; -moz-inline-box; display:inline-block; font-family:monospace; font-size:10px; line-height:1.2; padding:2px; text-align:center; text-decoration:none; cursor:pointer; line-height:27px; padding:2px; position:relative; z-index:1000; text-decoration:none; padding-right:9px; #gbz .gbt...
```

EXERCISE

```
print("Service to display characters and ASCII code")
print("-----")

number_of_words = int(input("How many words? "))

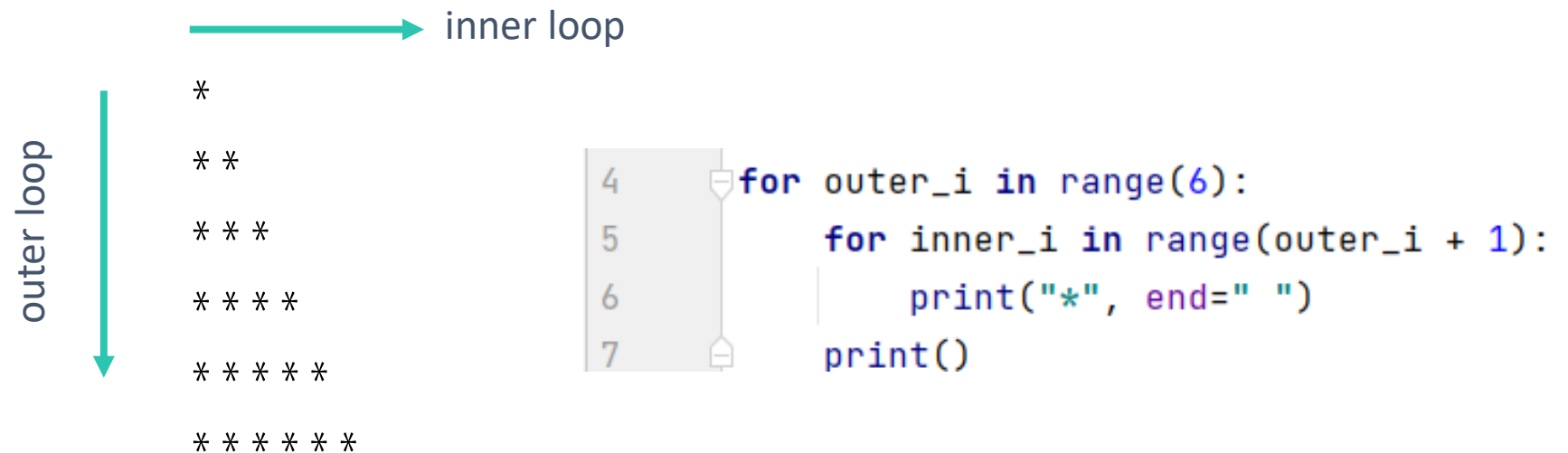
for i in range(number_of_words):
    word = input(f"Word #{i+1}: ")
    for character in word:
        ascii_val = ord(character)
        print(f"'{character}: {ascii_val}, ", end="")
    print()
```

NESTED LOOPS

- A loop that is inside another loop is called a nested loop
- An inner loops goes through all of its iterations on every iteration of an outer loop
- To calculate the total number of iterations multiply the number of iterations of all the loops

PRINTING PATTERNS

Suppose we want to print the following pattern:



EXERCISE

- Write a program that uses nested loops to draw this pattern:

```
##
```

```
# #
```

```
#  #
```

```
#   #
```

```
#    #
```

```
#     #
```


REVISION TOPICS

F-STRING FORMATTING

MATH MODULE

WHILE LOOPS

FOR LOOPS

LAB 8 QUESTIONS

F-STRING FORMATTING

Designator order - [alignment][width][,][.precision][type]

```
>>>  
>>> print(f'{number:^20, .2f} ')  
      1,022.57  
>>>
```

MATH MODULE

A module is a Python source code file that contains functions and/or classes. Many of the functions in the Python standard library are stored in modules.

To import a module, you write an import statement at the top of your program. Here is an import statement that imports the math module:

```
import math
```

```
import math
```

```
math.
```

v	pi	math
f	sqrt(__x)	math
f	ceil(__x)	math
f	log(x, base)	math
f	floor(__x)	math
f	pow(__x, __y)	math
f	remainder(__x, __y)	math
f	sin(__x)	math
v	e	math
f	acos(__x)	math
f	acosh(__x)	math
f	asin(__x)	math

Press Enter to insert, Tab to replace. [Next Tip](#)

LOOPS

A repetition structure causes a statement or set of statements to execute repeatedly.

- A *condition-controlled loop* uses a true/false condition to control the number of times that it repeats.
- A *count-controlled loop* repeats a specific number of times.