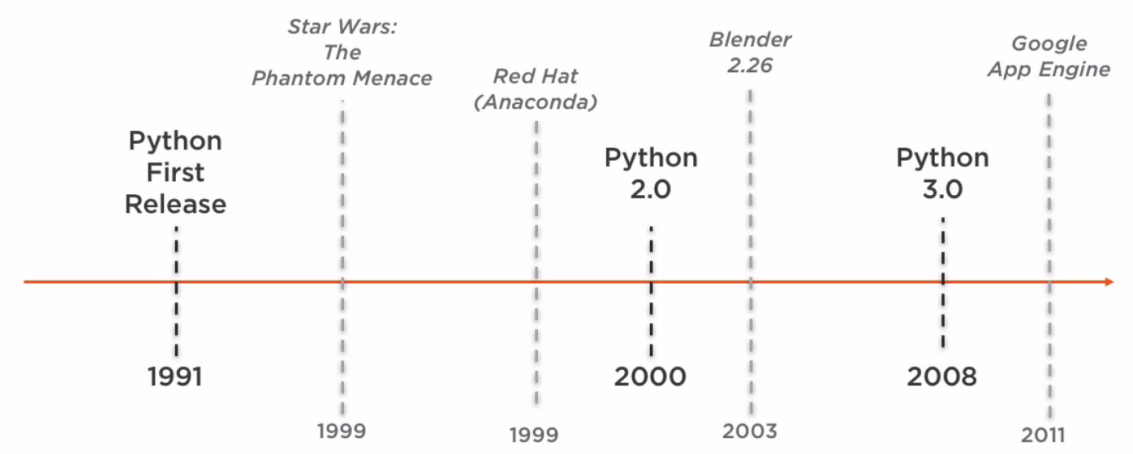
Python – Part 2

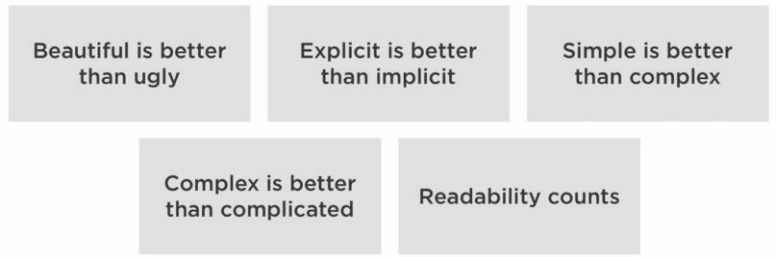
Python: The Big Picture

What Is Python?

Any type checks in python happen at run time instead of compile time. History of python

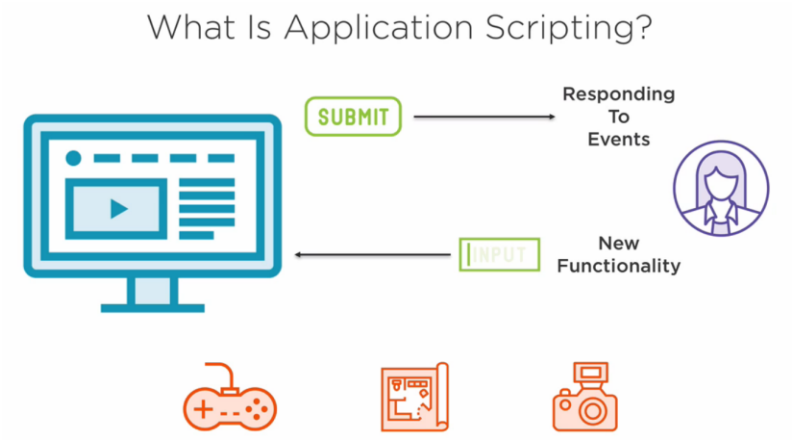


The python philosophy – PEP (python enhancement proposal) 20 – the zen of python – follow below principles



When and Where Is Python Being Used?

Python usage – Machine scripting and administration, web development, application scripting, data science.

