Tuples in Python

- Tuples are immutable, ordered collections of elements.
- They are defined using parentheses () and can hold multiple data types.

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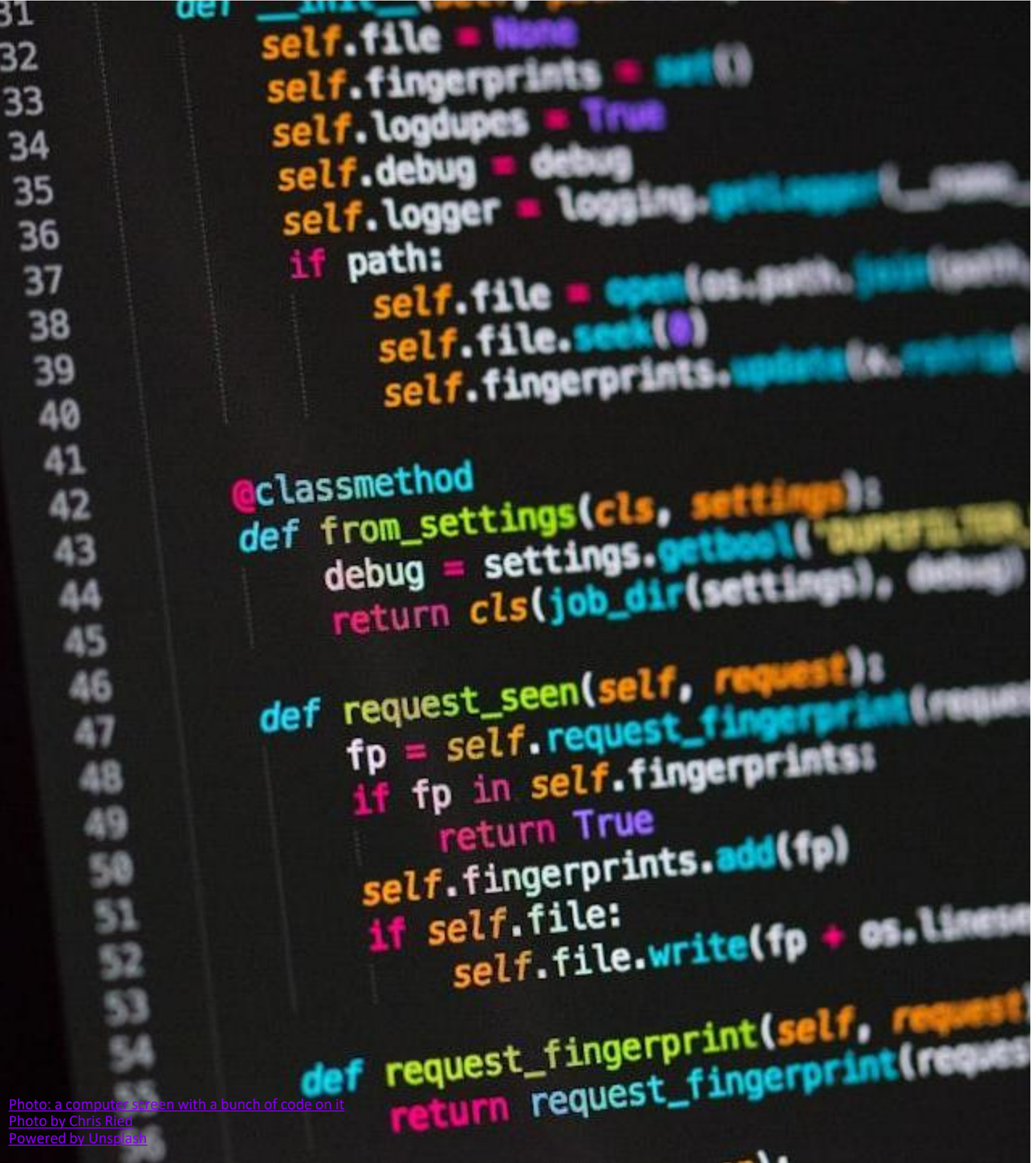

