

Primeros pasos con Python

¿Qué es Python?

- Python es un **lenguaje de programación de alto nivel** que se utiliza para desarrollar aplicaciones de todo tipo
- Es **sencillo de leer y escribir** debido a su alta similitud con el lenguaje humano.
- Se utiliza en **Inteligencia artificial, big data, machine learning, data science...**



Preparación del Entorno de Desarrollo

Instalación del IDE

○ IDE (Entorno de Desarrollo Integrado)

- aplicación de software que ayuda a los programadores a desarrollar código de software de manera eficiente.
- Aumenta la productividad de los desarrolladores al combinar capacidades como editar, crear, probar y empaquetar software en una aplicación fácil de usar



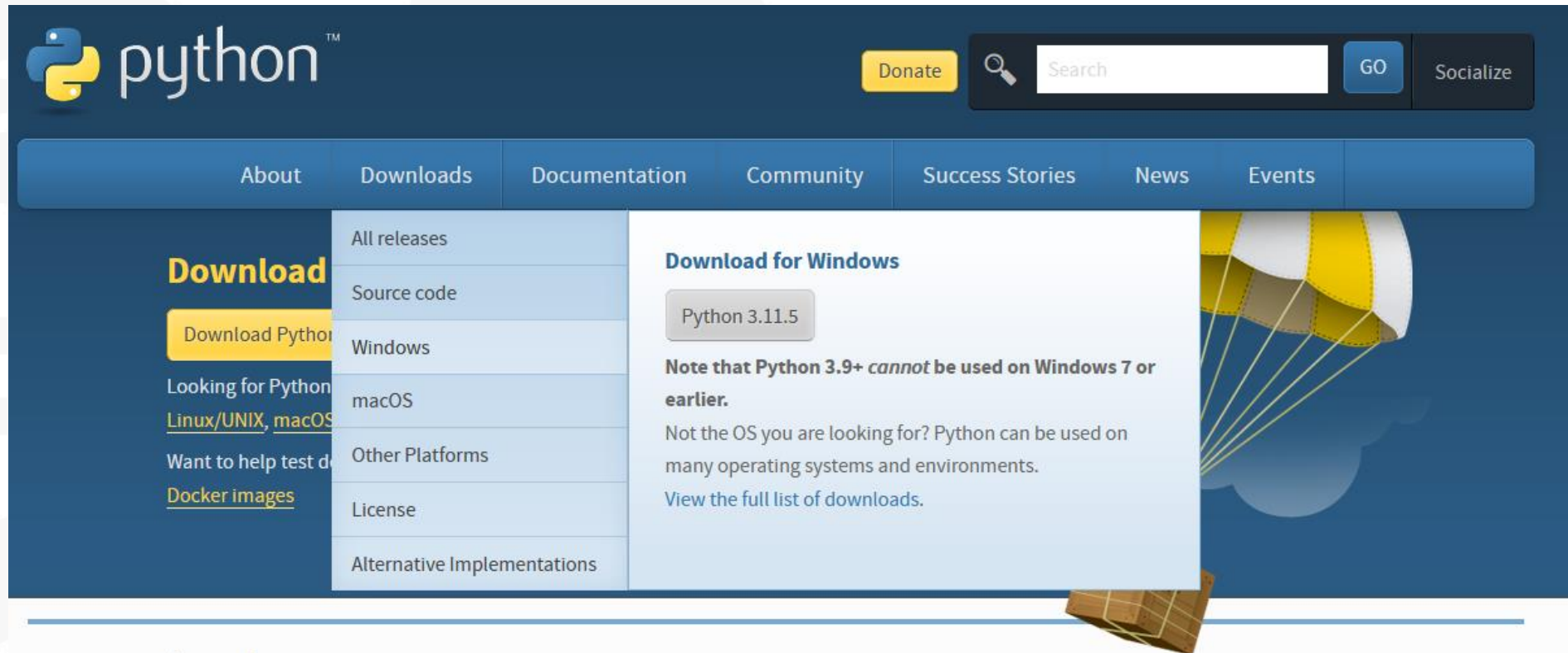
Visual Studio Code



PyCharm

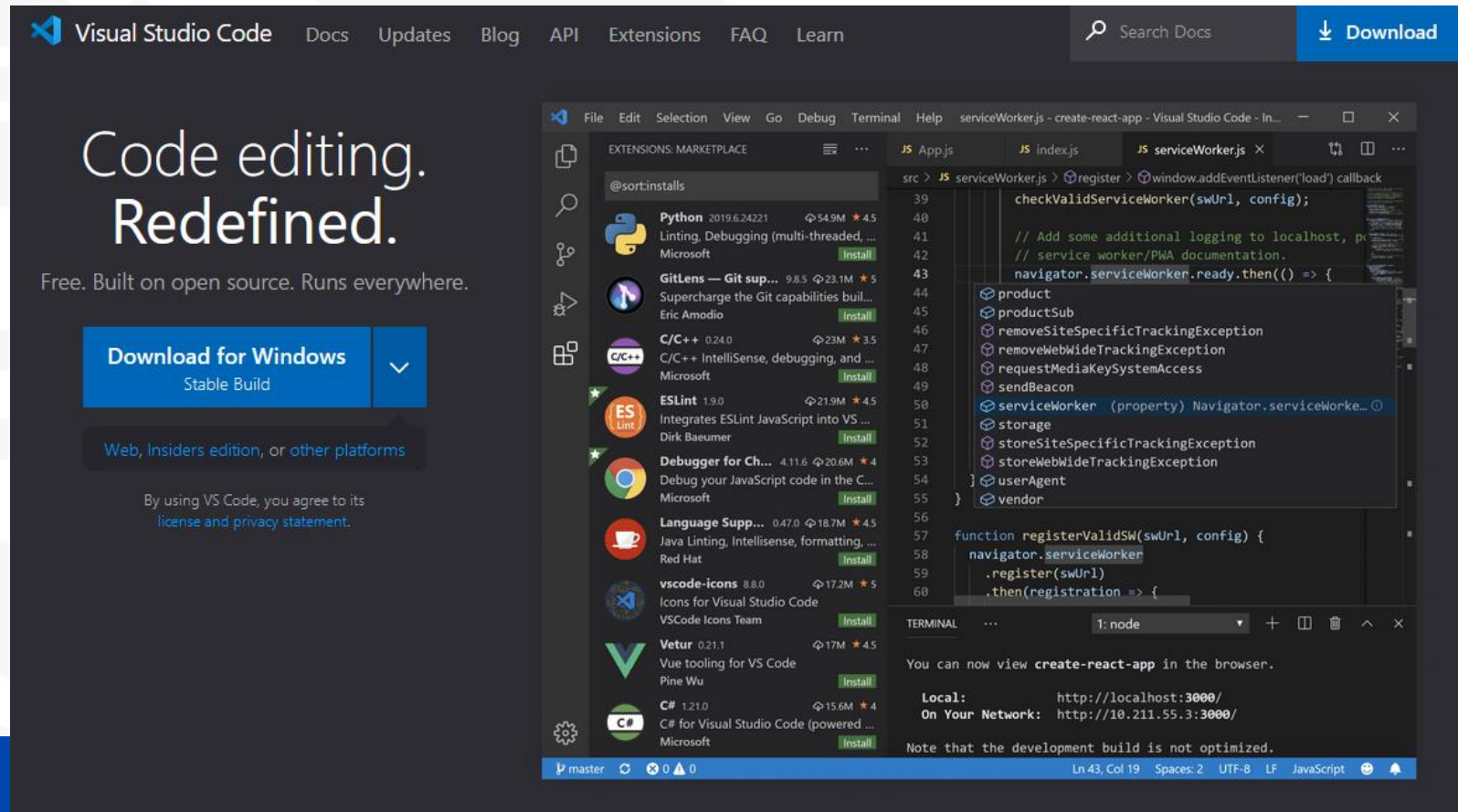
Instalación de Python

- Descarga desde <https://www.python.org/downloads/>

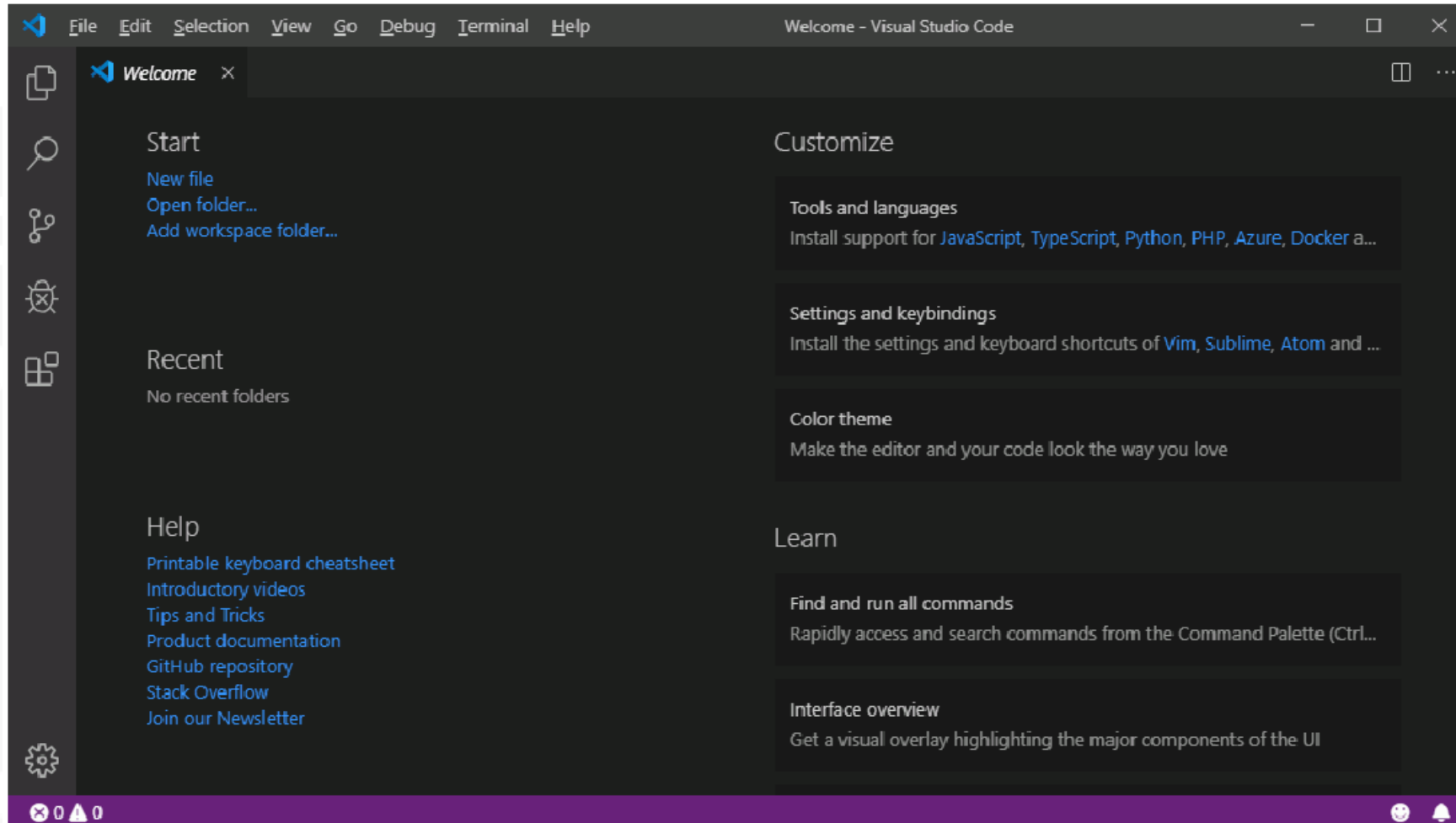


Instalación de Visual Studio Code

- Descargar desde <https://code.visualstudio.com/>



Visual Studio Code



Plugin Python para Visual Studio Code