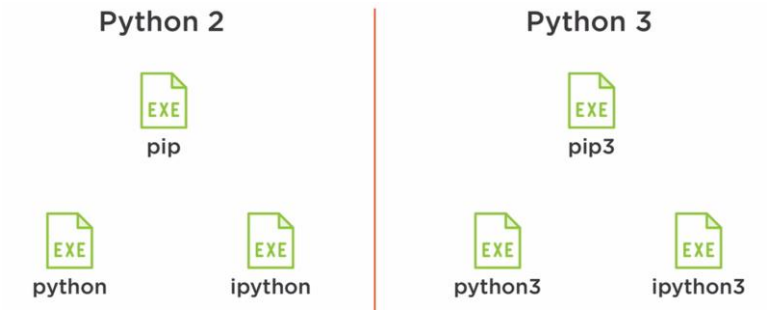


First Steps with Python

PIP means pip install packages. We pull the 3rd party libraries from pypi that is like the npm for python.

Continuing Your Python Journey

Python 2 vs. python 3. Python 2 is legacy code, we should use python 3 by default.

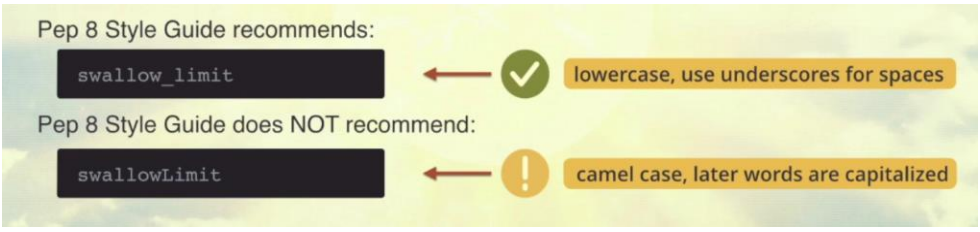


Ways to execute python code

Python: Variables, Data Types, and Conditionals

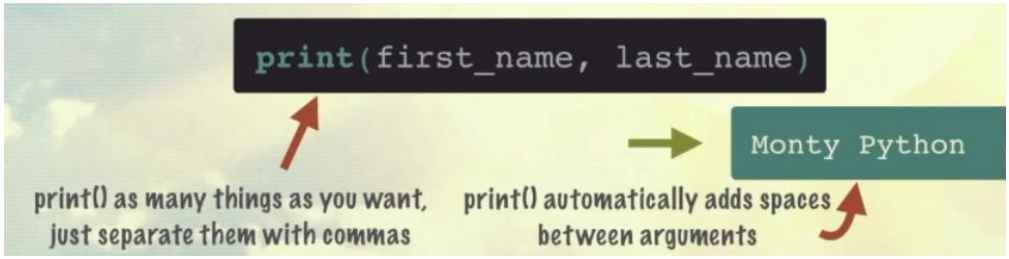
Birds & Coconuts

Naming of variable – use with underscore



Spam & Strings

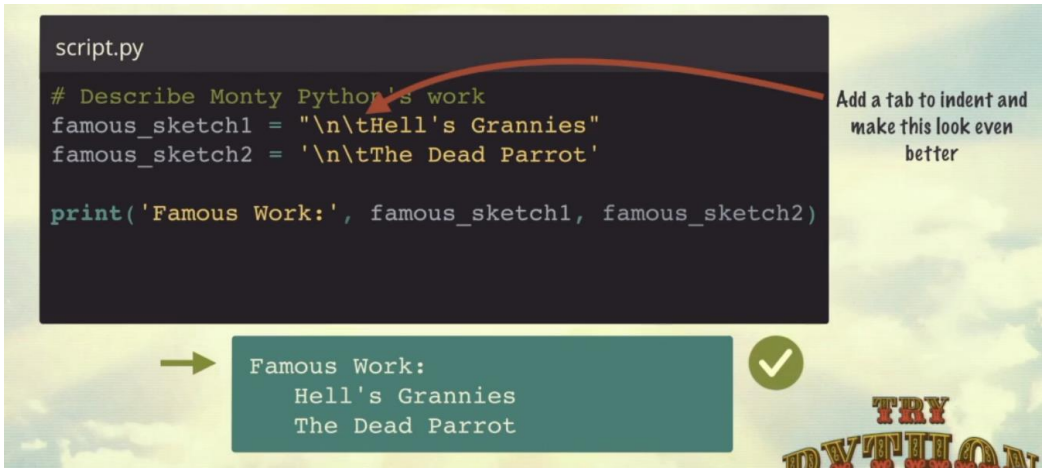
We can give multiple arguments in print function:



