

Tarea 2 Métodos numéricos.

Curso de programación en Python

Nombre: Luis Enrique Pérez Señalín

Nombre del curso:

[CS50's Introduction to Programming with Python](#)

Instructores:

[David J. Malan](#)

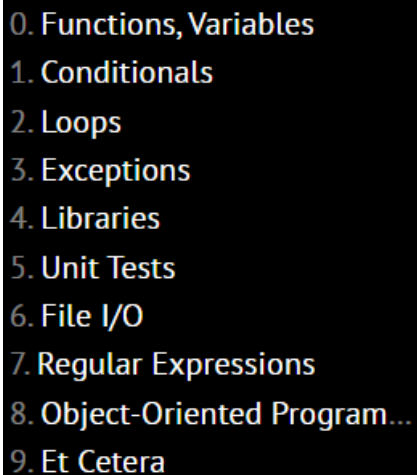
Institución:

CS50 Harvard.

Contenido:

Learn about functions, arguments, and return values (oh my!); variables and types; conditionals and Boolean expressions; and loops. Learn how to handle exceptions, find and fix bugs, and write unit tests; use third-party libraries; validate and extract data with regular expressions; model real-world entities with classes, objects, methods, and properties; and read and write files

Divisiones:

- 
0. Functions, Variables
 1. Conditionals
 2. Loops
 3. Exceptions
 4. Libraries
 5. Unit Tests
 6. File I/O
 7. Regular Expressions
 8. Object-Oriented Program...
 9. Et Cetera

Capturas de cada parte del curso hasta la parte 6 (7mo video) File I/O:

0. Functions, Variables:

Week 0 Functions

Functions, Arguments, Side Effects, Bugs, Return Values, Variables, Comments, Pseudocode, `str`, Parameters, `int`, Operators, Interactive Mode, `float`, `def`, Scope, `return`.

CS50 Video Player

Shortcuts Snacks Chapters Captions CS50.ai

calculator.py

```
1 def main():
2     x = int(input("What's x? "))
3     print("x squared is", square(x))
4
5
6 def square(n):
7     ...
8
9 main()
```

TERMINAL

```
$
```

1:43:55 / 1:45:38 • Return Values

YouTube

1. Conditionals

Week 1 Conditionals

`if`, `elif`, `else`, `or`, `and`, `bool`, `match`.

CS50 Video Player

Shortcuts Snacks Chapters Captions CS50.ai

house.py

```
1 name = input("What's your name? ")
2
3 match name:
4     case "Harry" | "Hermione" | "Ron":
5         print("Gryffindor")
6     case "Draco":
7         print("Slytherin")
8     case _:
9         print("Who?")
```

TERMINAL

```
What's your name? Hermione
Gryffindor
$ python house.py
What's your name? Ron
Gryffindor
```

54:56 / 56:08 • match

YouTube

2. Loops:

Week 2 Loops

while, for, list, range, continue, break, list, len, dict, None.

CS50 Video Player

Shortcuts Snacks Chapters Captions CS50.ai

mario.py

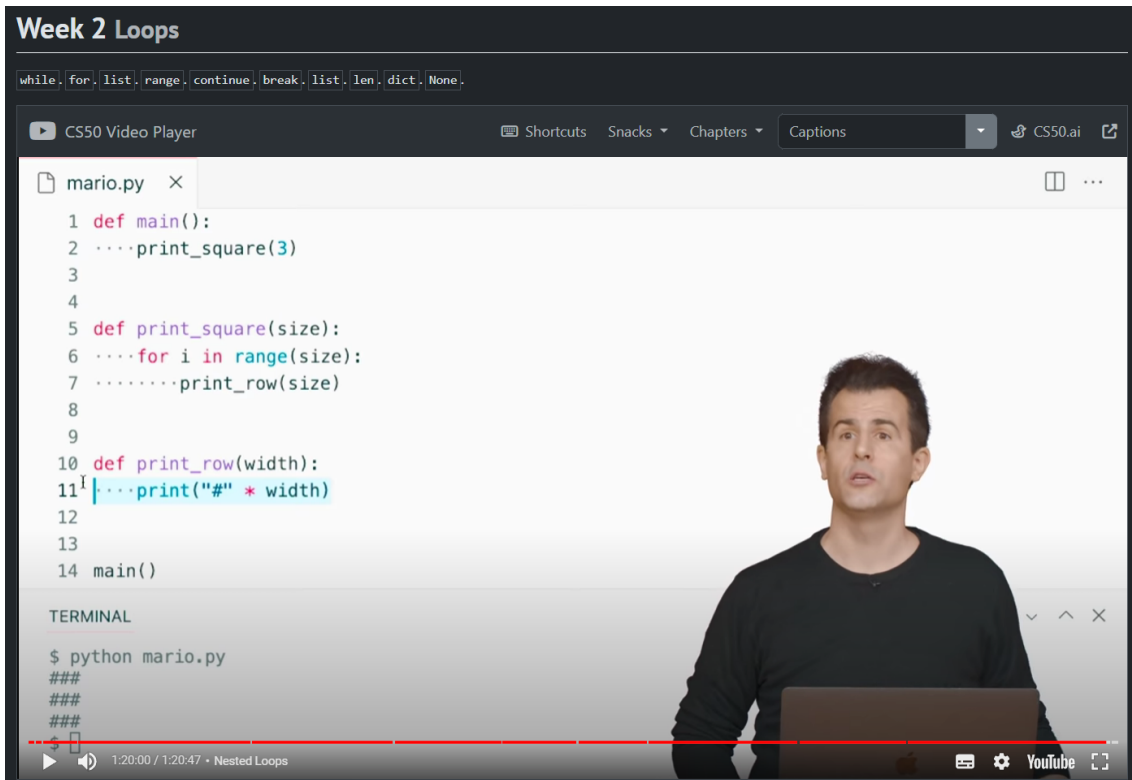
```
1 def main():
2     print_square(3)
3
4
5 def print_square(size):
6     for i in range(size):
7         print_row(size)
8
9
10 def print_row(width):
11     print("#" * width)
12
13
14 main()
```