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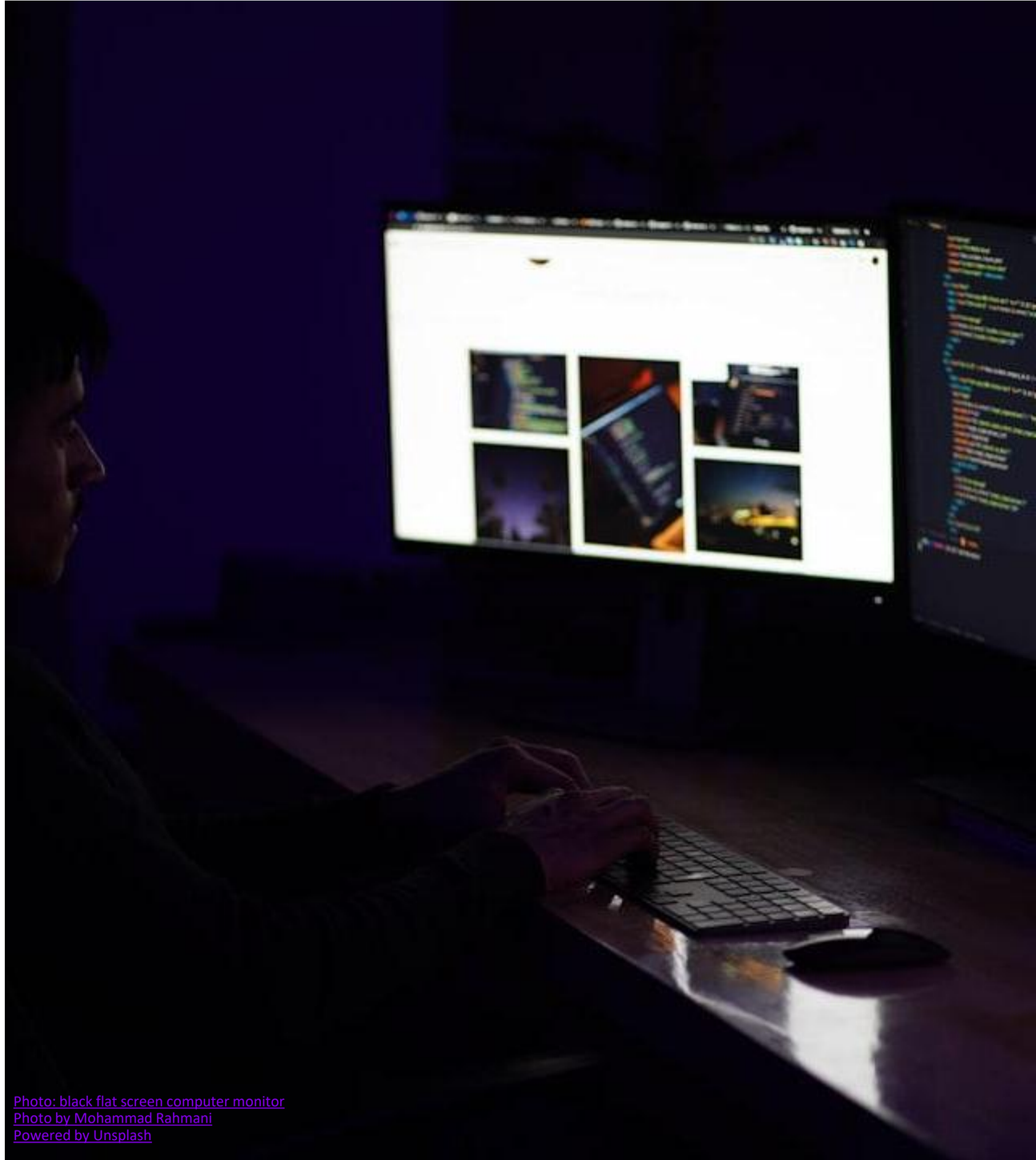
Immutable Nature of Tuples

- Tuples cannot be changed after creation.
- A workaround: Convert a tuple into a list, modify it, and convert it back.