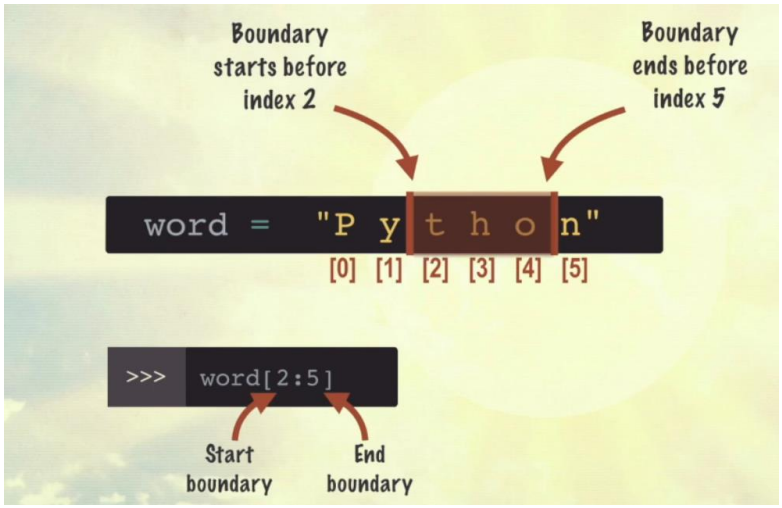
To write comment use # symbol.

Convert a number into string

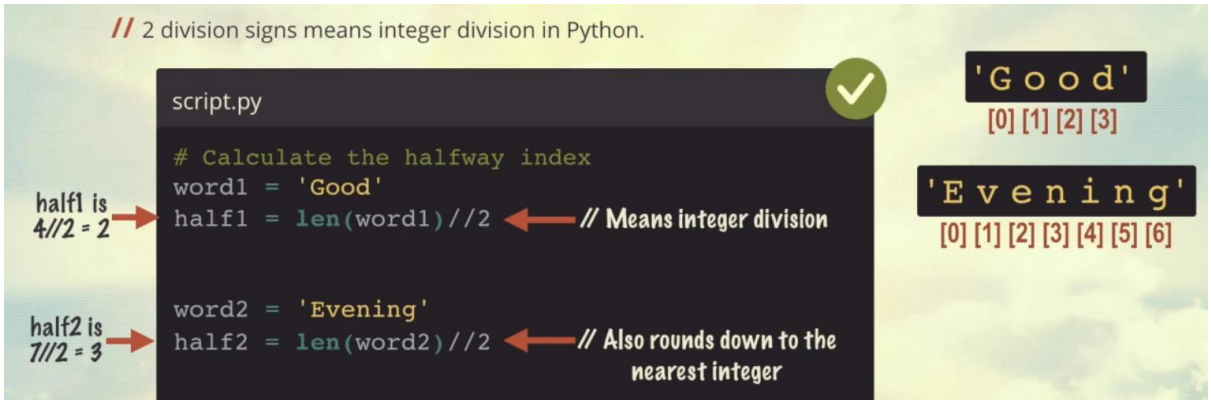
Using new line in print and for indent we can use \t