The screenshot displays the Visual Studio Code interface with the 'EXTENSIONS: MARKETPLACE' view open. The search bar contains 'python'. The list of extensions includes:

- Python** (Microsoft) - 491ms, 96,487,380 downloads, 555 stars. Description: IntelliSense (Pylance), Linting, Debugging (multi-threaded, remote), code formatting, refactoring, unit tests, and more. Buttons: Disable, Uninstall, Switch to Pre-Release Version. Status: This extension is enabled globally.
- Python Indent** (Kevin Rose) - 6.2M downloads, 4.5 stars. Button: Install.
- Python Extension Pack** (Don Jayamanne) - 6.2M downloads, 4.5 stars. Button: Install.
- Python for VSCode** (Thomas Haakon Townsend) - 5.2M downloads, 2 stars. Button: Install.
- Python Environment Manager** (Don Jayamanne) - 5.1M downloads, 3.5 stars. Button: Install.
- autoDocstring - Python Docst...** (Nils Werner) - 6.3M downloads, 5 stars. Button: Install.
- Python** (shiro) - 61K downloads, 5 stars. Button: Install.
- Python Preview** (dongli) - 1.2M downloads, 4.5 stars. Button: Install.

The details view for the **Python** extension (v2023.16.0) is shown on the right. It includes the Python logo, the Microsoft logo, and the text: 'IntelliSense (Pylance), Linting, Debugging (multi-threaded, remote), code formatting, refactoring, unit tests, and more.' Below this, there are tabs for DETAILS, FEATURE CONTRIBUTIONS, CHANGELOG, EXTENSION PACK, and RUNTIME STATUS. The main content area describes the extension as a 'Python extension for Visual Studio Code' and provides information about its support for `vscode.dev` and installed extensions.

Python extension for Visual Studio Code

A Visual Studio Code extension with rich support for the Python language (for all actively supported versions of the language: >=3.7), including features such as IntelliSense (Pylance), linting, debugging, code navigation, code formatting, refactoring, variable explorer, test explorer, and more!

Support for `vscode.dev`

The Python extension does offer some support when running on `vscode.dev` (which includes `github.dev`). This includes partial IntelliSense for open files in the editor.

