

Priority Queue Solutions

- Describe the priority queue data structure
 - A priority queue is a form of queue in which elements are ordered by “importance” or “urgency”
- How are elements added to a priority queue, stored in it and removed from the queue?
 - Elements are added in order of priority, with the highest priority elements at the front
 - The order is determined by the element's $<$ operator
 - Elements are removed from the front of the list

- Give some examples of operations that can be performed on the C++ Standard priority queue
 - push, pop, top, empty, size
- Give some examples of operations that are not supported
 - front and back
 - Iteration over elements
 - Sorting and searching elements

- Write a simple program that creates a priority queue instance 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

- Give an example of a programming problem where a priority queue would be useful
 - Situations where some data or events need to be given priority, e.g. network processing code where a “drop connection” packet needs to be handled immediately