TERMINAL

```
$ python mario.py
###
###
###
```

1:20:00 / 1:20:47 • Nested Loops

YouTube



3. Exceptions:

Week 3 Exceptions

SyntaxError, ValueError, try, except, NameError, else, pass, raise.

CS50 Video Player

Shortcuts Snacks Chapters Captions CS50.ai

number.py

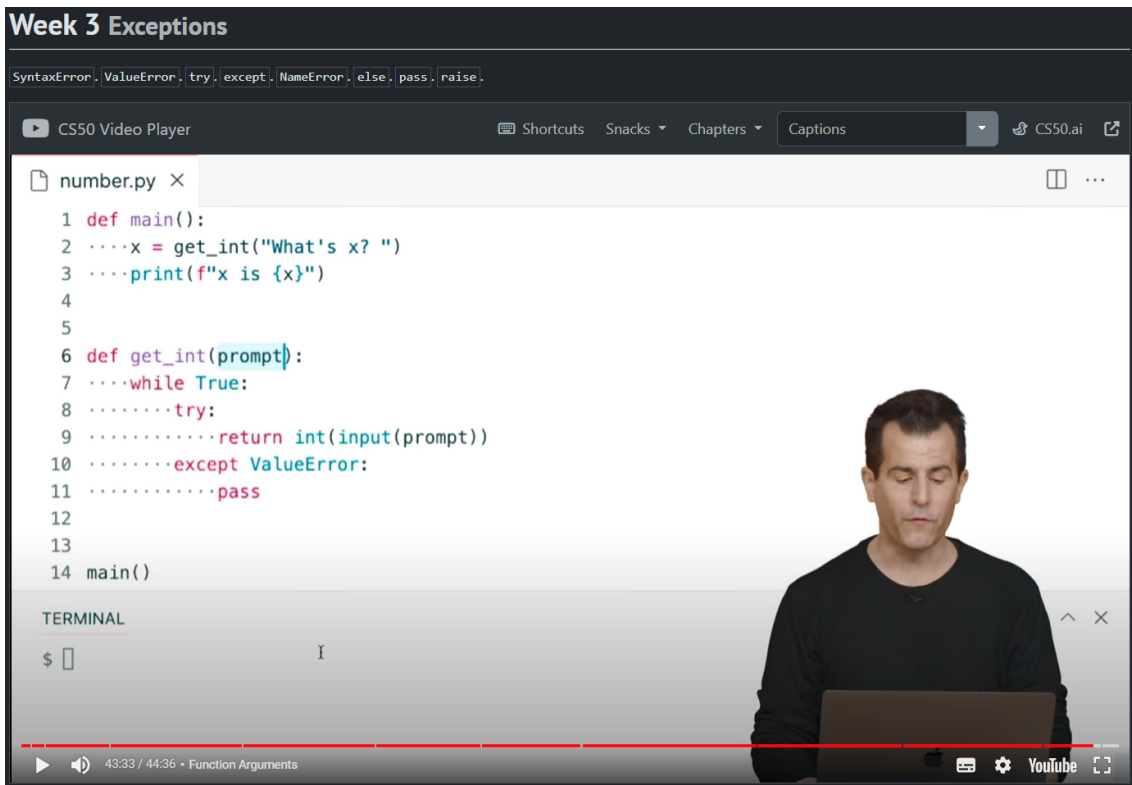
```
1 def main():
2     x = get_int("What's x? ")
3     print(f"x is {x}")
4
5
6 def get_int(prompt):
7     while True:
8         try:
9             return int(input(prompt))
10        except ValueError:
11            pass
12
13
14 main()
```

TERMINAL

```
$
```

43:33 / 44:36 • Function Arguments

YouTube



4. Libraries:

Week 4 Libraries

Modules: random, import, from, statistics, Command-Line Arguments, sys, sys.argv, IndexError, sys.exit, Slices, Packages, PyPI, pip, cowsay, APIs, requests, JSON.

