

Problem

Using only primitive types, implement a bounded queue to store integers. The data structure should be optimized for algorithmic runtime, memory usage, and memory throughput. No external libraries should be imported and/or used. The solution should be delivered in one class that provides the following functions:

- **constructor:** class should provide one method for object creation that takes an integer to set the size of the queue.
- **enqueue:** function should take an integer and store it in the queue if the queue isn't full. The function should properly handle the case where the queue is already full.
- **dequeue:** function should return an integer if one is currently stored in the queue. The function should properly handle the case where the queue is empty.

Instructions

Please provide the source, tests, runnable command-line function and all the resources required to compile (if necessary) and run the following program. You are free to use any coding language that compiles/runs on *nix operating systems and requires no licensed software.