**2011 Question 3: Fuel Depot (9 points)**

| Total Scored out of 9 |  |
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**Part A: nextTankToFill (5 points)**

*Intent: Return index of tank with minimum level (*<= threshold*)*

Determine minimum element of tanks that is <= threshold, if any

Consider fuel levels of elements of tanks

+1/2 Accesses fuel level on an element of tanks

+1/2 Accesses at least one element of tanks in context of repetition (iteration/recursion)

+1/2 Accesses every element of tanks at least once

Identify minimum element of tanks that is <= threshold

+1/2 Compares fuel levels from at least two elements of tanks

+1/2 Implements algorithm to find minimum

+1/2 Identifies tank *(object or index)* holding minimum

+1/2 Compares threshold with fuel level from at least one elements of tanks

+1/2 Determines element identified as minimum fuel level that is also <= threshold

Return the index of the element satisfying the conditions, or the current index if no elements does so

+1/2 Returns index of element identified as satisfying threshold & minimum conditions

+1/2 Returns filler.getCurrentIndex() when no element satisfies conditions\*

*\*Note: Point is not awarded if wrong data type is returned*

**Part B: moveToLocation (4 points)**

*Intent: Move robot to given tank location*

Ensure robot is pointing in direction of tank to be filled

+1/2 Determines direction filler is currently facing

+1/2 Changes filler's direction for some condition

+1 Establishes filler's direction as appropriate for all conditions

Place robot at specified location

+1/2 Invokes moveForward method with a parameter

+1/2 Invokes moveForward methods with a verified non-zero parameter

+ 1 Invokes filler.moveForward method with a correctly computed paramater