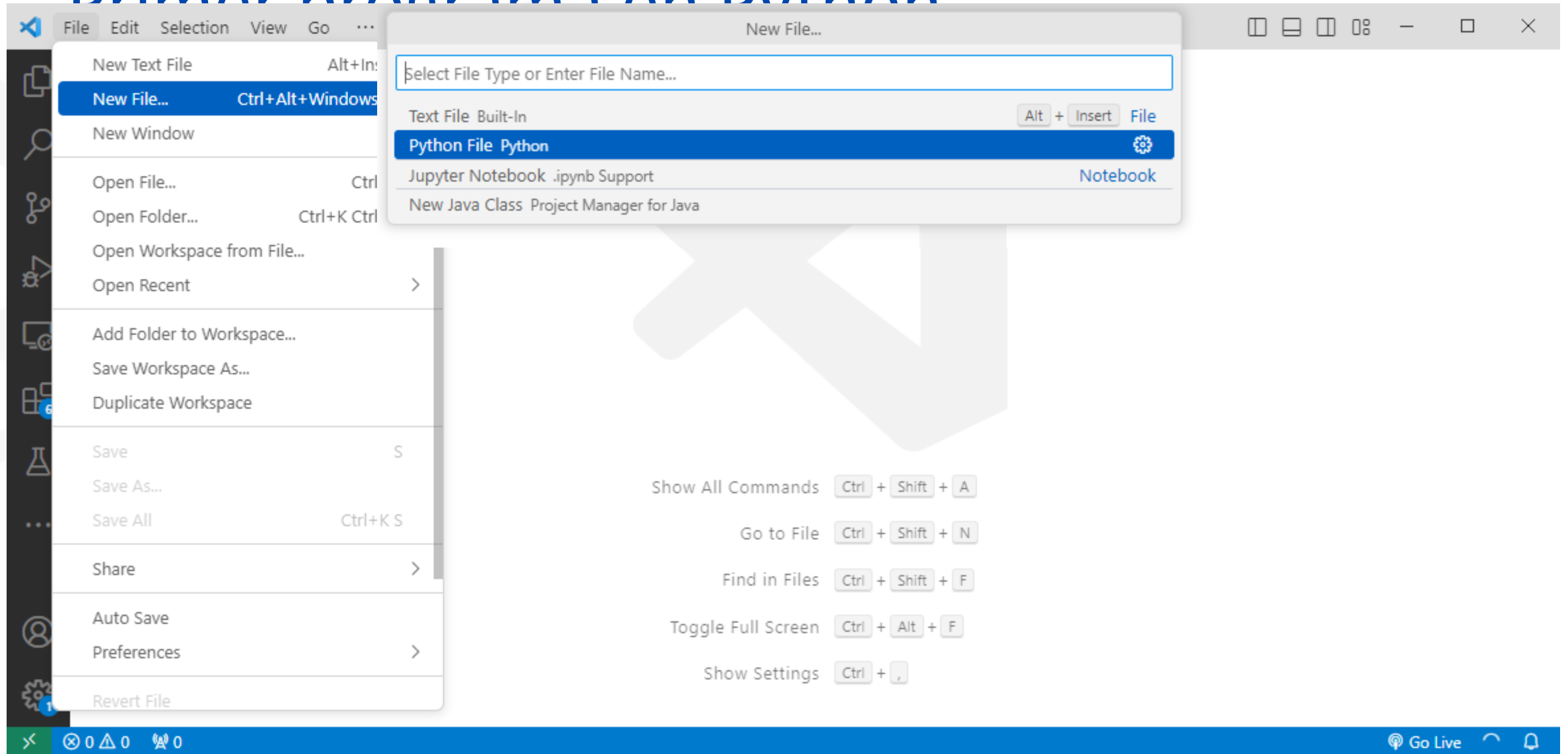
Installed extensions

The Python extension will automatically install the Pylance extension to give you the best experience when working with Python files. However, Pylance is an optional dependency, meaning the Python extension will remain fully functional if it fails to be installed. You can also uninstall it at the expense of some features if you're using a different language server.

Extensions installed through the marketplace are subject to the [Marketplace Terms of Use](#).

Primer programa en Python

Primer programa en Python



Primer programa en Python



The image shows a Jupyter Notebook interface with a file named 'Cuaderno1'. The notebook contains a single cell with the following Python code:

