**Quiz 3/1**

**Q)**

**What are a queue data structure and a stack data structure?**

**A)**

The First-In-First-Out (FIFO) principle says that the first thing added to a queue is the first thing taken out. This means that the elements are processed in the same order that they were added. People waiting in line to buy movie tickets or get on a ride is an example of a queue in real life.

On the other hand, a stack works by the "Last-In-First-Out" (LIFO) rule, which says that the last thing added to the stack is the first thing to be taken away. This means that the element that was added most recently is the first one to be processed. In real life, a pile of plates is an example of a stack. The last plate added is the first one to be taken away.

| **Queue** | **Stack** |
| --- | --- |
| FIFO (First-In-First-Out) | LIFO (Last-In-First-Out) |
| dequeue (remove from the front) and enqueue (add to the end) | Pushing (adding to the top) and popping (removing from the top) |
| Having to wait in line for a ticket or a ride | In programming, a stack of plates is referred to as a stack. |
| Operating systems, job scheduling, network packet management | Recursion, and expression evaluation |
| It can be implemented as a linked list or an array. | It can be implemented as a linked list or an array. |