Question

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Lookup Time Complexity of a Global

If I were trying to access an index of a global variable, what time complexity would this operation have? My understanding of languages like Java/C++ is that arrays are stored as blocks of memory so that x[15] would have a lookup time complexity of O(1) because it just goes to (address of the array + 15) and retrieves the value stored there.

How does this work in Cache where the index of a variable isn't necessarily an integer value? If I were to have a variable like the following:

x("Adam") = "Red"

x("George") = "Blue"

x("Bryan") = "Green"

etc...

Would the lookup operation scale with the size of the array such that the variable is iterated through until the given index meets the current index, yielding a O(n) lookup? Or is this done a different way?

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