**1. Understand Array Representation**

**Array Representation in Memory**

* **Contiguous Memory Allocation:** Arrays are stored in contiguous memory locations, meaning that all elements are stored sequentially in memory.
* **Indexing:** Each element in an array can be accessed directly using its index, which allows for constant time complexity (O(1)) for accessing elements.
* **Advantages:**
  + **Fast Access:** Direct indexing allows for fast access to any element in the array.
  + **Memory Efficiency:** Arrays have a fixed size, which helps in efficient memory allocation.

**4. Analysis**

**Time Complexity of Each Operation**

* **Add Employee:**
  + Time Complexity: O(1) (if there is space available)
* **Search Employee:**
  + Time Complexity: O(n) (since we may need to traverse the entire array)
* **Traverse Employees:**
  + Time Complexity: O(n)
* **Delete Employee:**
  + Time Complexity: O(n) (since we may need to shift elements)

**Limitations of Arrays**

* **Fixed Size:** Once an array is created, its size cannot be changed. This can lead to wasted memory if the array is underutilized or memory shortage if the array is overutilized.
* **Inefficient Deletion and Insertion:** Deleting or inserting an element in the middle of an array requires shifting elements, which can be inefficient (O(n) time complexity).