Employee Management System

**Understand Array Representation**

Array Representation in Memory:

* Contiguous Memory Allocation: Arrays are stored in contiguous memory locations. This means each element is placed next to the previous one.
* Indexing: The elements in an array can be accessed using indices, starting from 0 up to the size of the array minus one.
* Fixed Size: Arrays have a fixed size determined at the time of their creation. This means you need to know in advance how many elements the array will hold.

**Advantages of Arrays:**

* **Direct Access**: Since arrays use contiguous memory allocation, you can access any element in constant time O(1) using its index.
* **Cache Friendly**: Due to contiguous memory allocation, accessing elements of an array is cache friendly, which can lead to better performance.
* **Simple to Implement**: Arrays are straightforward and easy to use and understand.

**Analysis in Java**

**Time Complexity:**

* **Add**: O(1), since ArrayList handles resizing internally.
* **Search**: O(n), as it needs to check each element.
* **Traverse**: O(n), iterating through the ArrayList.
* **Delete**: O(n), finding the element O(n)O(n)O(n), and removing O(n)O(n)O(n) in the worst case if elements need to be shifted.

**Limitations and Usage:**

* **ArrayList** is used here instead of a raw array for better flexibility, dynamic resizing, and easier management of elements.