

CS110: Computer Programming Lab

Department of CSE

IIT, Guwahati

Module 04 Stage 02 Exercise 03

Assessment exercises are designed to help us check if the student has learned the basics of the topics included in the drill instructions. However, a drill assessment is not a comprehensive assessment. A fuller and complete assessment aimed at determining the course grades will be done through CS110 examinations.

It is expected that the student will attempt and solve many more exercises from the drill assessment sets to improve their programming skills and for an excellent performance at the examinations.

Exercise

1. Consider a queue that has limit on its size. For this exercise, the queue will have maximum size of 7. If an additional entry (more than 7 entries) attempts to join the queue, the oldest entry is removed from the queue to make room for the new entry. We choose to call this method `joinLtdQ()`.
2. Write a test suite to thoroughly test this new method specification.
3. Change the code for method/function `joinLtdQ()` to match this new specification.
4. Verify that your codes in part 2 and 3 above work correctly.

Suggested Interface

```
#ifndef QUEUE_H_INCLUDED
#define QUEUE_H_INCLUDED

/* Returns a reference to a new queue */
void * mkQueue(void);

/* Removes a queue specified by a valid reference */
int rmQueue (void *);

/* Returns number of entries in a validly referenced queue */
int sizeQ (void *);

/* Place a new entry and returns new count of entries */
int joinLtdQ (void * queueP, void * objP);

/* Returns reference to the most ancient arrival in queue */
void * leaveQ (void * queueRef);

#endif // QUEUE_H_INCLUDED
```