Tuple Concatenation

- Tuples can be combined using the '+' operator.
- Example: (1, 2, 3) + (4, 5, 6) ⟶ (1, 2, 3, 4, 5, 6)



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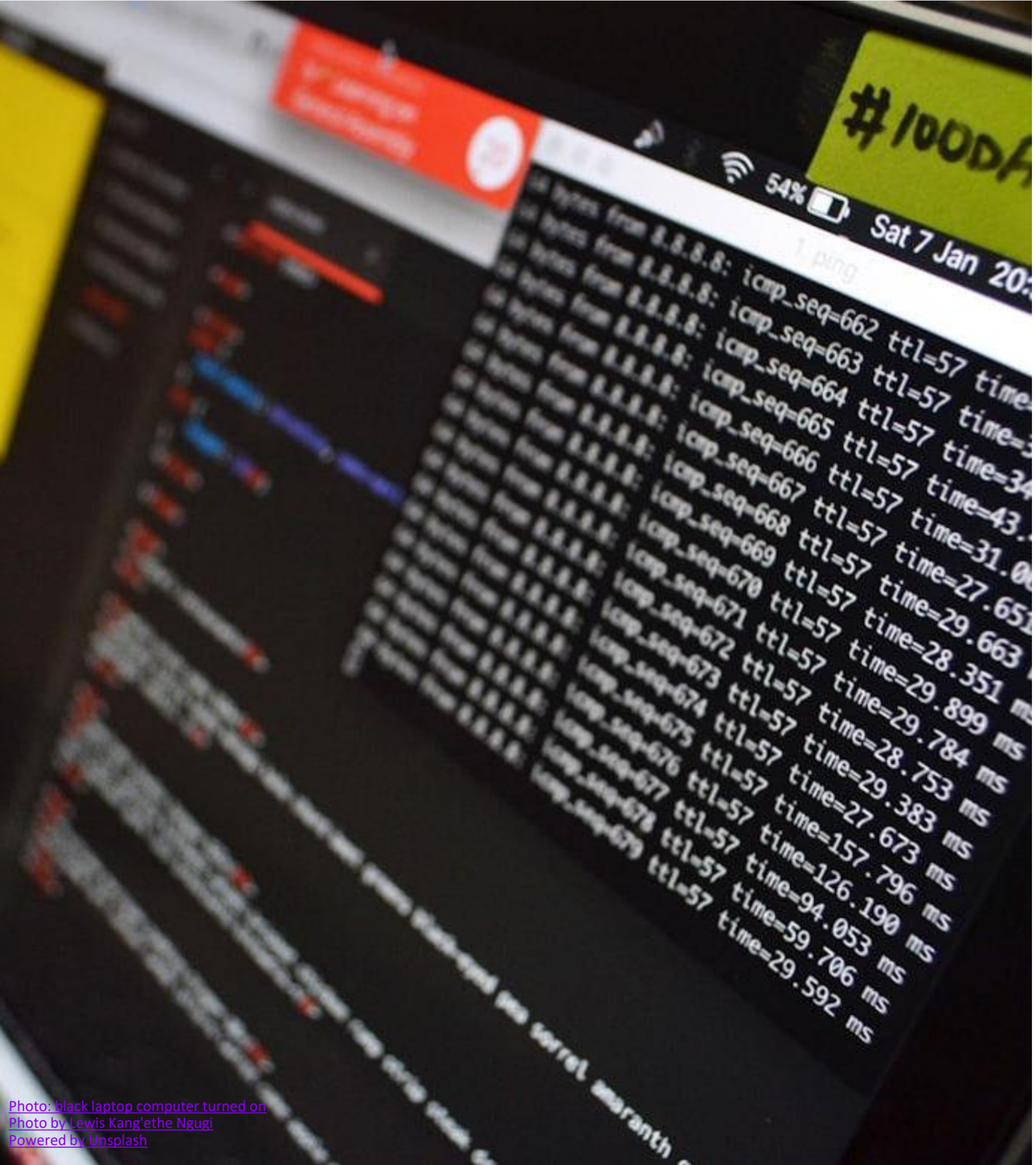
Explain Tuple Manipulation from Ur own side