String inbuilt methods - len(), and use slice like below

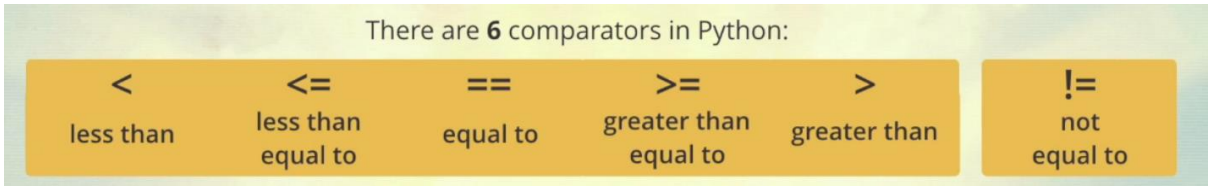


Using integer division

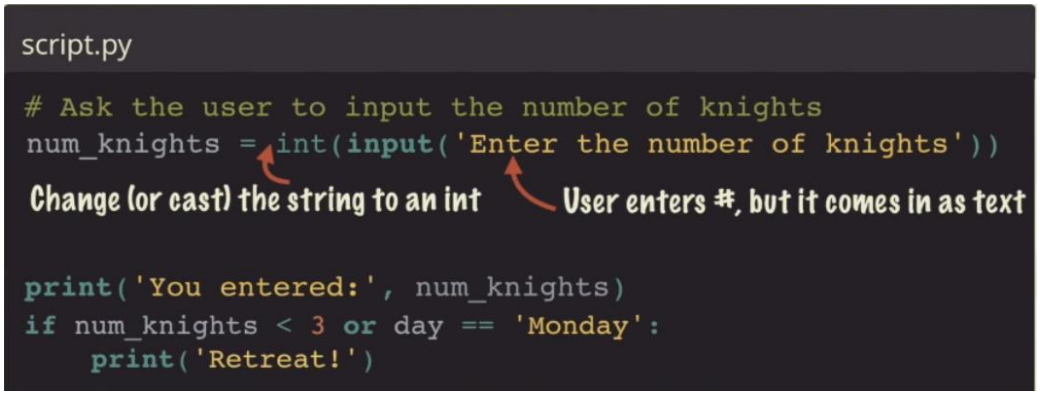


Conditional Rules of Engagement

Conditional operators



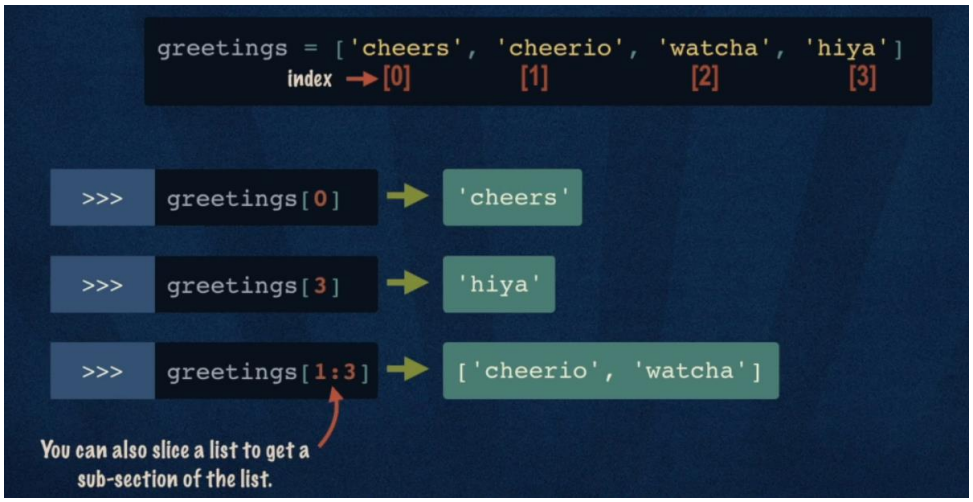
Using input function to take input from user



