Employee Management System

1. **Explain how arrays are represented in memory and their advantages.**

- Arrays are contiguous blocks of memory.
- Each element is stored at a fixed offset from the beginning, calculated as:
  memory_address = base_address + index * size_of_element

  ➤ Advantages of Arrays:
- Fast access by index: O(1)
- Memory-efficient for fixed-size datasets
- Simple to implement and use

2. **Analyze the time complexity of each operation (add, search, traverse, delete).**

   Add : O(1) - Direct insertion at next index
   Search : O(n) - Linear scan through array
   Traverse : O(n) - Visit every element
   Delete : O(n) - Shift elements after deletion

3. **Discuss the limitations of arrays and when to use them.**

- Fixed Size: You must define size at creation.
- Inefficient Deletion: Requires shifting elements.
- No dynamic resizing: Use ArrayList if you need this.