PROGRAMMING FUNDAMENTALS REVISION LECTURE

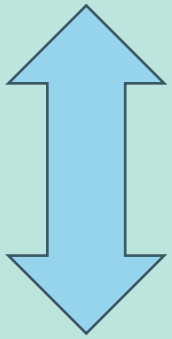
SOFT6018 – WEEK 10

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

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:


```
4   for outer_i in range(6):
5       for inner_i in range(outer_i + 1):
6           print("*", end=" ")
7       print()
```

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]

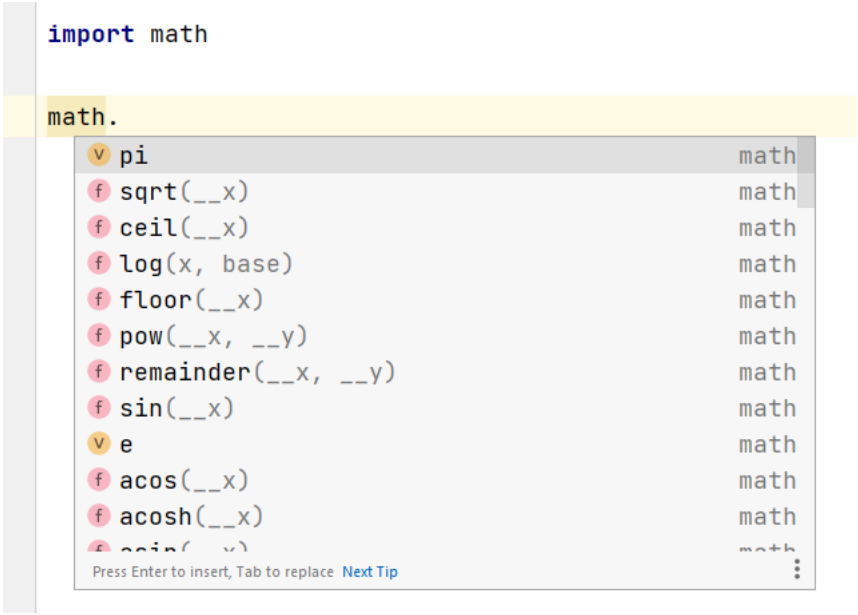
```
>>>
>>> print(f'{number:^20,.2f}')
      1,022.57
>>>
```

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
```



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.