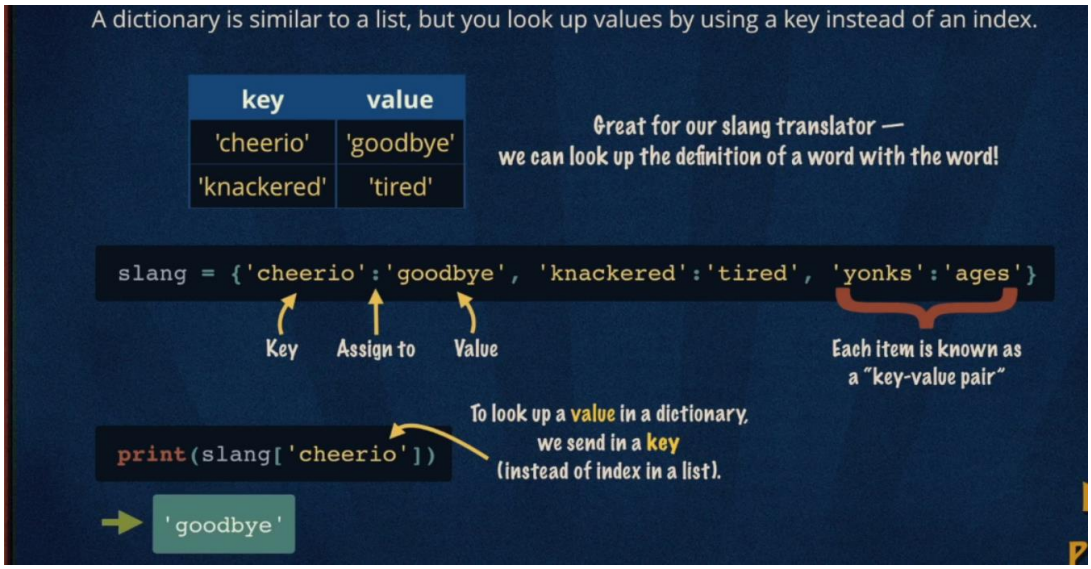
Python: Using Lists, Dictionaries, Loops, Files, and Modules

Lists and Dictionaries

Lists – append, remove, del

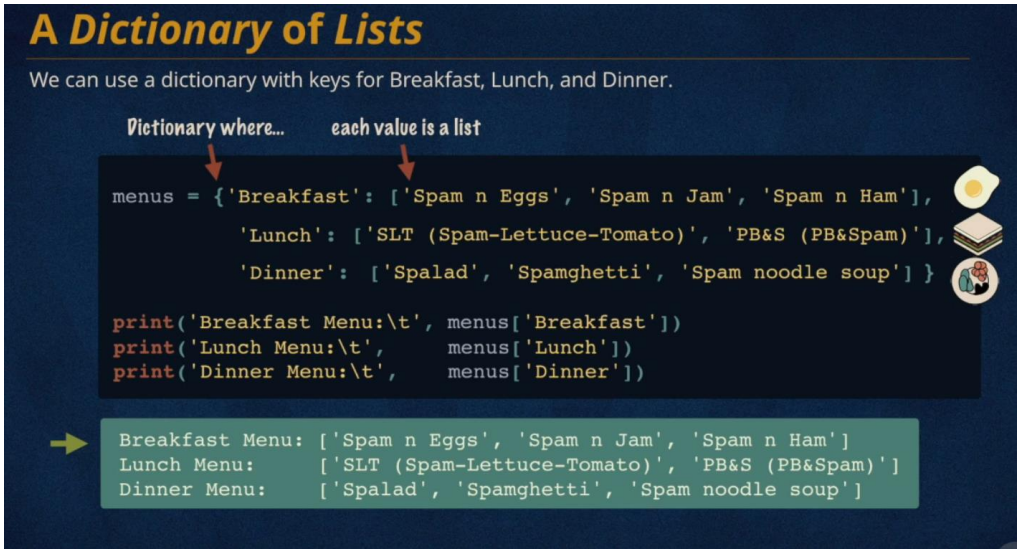


Dictionaries – maintaining two list can be error prone, so we can use dictionaries. Instead of using index we use key for lookup. For keys also we can use string, number. Methods available are – del. Use get method to get value even if doesn't exist, it won't throw an error.



