CORK INSTITUTE OF TECHNOLOGY
INSTITIÚID TEICNEOLAÍOCHTA CHORCAÍ

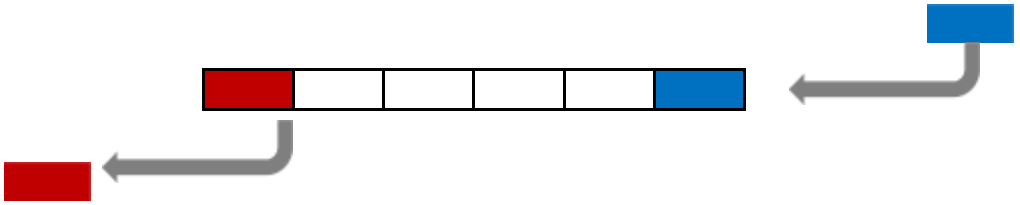
Computing@CIT

LINEAR DATA STRUCTURES AND ALGORITHMS.

ASSIGNMENT 1: DATA STRUCTURES - ADT MyQueue

BACKGROUND.

A queue is a linear data structure in which elements are to be accessed in the same order in which they were stored. It is also known as a First In First Out (FIFO) structure.



In this assignment we are going to specify the ADT MyQueue with the following operations:

- **createEmpty:** It creates a new MyQueue with no elements.
- **isEmpty:** It returns whether the queue is empty or not.
- **first:** If the queue is non-empty, then it returns its first element (coloured in red above). Otherwise, it returns an error message.
- **add:** Given a new item (coloured in blue above), it adds it at the back of the queue.
- **remove:** If the queue is non-empty, then it removes its first element (coloured in red above). Otherwise, it returns an error message.

ASSIGNMENT 1 – HINT 1 (Week 4)

A MyQueue of int elements: Static Implementation.

BACKGROUND.

The folder **/src** contains the following files:

- **MyMain.java:** This class tests the functionality of the queue's static implementation.
- **MyQueue.java:** This interface specifies the ADT MyQueue containing int elements.
- **MyStaticQueue.java:** This class implements all operations of MyQueue, using a static based implementation based on the following attributes:
    - private int items[];
    - private int numItems;
    - private int maxItems;

The folder **/doc** contains the documentation of the project. In particular:

- **MyMain.html:** Contains the description of the class MyMain.java.
- **MyQueue.html:** Contains the description of the interface MyQueue.java.
- **MyStaticQueue.html:** Contains the description of the class .java.

EXERCISE.

Implement the class MyStaticQueue.java.

Hint 2 will be released next week along with submission and other details!!!