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degli Studi
della Campania
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to make a decision

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If Statement

An if statement tests for a condition, and then responds to that condition.

Every if statement evaluates to True or False.

If Statement

If the condition is true, then the code listed next gets executed.

You can test for multiple conditions at the same time, and respond appropriately to each condition.

```
if 0:
    print("This is True")
else:
    print("this is False")

This is False
```

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```
if 1:
    print("This is True")
else:
    print("this is False")

This is True
```

```
if 1:
    print("This is True")
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```
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```

```
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    print("This is True")
else:
    print("this is False")

This is True
```

Arbitrary non zero numbers evatuate to True

```
if 12345:
    print("This is True")
else:
    print("this is False")

This is True
```

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    print("This is True")
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if 12345:
    print("This is True")
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This is True
```

and non zero numbers?

```
if -1:
    print("This is True")
else:
    print("this is False")
```

```
This is True
```

and non zero numbers?

```
if -1:
    print("This is True")
else:
    print("this is False")
```

```
This is True
```

and non zero numbers?

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and non zero numbers?

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if -1:
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else:
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```
This is True
```

What's about the strings?

```
if "Hello world":
    print("This is True")
else:
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This is True
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What's about the strings?

```
if "Hello world":
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else:
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This is True
```

evaluate an empty string

```
if "":
    print("This is True")
else:
    print("this is False")

This is False
```

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    print("This is True")
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```

```
if " ":
    print("This is True")
else:
    print("this is False")
```

- and this code?

```
if " ":
    print("This is True")
else:
    print("this is False")
```

- and this code?

- This is True, because a space is not an empty string!!

A special type (object)

```
if None:
    print("This is True")
else:
    print("this is False")

This is False
```

- None is a special type (objects), that refers to null objects. It evaluates to False!

A special type (object)

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A special type (object)

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Off-side Rule

- Python uses indentation to decide what is inside a code block and what is outside.
- Code that is inside a code block will be run for every item in the list
- Code that is not indented, will be run just like regular code

Off-side Rule

- Off-side rule applies to all block
  - Conditional statements, loops, functions
  - nested blocks correspond to nested indentation
  - each indentation level correspond to a block
- You could use spaces or tab for indentation, but usually in python we use 4 spaces

Nested Blocks

```
if None:
    print("This is True")
else:
    print("this is False, first indentation level")
    if 1:
        print("second indentation level")
    else:
        print("not True")
```

```
This is False, first indentation level
second indentation level
```

Nested Blocks

```
if None:
    print("This is True")
else:
    print("this is False, first indentation level")
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second indentation level
```

if [elif][else] statement

make multiple choice

```
a = 3

if a > 0:
    print("a is a positive number")
elif a == 0:
    print("a = 0")
else:
    print("a is a negative number")
```

