

Assignment # 3 priority queue using array hand analysis

Users:

1. Administrator
 - a. Adding, removing objects to the priority queue
 2. Client
 - a. Adding, removing objects to the priority queue
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System: Priority queue using an array

Use case: Add new element

Actor: Administrator

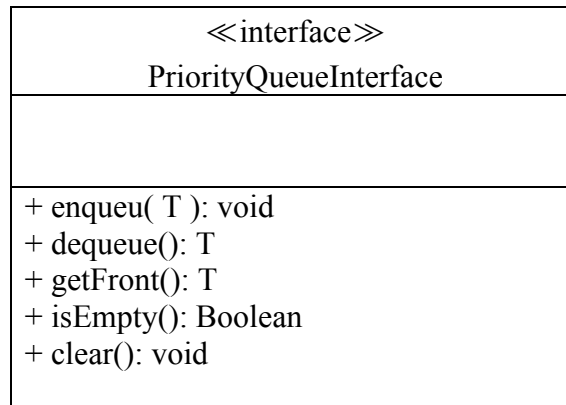
Steps:

1. Administrator enters identifying data
 2. System confirms eligibility to enter
 3. Administrator choses a new element to be added
 4. System checks for empty space in the priority queue
 - a. If there is space, it will check for the priority of the object
 - b. The element is added to the top of the priority queue array
 5. System confirms the addition
 6. System displays the element added
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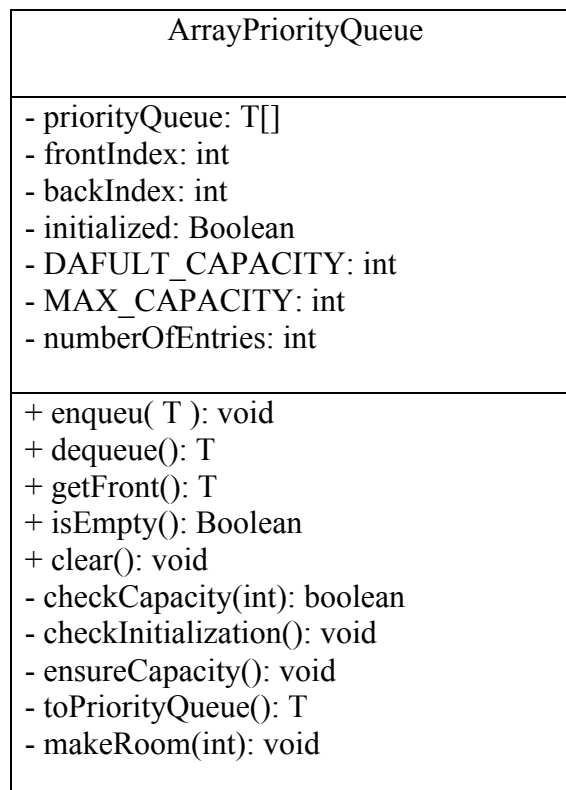
CRC card for priority queue array class

Priority queue using array
Responsibilities
<ul style="list-style-type: none">• Add an element depending on the priority
<ul style="list-style-type: none">• Remove the front of the priority queue (highest priority)
<ul style="list-style-type: none">• Retrieve the front entry of the priority queue
<ul style="list-style-type: none">• Empty the priority queue array
<ul style="list-style-type: none">• If the priority queue array is empty
<ul style="list-style-type: none">• Returning the size of the priority queue
Collaborations
<ul style="list-style-type: none">• Administrator
<ul style="list-style-type: none">• Element

UML diagram for the interface PriorityQueueInterface



UML diagram for ArrayPriorityQueue class



Pseudo code adding elements to a priority queue:

1. If the priority queue is empty add the first element to the first index of the array
2. Get the second element to be added
 - a. For array index 0 until the length of the queue is reached compare the element to be added and the array index
 - b. If the new element has a higher priority switch the positions
 - c. Else check for next index priority
 - d. Add to the end of the priority queue if the end of array is reached
3. Return true if the addition was successful and false otherwise.