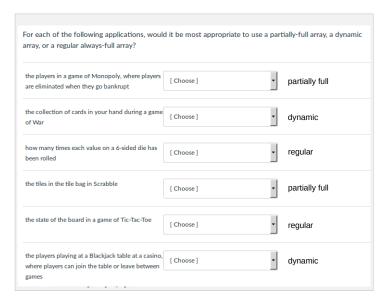
Arrays as Collections



The Big Picture

Arrays are often used for holding a collection of things -

- can write loops, exploit integer indexes to avoid repeating code when performing the same task for each thing
- can accommodate the case where the number of things isn't known until runtime

Patterns of usage -

- number of things doesn't change, and is known when the array is created
- number of things can change, but the maximum number is known when the array is created
 - → not all of the slots will be used all the time (partially-full array)
- number of things can change, but the maximum isn't known and/or the maximum is much bigger than the minimum
 - → number of slots in the array may change (*dynamic array*)

Partially-Full Arrays

If not all of the slots are used, how do we know which ones have values and which have junk?

- keep all the used slots together (at the beginning is convenient)
- maintain an additional variable to store the number of slots in use

Distinguish *capacity* (the number of slots) from *size* (the number of slots in use at the moment).

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