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

**Array Representation in Memory:**

* Contiguous Memory Allocation: Arrays are stored in contiguous memory locations. This means each element is positioned sequentially in memory.
* Indexing: Elements in an array are accessed using indices. The index of the first element is 0, the second element is 1, and so on.

**Advantages:**

* 1. Direct Access: Fast access to elements by index (O(1) time complexity).
  2. Memory Efficiency: Arrays are efficient in terms of memory allocation and access speed.
  3. Simplicity: Simple to use and understand**.**