```
a = 0

if a >= 0:
    print("a is a non negative number")
elif a == 0:
    print("a = 0")
else:
    print("a is a negative number")
```

How to get input from a user

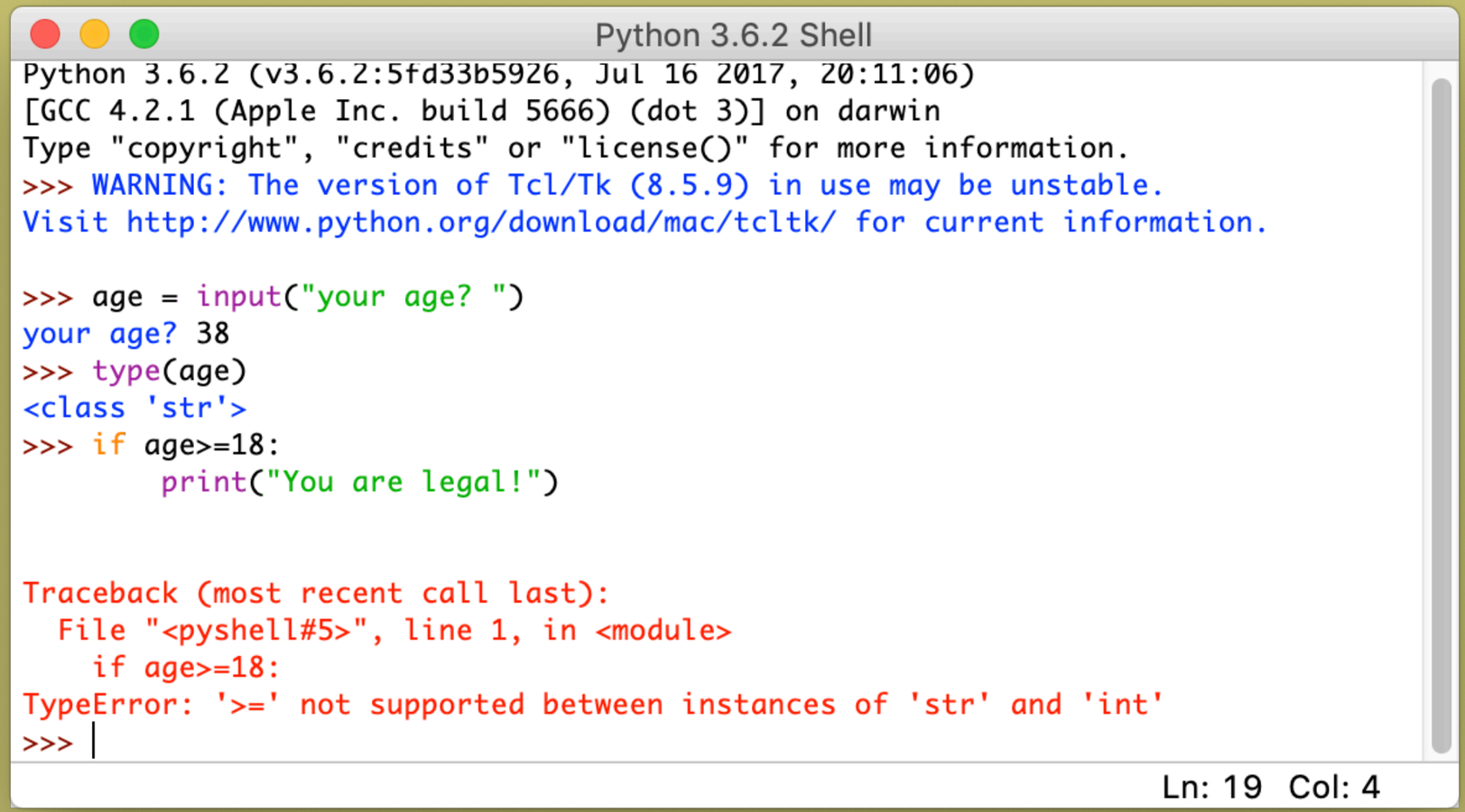
Use `input("Insert your name")`

A simple example

```
first_name = input("insert your first name")
last_name = input("insert your last name")
age = input("insert your age")
print("My name is "+ first_name + " " + last_name)
print("My age is " + age)
```

- extends previous code to print a message if age >= 18

- extends previous code to print a message if age >= 18
- What went wrong?


Python 3.6.2 Shell
Python 3.6.2 (v3.6.2:5fd33b5926, Jul 16 2017, 20:11:06)
[GCC 4.2.1 (Apple Inc. build 5666) (dot 3)] on darwin
Type "copyright", "credits" or "license()" for more information.
>>> WARNING: The version of Tcl/Tk (8.5.9) in use may be unstable.
Visit http://www.python.org/download/mac/tcltk/ for current information.
>>> age = input("your age? ")
your age? 38
>>> type(age)
<class 'str'>
>>> if age>=18:
print("You are legal!")
Traceback (most recent call last):
File "<pyshell#5>", line 1, in <module>
if age>=18:
TypeError: '>=' not supported between instances of 'str' and 'int'
>>>
Ln: 19 Col: 4

input() returns always a string!

- if you want an int (or whatever different type) you must do a cast!!