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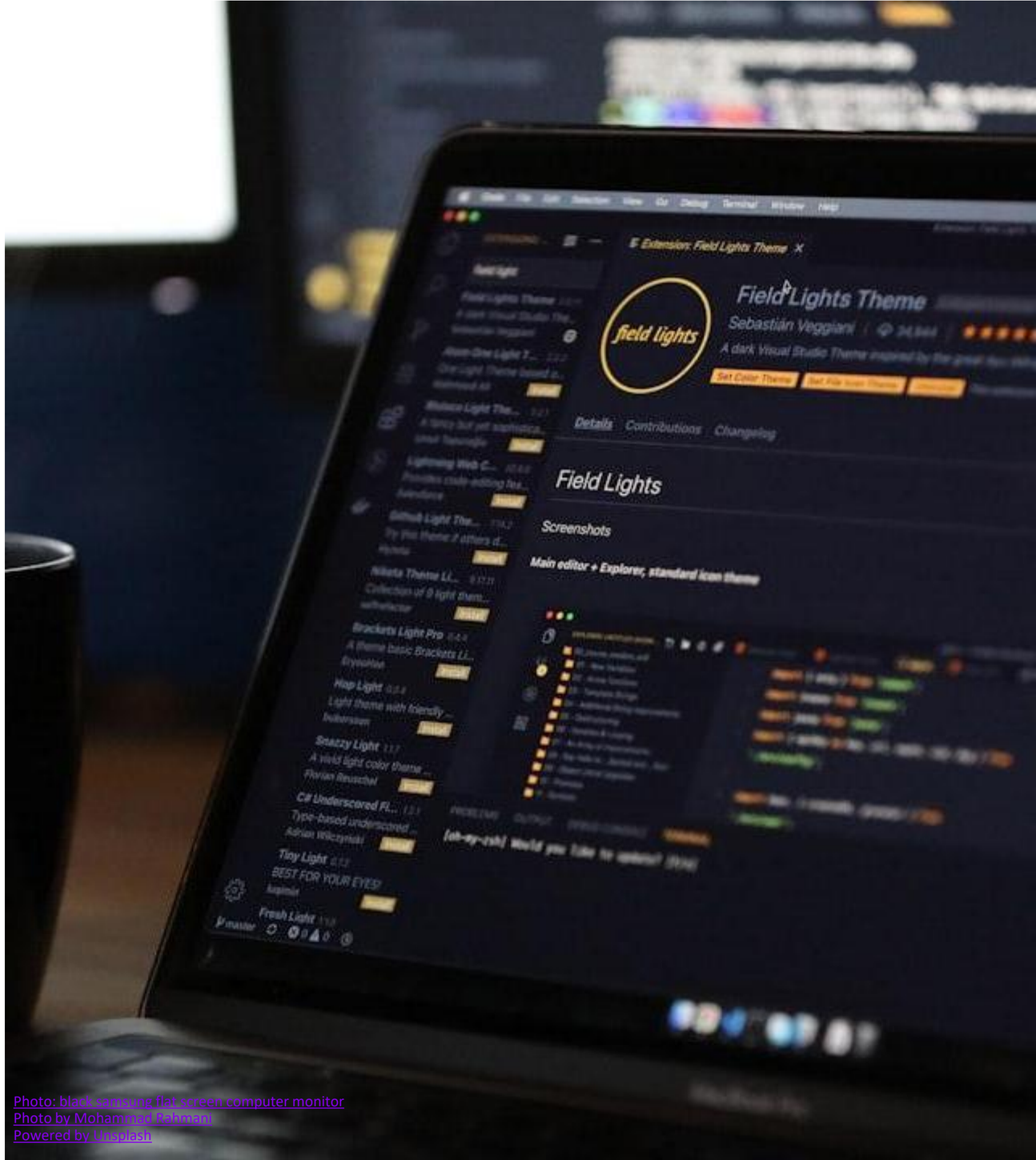
Useful Tuple Functions

- count() returns the number of times a value appears.
- index() finds the first occurrence of a specified value.

