# Queue Solutions

# Queue

- Describe the queue data structure
  - A queue is a sequential data structure
  - Elements are added to the queue and removed from it in the order they arrive
  - Only the element at the front of the queue is accessible

- How are elements added to a queue and removed from it?
  - Elements are added at the back of the queue
  - Elements are removed from the front of the queue, one at a time

# Queue Operations

- Give some examples of operations that can be performed on the C++ Standard queue
  - push, pop, front, back, empty, size

- Give some examples of operations that are not supported
  - Iteration over elements in the queue
  - Searching and sorting the queue

# Queue example

- Write a simple program that creates a queue object and adds some elements to it

- Print out as much information about the queue as you can

- Remove an element from the queue

- Now print out the information again

# Queue Pros and Cons

- Give an example of a programming problem where a queue would be useful
  - Situations where data needs to be stored temporarily before being processed in arrival order, e.g. stockbroking application

- Give an example of a programming problem where a queue would not be useful
  - Situations which involve operations on more than one item of data at a time, e.g. accountancy application