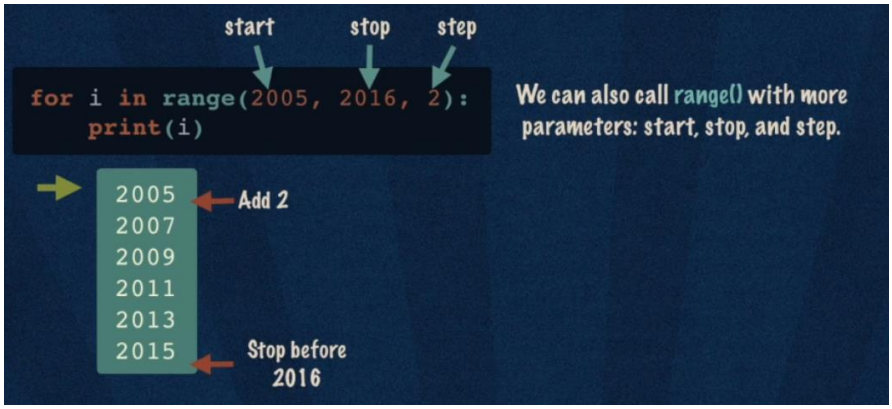
Comparing lists and dictionaries – for list the values should be same and in same order, but not required in dictionaries.

Instead of using lists of lists, prefer to use dictionary of lists for a better lookup –