```
age = int(input("insert your age"))
```

Exercise

1. Write a program to find if a number is divisible by 7
2. Write a program that take an int as input and returns if it is odd or even
3. Write a program that take an age as input and return a different message for each of this age's intervals:

   -0...18

   -19...30

   -30...60

   -60...90

   -90....

1. Extends previous program with other intervals, inside existing one:

   -0...18:

      - 0...14

      - 14...18

   -19...30:

      - 19...25

      - 25...30

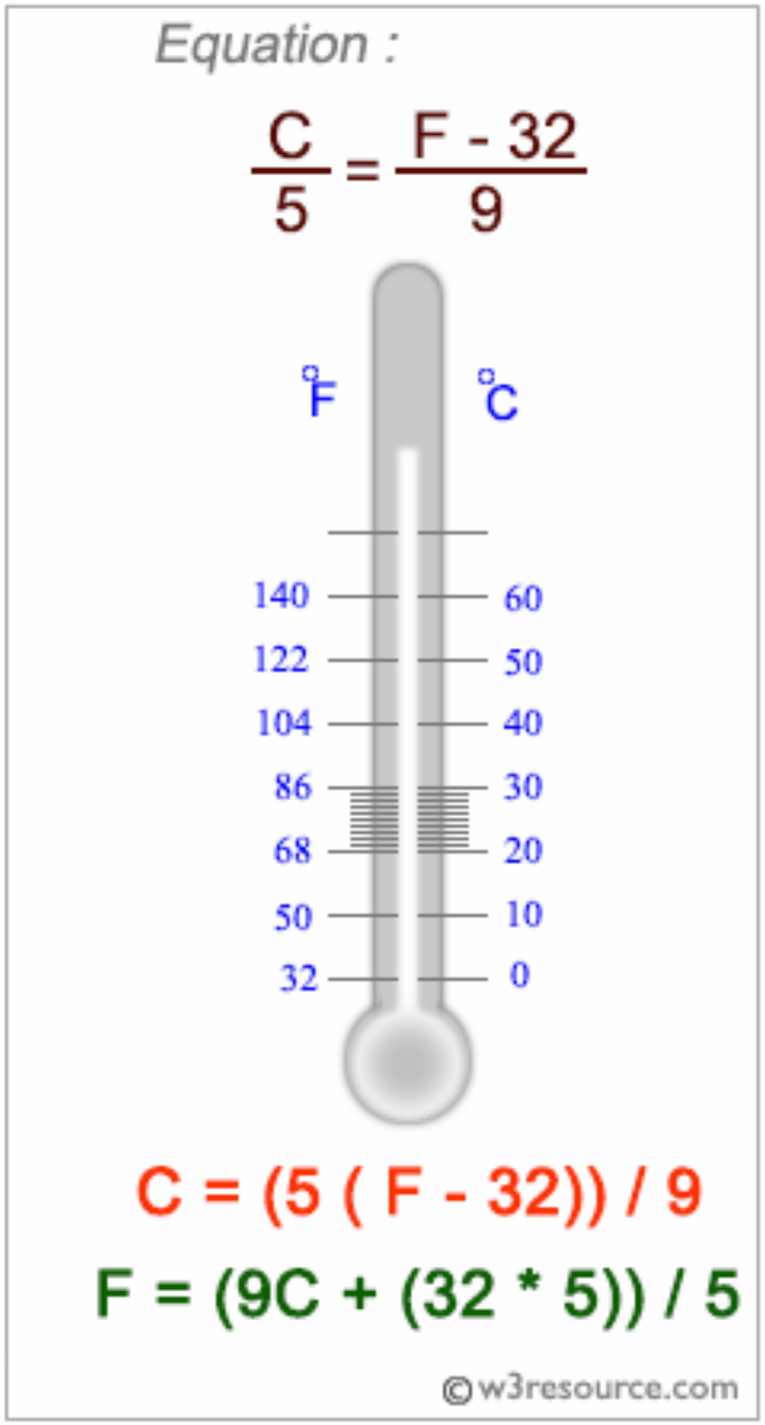
   -30...60:

      - 30...40

      - 40...60

   -60...90

   -90....



1. Write a Python program to convert temperatures to and from celsius, fahrenheit and to Kelvin

   - ask for F or C (string)
   - ask for temperature (int)
   - Make the conversion: C = (5 (F - 32)) / 9 or F = (9C + (32*5))/5
   - K = C + 273.15