

How Does That Work?

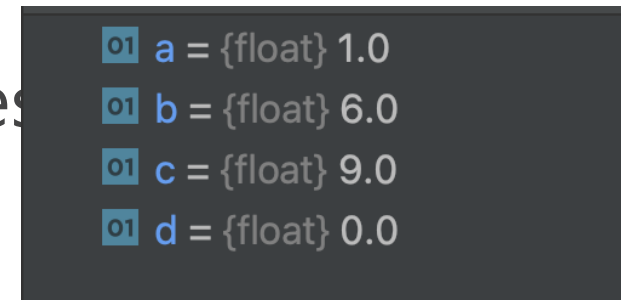
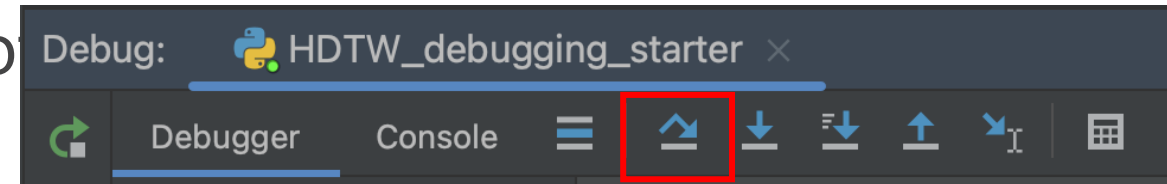
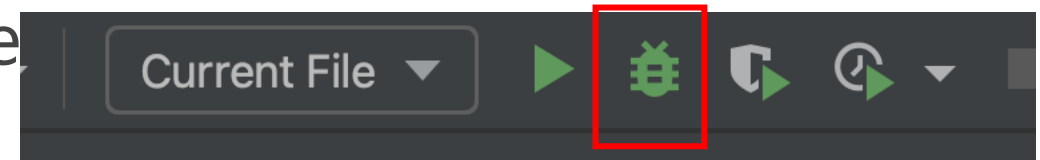
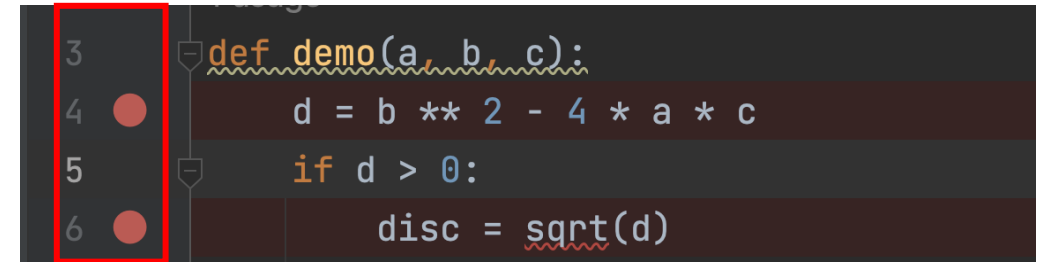
Debugging with PyCharm

What is debugging?

- Debugging is the process of identifying, isolating, and fixing problems or bugs within software. It involves systematically testing and tracing how a program operates to ensure it functions as intended.
- Debugging in PyCharm involves setting breakpoints in the code to pause execution, allowing the developer to inspect variables, evaluate expressions, and step through the code line by line to identify and fix errors.

Workflow of Debugger in PyCharm

1. Set a breakpoint
2. Run your code with the debugger
3. Step-through, check the values of your variables
4. Optional: check scenarios with watches
5. Fix your code 😊



Example: Finding the Square Root of a Quadratic Equation

- We can find the roots using the following equation:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

where a , b and c are the coefficients in your quadratic function.

- x has the following solutions:
 - 2 roots
 - 1 root
 - No roots (i.e. indicated by the negative value in the square root ($b^2 - 4ac$))

Test Cases for Types of Roots

- 2 real roots
 - $x^2 - 14x + 45$
 - $x = 9, x = 5$
- 1 real root
 - $x^2 + 6x + 9$
 - $x = -3$
- No roots
 - $x^2 + 4x + 5$