

Data structure exercise3 for queue

Queue:

Q1. • Challenge: Queue vs stack for online registration. Which is correct?

Answer:

For online registration, using a **queue** makes the most sense. A queue works like a line at a bank—the first person to arrive is the first to be served. This way, everyone is processed in the order they signed up, which is fair.

A **stack**, on the other hand, is like a stack of plates: the last one you put on top comes off first. If we used a stack for registration, the last person to register would get served first, which wouldn't be fair at all.

So, a queue is the right choice because it ensures people are handled in the correct order.

Q2. Reflection: Why FIFO ensures fairness in digital queues.?

ANSWER:

FIFO (First In, First Out) is fair because it treats everyone equally by following the order in which they arrive. Think of it like standing in line at a shop or bank—whoever comes first gets served first, and no one can skip ahead. This makes the system **predictable** and **trustworthy**, because everyone knows their turn will come.

Why it is fair:

1. **Prevents bias or favoritism:** Since the system doesn't "choose" who gets served next, no user gets an advantage over others. Everyone waits their turn.
2. **Ensures smooth operations:** In digital systems like online registrations, print jobs, or customer support tickets, processing requests in order prevents confusion and avoids delays caused by randomly handling tasks.
3. **Builds user confidence:** People trust the system more when they know the rules are fair and consistent.

Example:

- In an **online ticket booking system**, if you submit your request first, you get the ticket first. No one who came later can jump the queue, which makes the process fair for everyone.