CS50 Video Player

Shortcuts Snacks Chapters Captions CS50.ai

itunes.py

```
1 import json
2 import requests
3 import sys
4
5 if len(sys.argv) != 2:
6     sys.exit()
7
8 response = requests.get("https://itunes.apple.com/search?entity=song&term=" + sys.argv[1])
9
10 o = response.json()
11 for result in o["results"]:
12     print(result["trackName"])
```

TERMINAL

```
$
```

1:07:21 / 1:17:28 • APIs, requests, JSON

YouTube

5. Unit Tests:

Week 5 Unit Tests

assert, AssertionError, pytest, Packages, __init__.py

CS50 Video Player

Shortcuts Snacks Chapters Captions CS50.ai

hello.py test_hello.py

```
1 from hello import hello
2
3
4 def test_default():
5     assert hello() == "hello, world"
6
7
8 def test_argument():
9     for name in ["Hermione", "Harry", "Ron"]:
10         assert hello(name) == f"hello, {name}"
```

TERMINAL

```
$ pytest test_hello.py
..
2 passed in 0.01s
$
```

47:49 / 50:53 • Side Effects and Testing

YouTube

6. File I/O:

Week 6 File I/O

list, open, with, sorted, CSV, dict, csv, PIL

CS50 Video Player

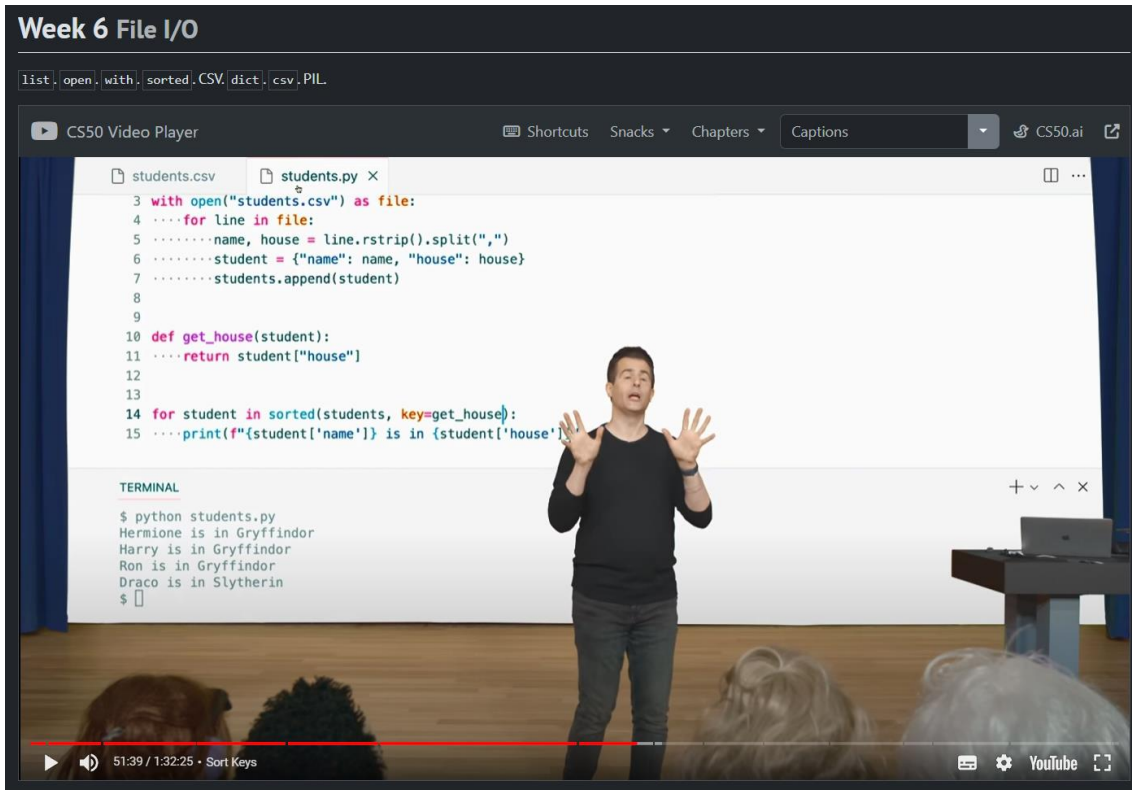
Shortcuts Snacks Chapters Captions CS50.ai

students.csv students.py ×

```
3 with open("students.csv") as file:
4     for line in file:
5         name, house = line.rstrip().split(",")
6         student = {"name": name, "house": house}
7         students.append(student)
8
9
10 def get_house(student):
11     return student["house"]
12
13
14 for student in sorted(students, key=get_house):
15     print(f"{student['name']} is in {student['house']}")
```

TERMINAL

```
$ python students.py
Hermione is in Gryffindor
Harry is in Gryffindor
Ron is in Gryffindor
Draco is in Slytherin
$
```



El total de horas hasta la parte 6 en total 7 videos, son de más de 8 horas, y faltan 3 partes más, 7. Regular Expressions, 8. Object Oriented Programing, 9. Et Cetera