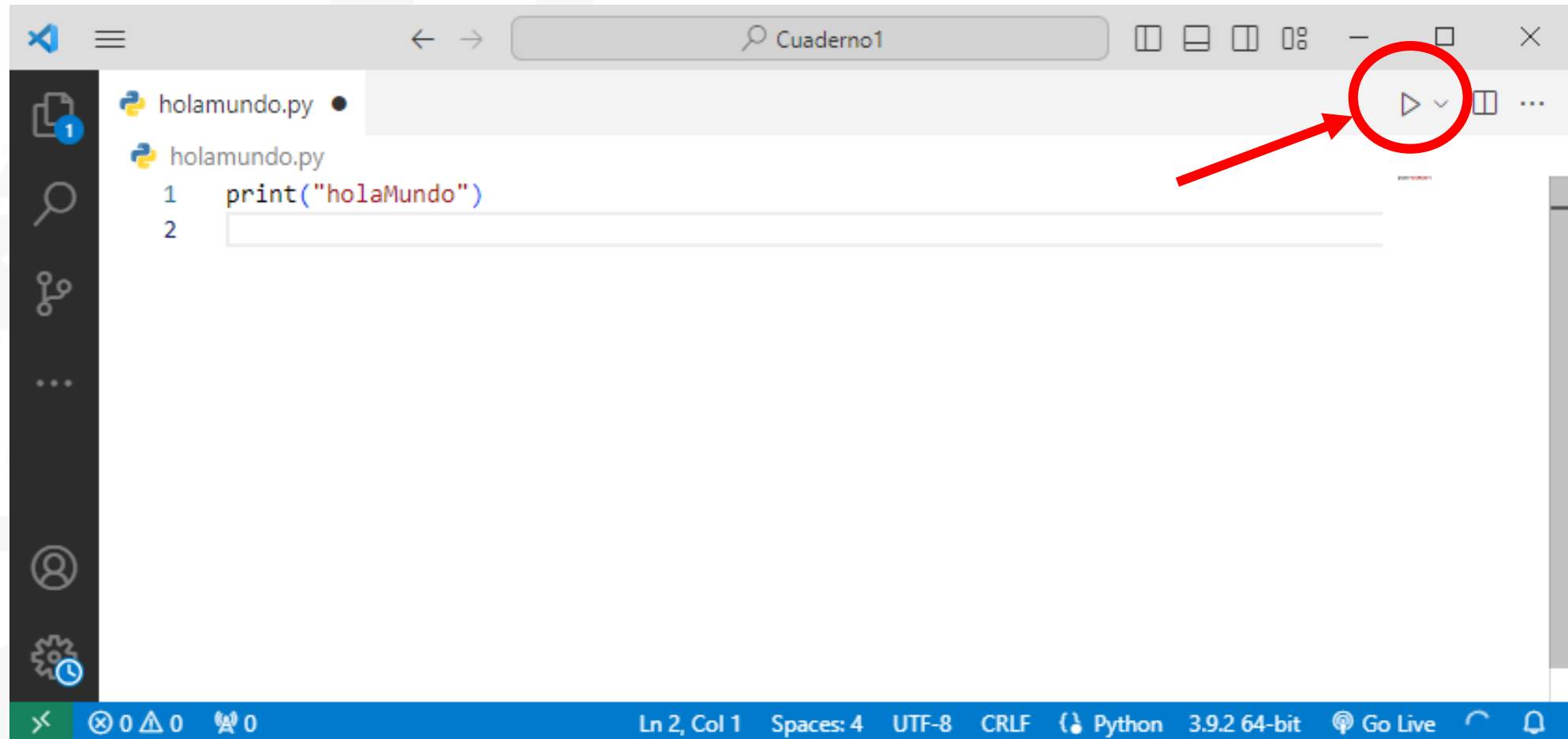
```
1 print("holaMundo")  
2
```

Annotations on the code:

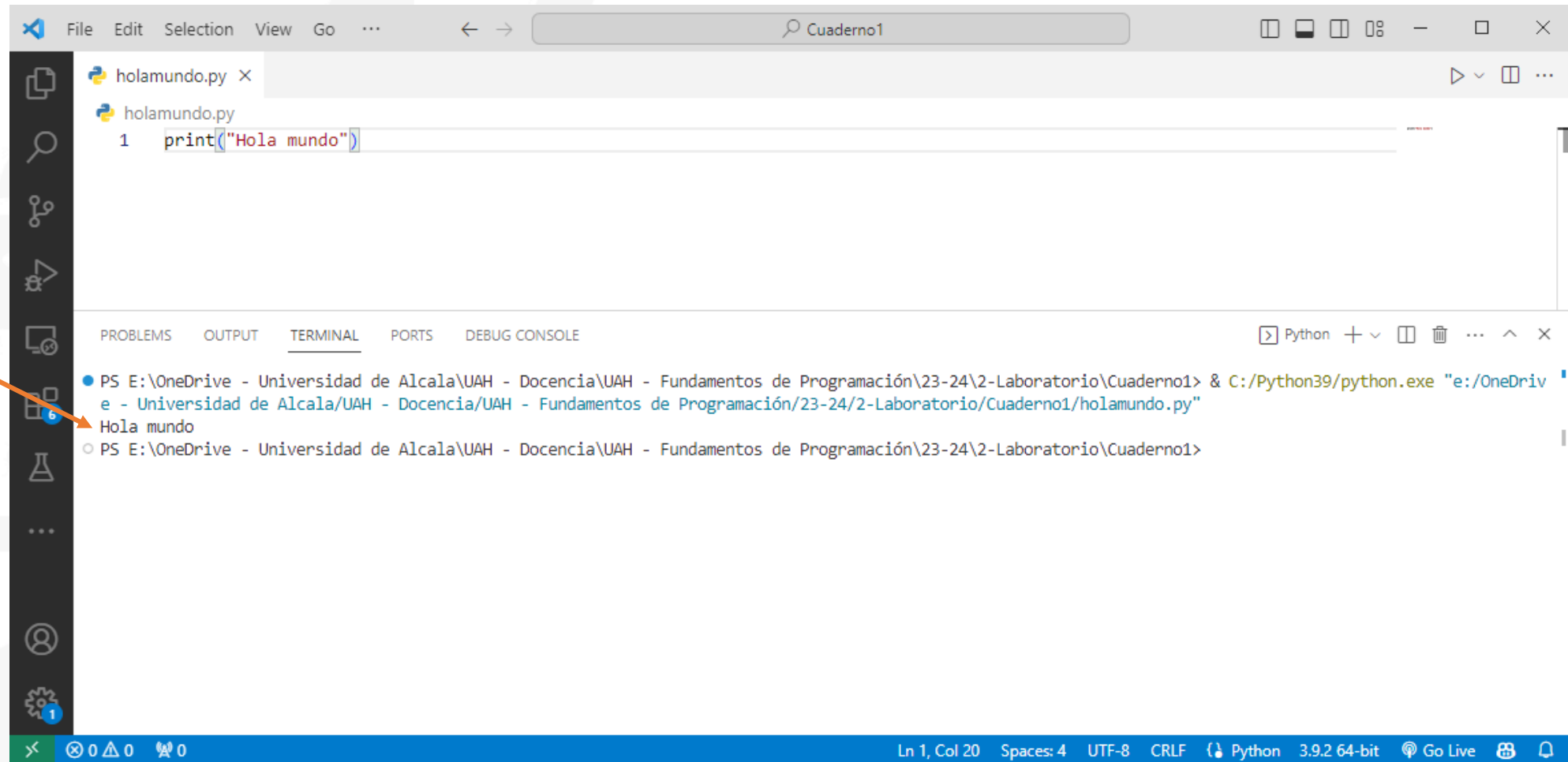
- An orange box highlights the `print` function on line 1.
- A green oval highlights the string `"holaMundo"` on line 1.
- The word **Función** is written in orange text below the `print` function.
- The text **Texto a mostrar** is written in green text below the string `"holaMundo"`.