Tuple Slicing

- Slicing extracts a portion of a tuple.
- Example: (10, 20, 30, 40, 50)[1:4] → (20, 30, 40)



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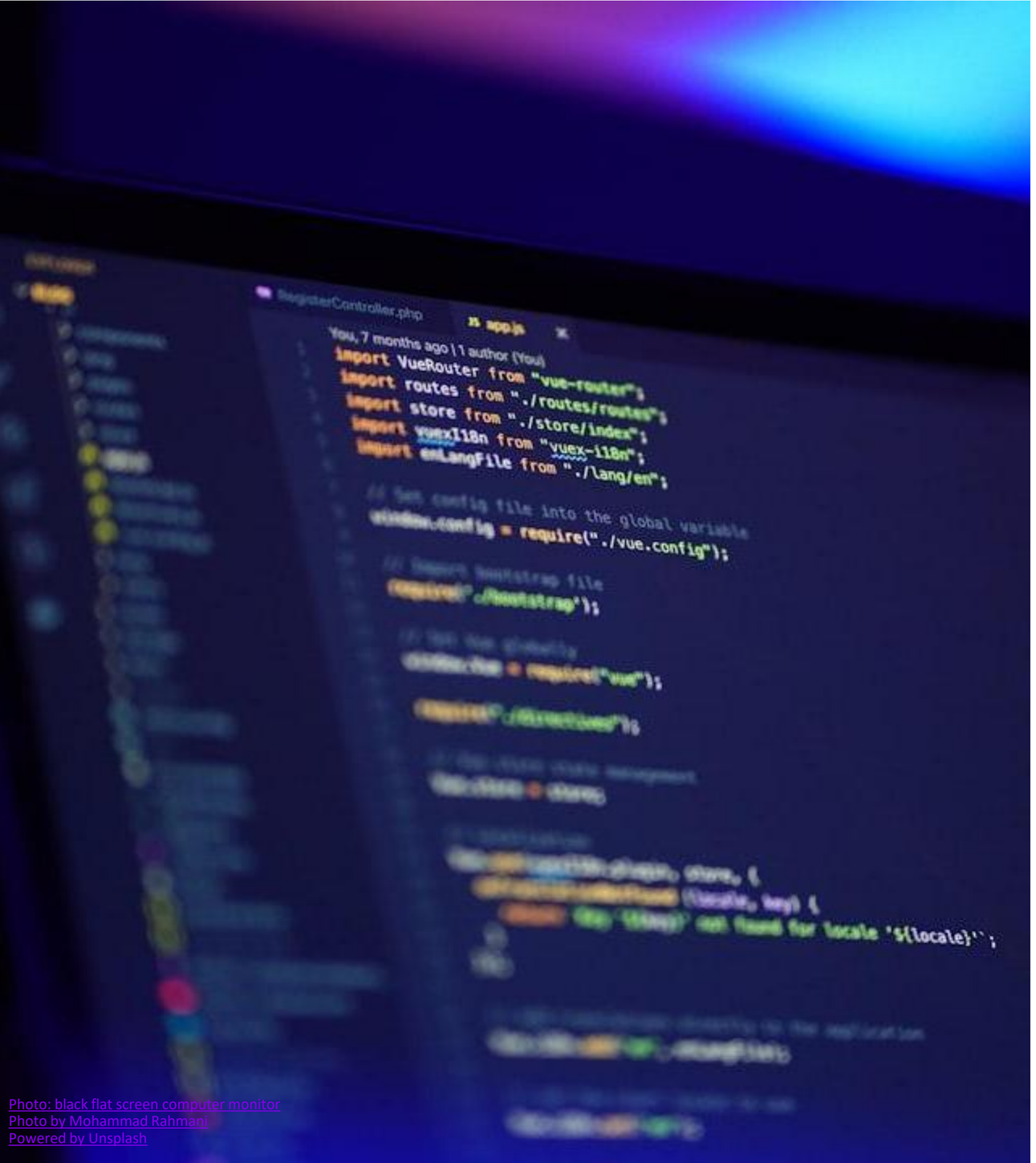

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Tuple Packing & Unpacking

- Packing stores multiple values in a tuple.
- Unpacking extracts values into separate variables.

