**4. Employee Management System**

**Understanding Array Representation**

Arrays are stored in contiguous memory locations, which allows constant-time access to elements using their index. This makes them efficient for traversing and retrieving data. The main advantages of arrays include fast access time, predictable memory usage, and simplicity. However, they have a fixed size, which limits dynamic operations like resizing or inserting elements in between.

**Analysis**

* **Add Operation**: O(1) if index is known, otherwise O(n) if we search for a spot.
* **Search Operation**: O(n) using linear search, since array is unsorted.
* **Traverse Operation**: O(n), loops through all elements.
* **Delete Operation**: O(n), since shifting elements is required.

Arrays are efficient when working with fixed-size data and when fast access is needed by index. However, they are not ideal for dynamic datasets due to the need for manual resizing and shifting elements. For larger and more flexible systems, dynamic structures like ArrayList or LinkedList are preferred.

**Output**

A screenshot of a computer program

AI-generated content may be incorrect.