Lecture 29: Math Functions (Part 1)

Exploring built-in math capabilities.
abs(), divmod(), max(), and min().

Agenda

Mathematical built-ins
The abs() function
The divmod() function
The max() function
The min() function
Using max/min with key parameter
Summary

Built-in Math

Python provides several mathematical functions in the built-in namespace.
No need to ‘import math‘ for these fundamental operations.
Highly optimized and written in C.

The abs() Function

Returns the absolute value of a number.
For integers and floats, it returns the positive value.
For complex numbers, it returns the magnitude.

The divmod() Function

Takes two non-complex numbers and returns a tuple: (quotient, remainder).
Equivalent to ‘(a // b, a % b)‘.

Why use divmod()?

It is more efficient than performing ‘//‘ and ‘%‘ separately.
Commonly used in time conversions (e.g., seconds to minutes and seconds).

The max() Function

Returns the largest item in an iterable or the largest of two or more arguments.

The min() Function

Returns the smallest item in an iterable or the smallest of two or more arguments.

Advanced max() and min()

Both accept a ‘key‘ parameter, a one-argument function used to customize the sort order.

Corner Cases

Passing an empty iterable to max/min raises a ValueError.
Use the ‘default‘ keyword argument to prevent this.

Summary

‘abs()‘ for absolute values.
‘divmod()‘ for efficient quotient/remainder.
‘max()‘ and ‘min()‘ are powerful, especially with the ‘key‘ argument.

Next Lecture

Next, we continue with more math functions: ‘pow()‘ and ‘sum()‘.