Membership Testing in Tuples

- Use 'in' and 'not in' to check if an element exists.
- Example: 3 in (1, 2, 3, 4) → True

Photo: Colorful software or web code on a computer monitor
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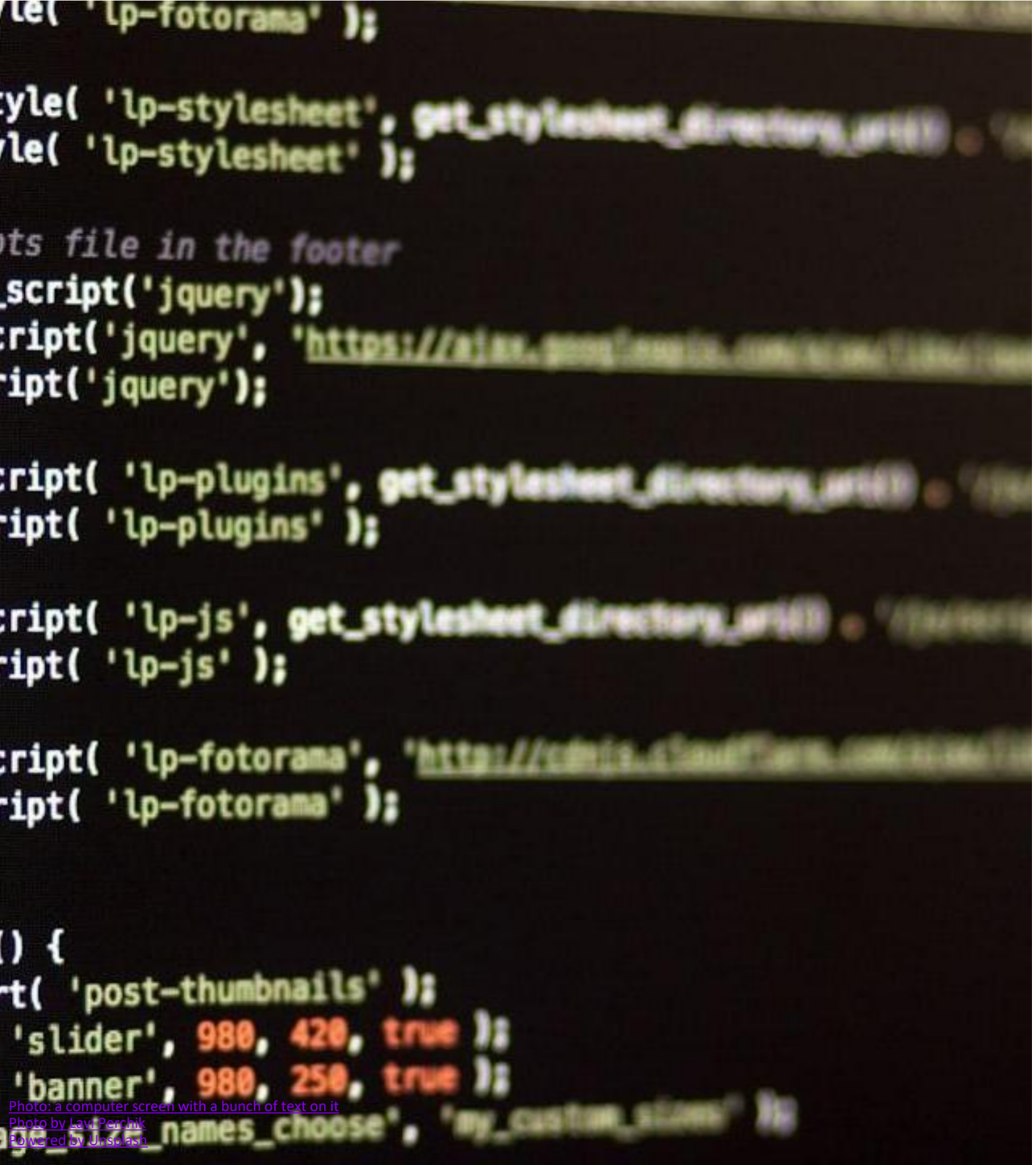