The status bar at the bottom indicates the current position is Line 2, Column 1, with 4 spaces, UTF-8 encoding, CRLF line endings, and Python 3.9.2 64-bit interpreter.

Ejecutar programa en Python



Ejecutar programa en Python



The screenshot shows the Visual Studio Code interface. The editor window displays a file named `holamundo.py` with the following code:

```
1 print("Hola mundo")
```

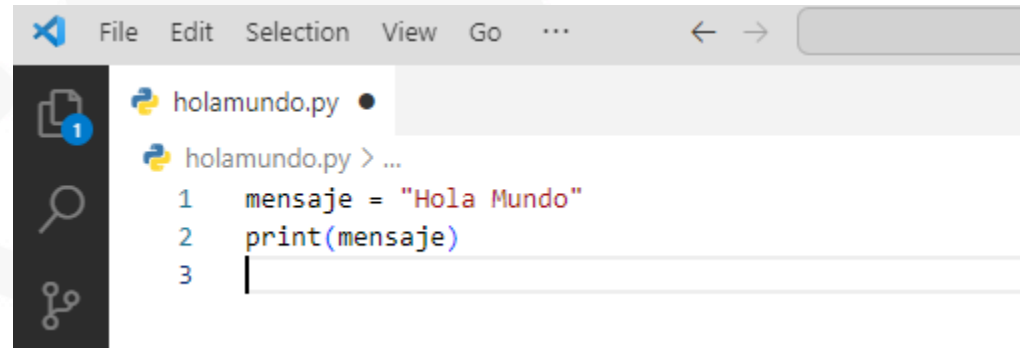
The bottom panel shows the **TERMINAL** tab. An orange arrow points to the terminal output, which displays `Hola mundo`. The terminal command executed is:

```
PS E:\OneDrive - Universidad de Alcalá\UAH - Docencia\UAH - Fundamentos de Programación\23-24\2-Laboratorio\Cuaderno1> & C:/Python39/python.exe "e:/OneDrive - Universidad de Alcalá/UAH - Docencia/UAH - Fundamentos de Programación/23-24/2-Laboratorio/Cuaderno1/holamundo.py"
```

The status bar at the bottom indicates the current file is `Ln 1, Col 20`, with `Spaces: 4`, `UTF-8` encoding, `CRLF` line endings, and `Python 3.9.2 64-bit` interpreter.

Variables

- Las variables son un espacio de memoria que almacenan un determinado valor.

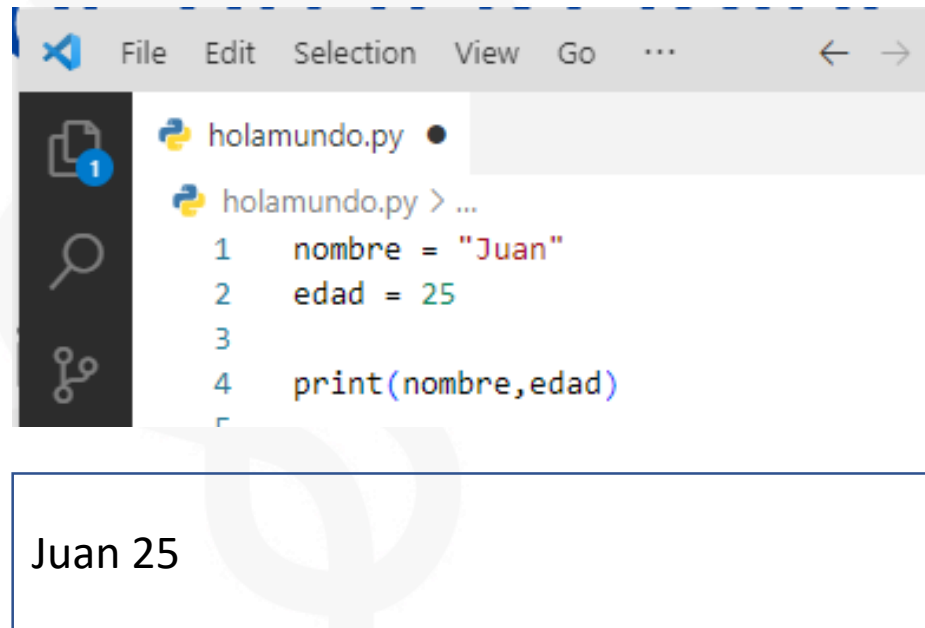


```
File Edit Selection View Go ...  
holamundo.py  
holamundo.py > ...  
1 mensaje = "Hola Mundo"  
2 print(mensaje)  
3
```