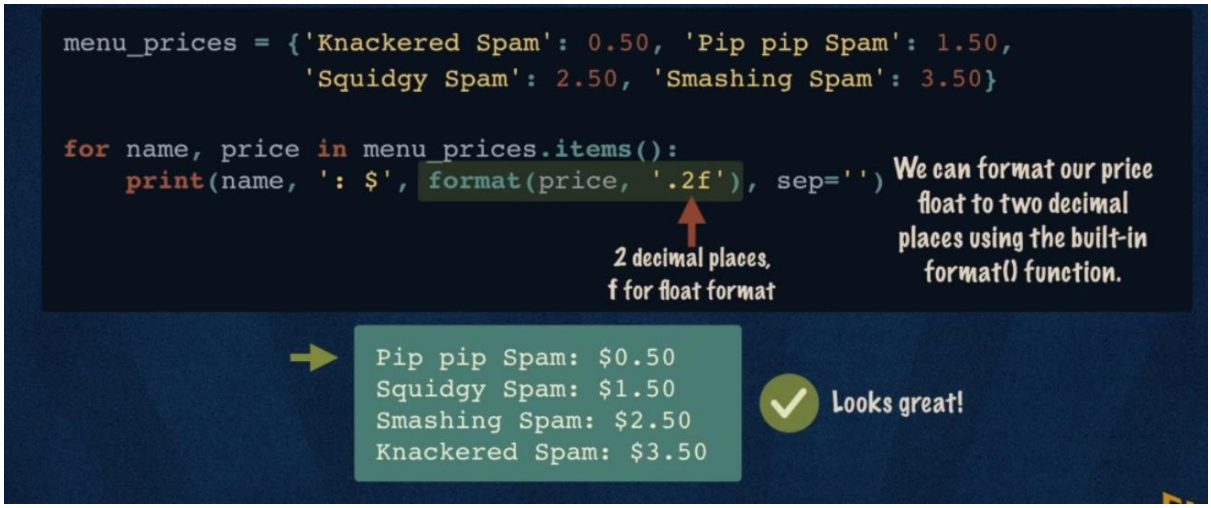


Loops

Using range

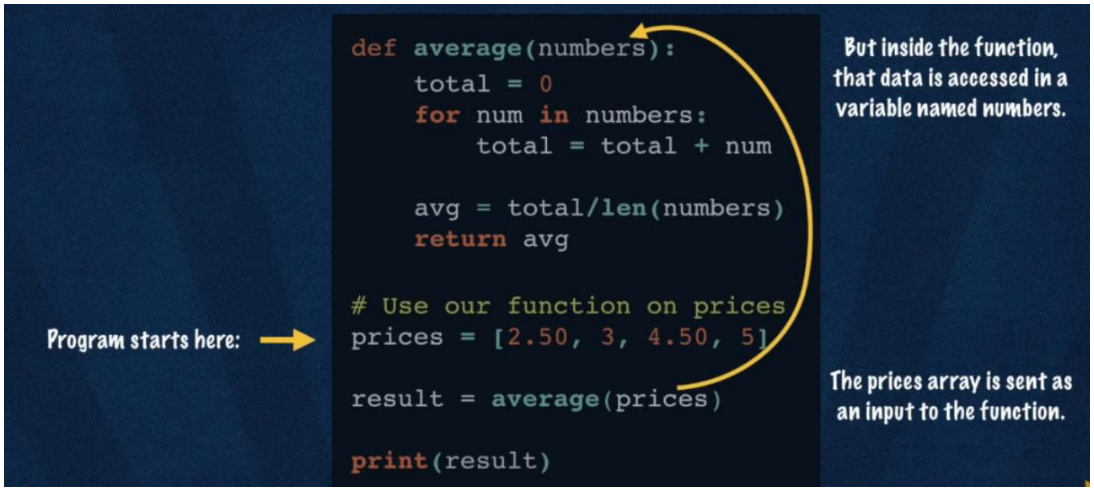


Using dictionary's key and value in a loop, also using separator and format functions inside print



Functions

Use functions to avoid duplicate code, returning data from function is optional.



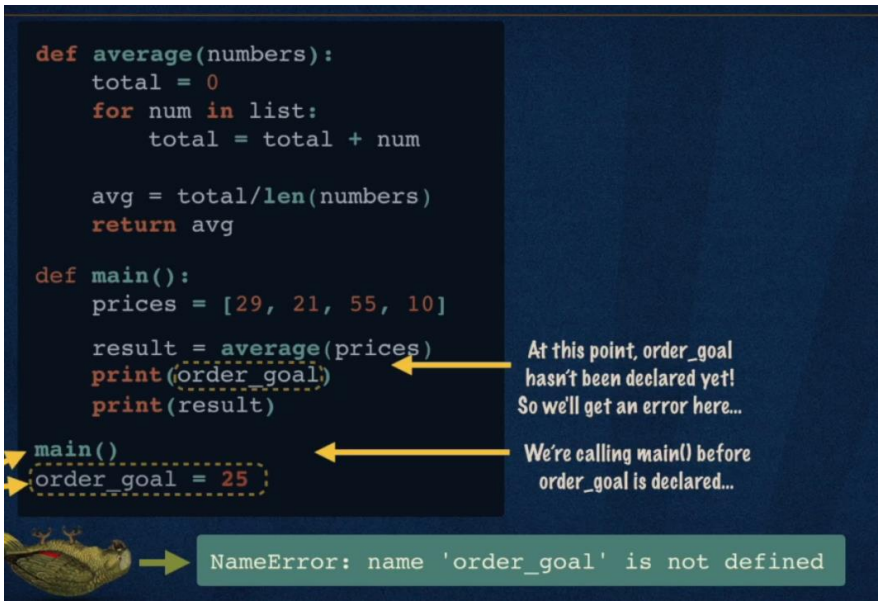
For a better code, we should organize our main code into a main function

```
def average(numbers):
    total = 0
    for num in list:
        total = total + num

    avg = total/len(numbers)
    return avg

def main():
    prices = [29, 21, 55, 10]
    result = average(prices)
    print(result)
main()
```

Variables which are defined outside the function have global scope and their order also matters