Photo: a computer screen with a bunch of text on it
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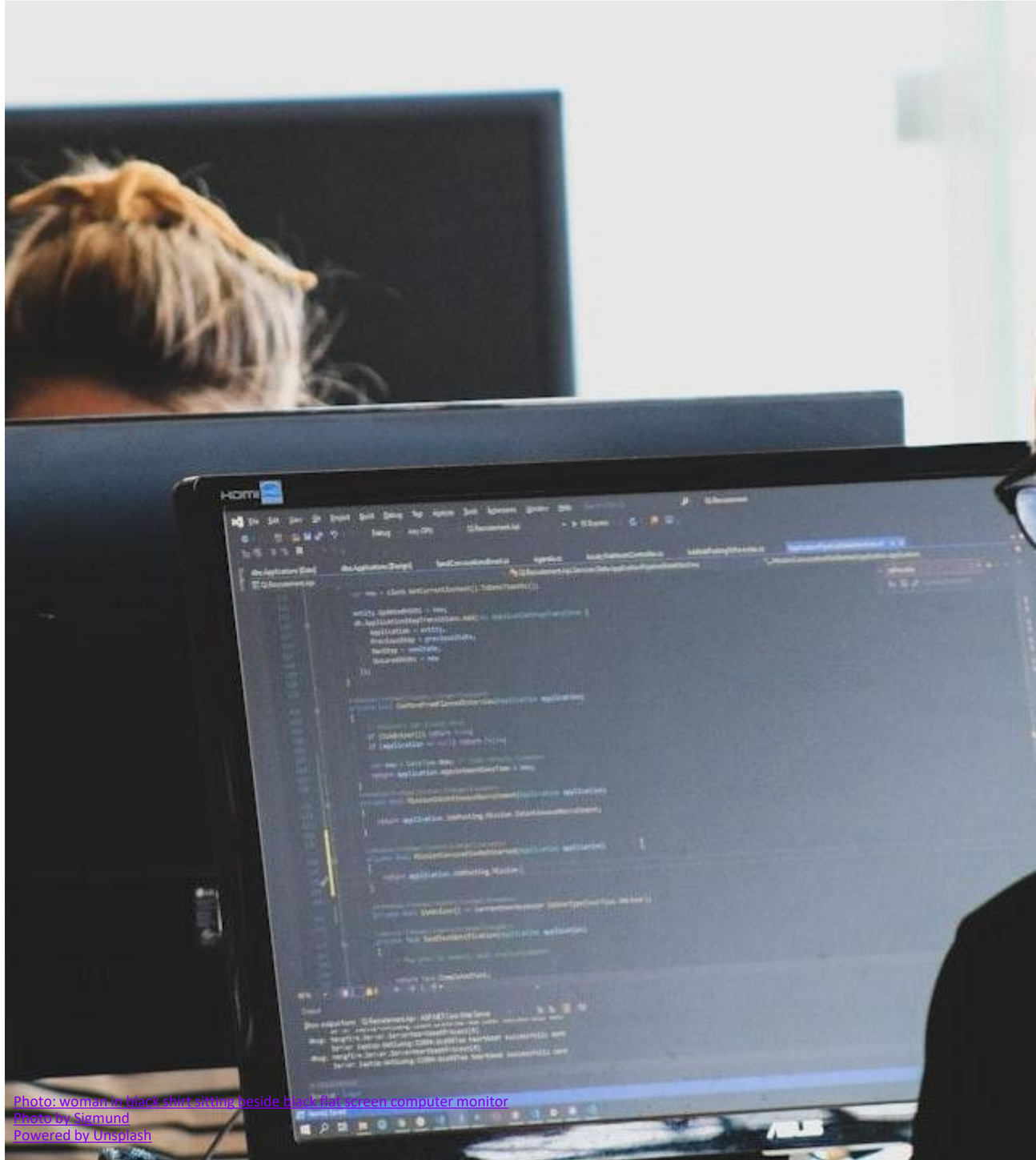
Finding Tuple Length

- len() counts the number of elements in a tuple.
- Example: len((1, 2, 3, 4, 5)) → 5

Min, Max, and Sum Functions

- min() finds the smallest element.
- max() finds the largest element.
- sum() calculates the total sum.



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Sorting a Tuple

- sorted() returns a sorted list from a tuple.
- Example: sorted((5, 2, 8, 1, 7)) → [1, 2, 5, 7, 8]

Nested Tuples

- Tuples can contain other tuples.
- Example: ((1, 2, 3), (4, 5, 6))
- Elements are accessed using indexing.

Photo: turned on MacBook Air beside saucer with cake on table
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