Hola Mundo

Tipos de variables

- una variable puede ser de tipo numérico o texto. En el siguiente código pueden verse dos variables, nombre y edad, con un valor asignado y luego siendo mostradas por pantalla.

The image shows a screenshot of a code editor window with a menu bar (File, Edit, Selection, View, Go, ...) and a sidebar with icons for Explorer, Search, and Source Control. The main editor area shows a file named 'holamundo.py' with the following Python code:

```
1 nombre = "Juan"
2 edad = 25
3
4 print(nombre,edad)
```

Below the code editor, there is a separate box containing the output of the script: 'Juan 25'.

Expresiones Lógicas

- Una expresión lógica representa su valor con dos valores posibles:
 - Verdadero (True)
 - Falso (False)

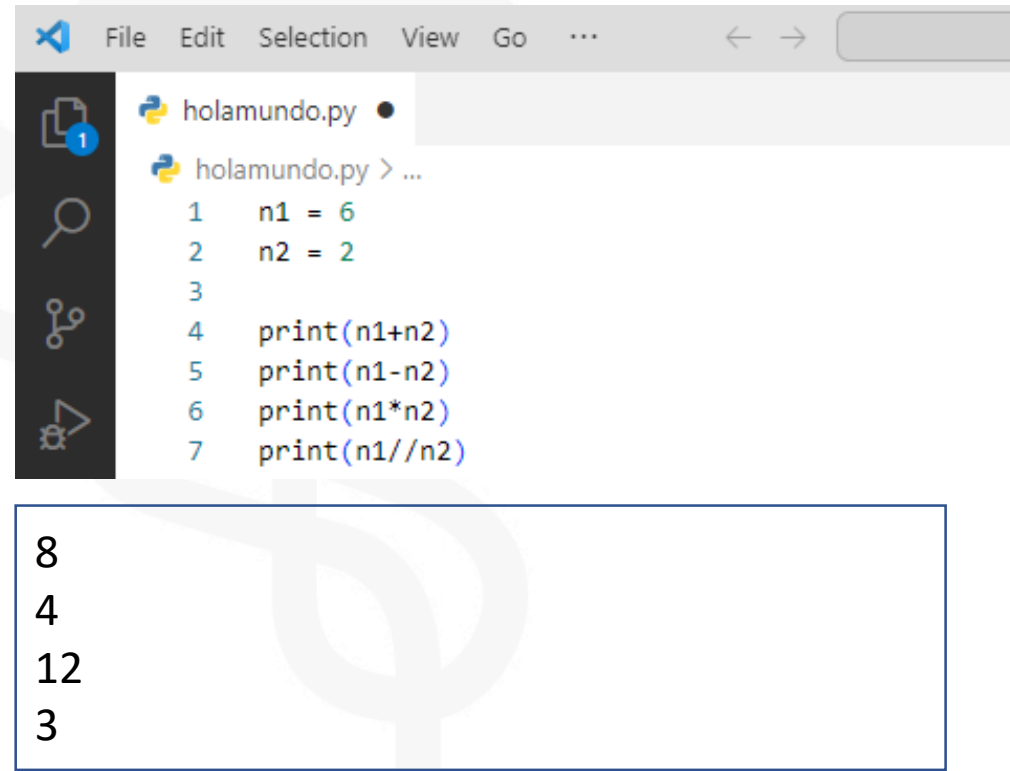


```
File Edit Selection View Go ...  
holamundo.py  
holamundo.py > ...  
1 edad = 25  
2  
3 print(edad > 18)  
4 print(edad < 18)
```

True
False

Expresiones matemáticas

- Python soporta distintas operaciones matemáticas entre dos o más variables de tipo numérico



The image shows a screenshot of a Python IDE window. The menu bar includes 'File', 'Edit', 'Selection', 'View', and 'Go'. The file explorer on the left shows a file named 'holamundo.py'. The main editor area displays the following Python code:

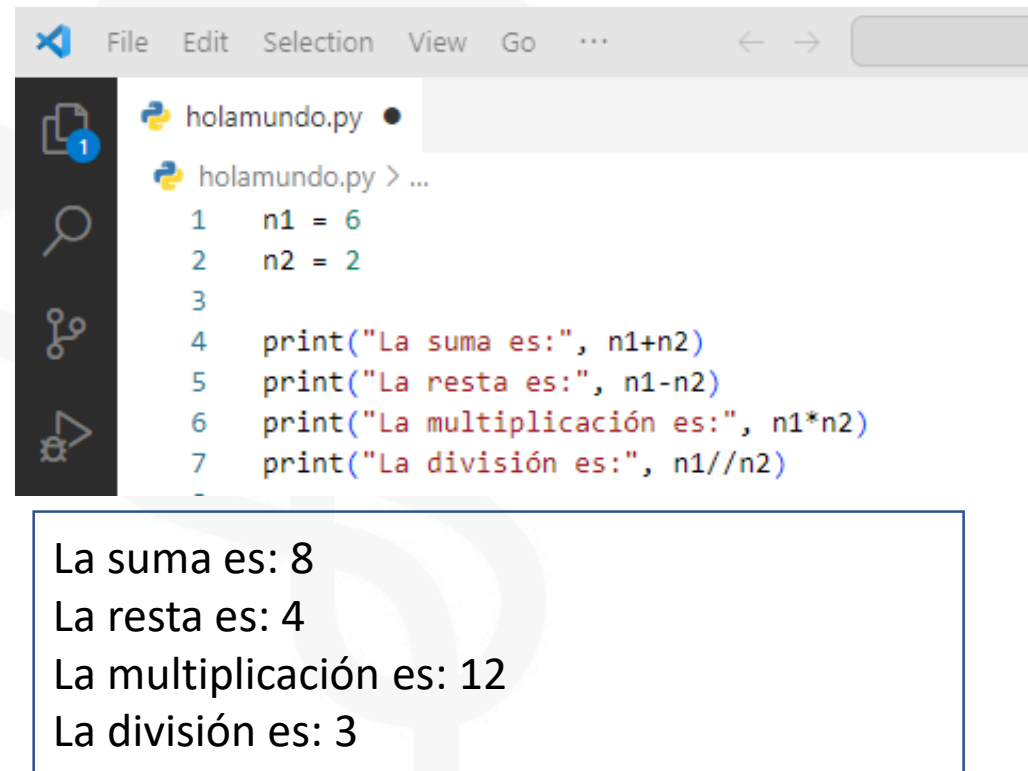
```
1 n1 = 6
2 n2 = 2
3
4 print(n1+n2)
5 print(n1-n2)
6 print(n1*n2)
7 print(n1//n2)
```

Below the code editor, a separate window displays the output of the script, which consists of four lines of numbers:

```
8
4
12
3
```

Expresiones matemáticas

- Es posible agregar un texto descriptivo, que brinde mayor información, de forma previa al resultado:

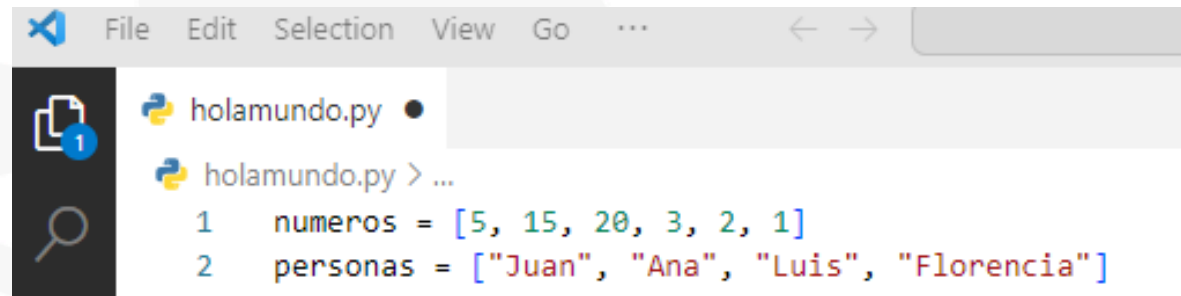


```
File Edit Selection View Go ...  
holamundo.py  
holamundo.py > ...  
1 n1 = 6  
2 n2 = 2  
3  
4 print("La suma es:", n1+n2)  
5 print("La resta es:", n1-n2)  
6 print("La multiplicación es:", n1*n2)  
7 print("La división es:", n1//n2)
```

La suma es: 8
La resta es: 4
La multiplicación es: 12
La división es: 3

Listas

- Una lista es una estructura de datos que permite almacenar múltiples valores ya sean de tipo numérico o texto



A screenshot of a Python IDE window titled 'holamundo.py'. The window shows two lines of Python code: `1 numeros = [5, 15, 20, 3, 2, 1]` and `2 personas = ["Juan", "Ana", "Luis", "Florencecia"]`. The code is displayed in a light gray editor area with a dark sidebar on the left containing icons for file explorer and search. The menu bar at the top includes 'File', 'Edit', 'Selection', 'View', 'Go', and a search icon.