Reading and Writing Files

Writing files

```
def write_sales_log(order):
    file = open('sales.txt', 'a' )   <-- 'a' for append

    total = 0
    for item, price in order.items():
        file.write(item + ' ' + format(price, '.2f') + '\n')
        total += price

    file.write('total = ' + format(total, '.2f') + '\n')
    file.close()

def main():
    order = {'Cheeky Spam': 1.0, 'Yonks Spam': 4.0}
    write_sales_log(order)
    order = {'Cheerio Spam': 1.0, 'Smashing Spam': 3.0}
    write_sales_log(order)
```

Reading file – read(), readline(), we can assign it into list. Also use string method strip to remove leading and trailing whitespace

```
def read_dollar_menu():
    dollar_spam = open('dollar_menu.txt', 'r')

    dollar_menu = []
    for line in dollar_spam:
        dollar_menu.append(line)      This will combine all items into a list.

    print(dollar_menu)
    dollar_spam.close()
```

Exceptions

```
price = input("Enter the price: ")

try:
    price = float(price)
    print('Price =', price)
except ValueError:                    We can also look for a specific type of error.
    print('Not a number!')
```

```
Enter the price: 25
Price = 25.0
```

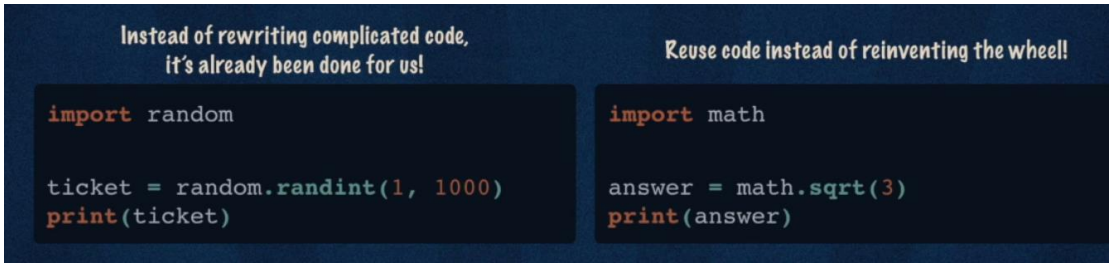
The user enters a number so there's no error.

```
Enter the price: oops
Not a number!
```

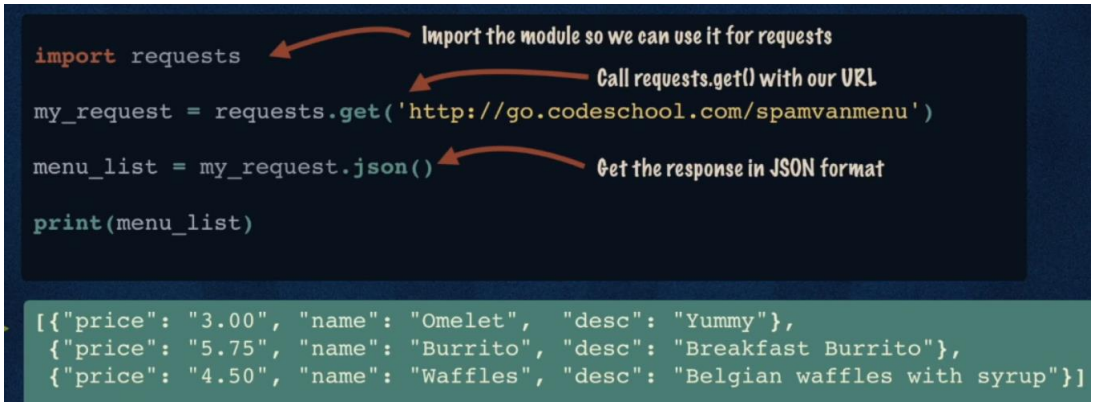
Program prints the exception, telling the user what the problem was, then continues.

Modules

Modules are code libraries that contain functions we can call from our code. They make our lives easier by implementing the hard stuff for us. We can use pip to install modules.



The http module



Creating modules – a script containing definitions is a module and can be imported by a script or another module.