**Exercise 4: Employee Management System**

**1. Understand Array Representation:**

* **Array Representation**: Arrays are stored as contiguous blocks of memory, where each element is of the same data type. This allows for efficient access to elements using indices. Advantages include constant-time access (O(1)) and straightforward memory allocation.

**4. Analysis:**

* **Time Complexity**:
  + **Add**: O(n) (shifting elements if needed).
  + **Search**: O(n) (linear search).
  + **Traverse**: O(n) (iterating through the array).
  + **Delete**: O(n) (shifting elements after removal).
* **Limitations**:
  + Fixed size, which can lead to wasted space or overflow.
  + Insertion and deletion operations are costly due to element shifting.

Arrays are useful for scenarios where the number of elements is known and fixed. For dynamic sizes or frequent insertions/deletions, other data structures like lists or queues may be more appropriate.