Course: Data Structures (CSE CS203A)

Assignment II: Array Selection Sort

Student Worksheet Companion

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**A1. Array Representation Drawing**

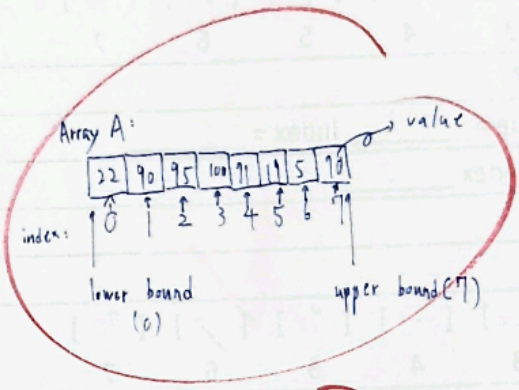
Instructions: Draw a visual representation of an array structure that can hold 8 integers. Include:

Array cells/boxes

Index labels (0 through 7)

Clear indication of array bounds

Complete your populated array here:

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**A2. Populate Array with Given Integers**

Instructions: Fill the array structure you drew in A1 with the given integers: 22, 90, 95, 100, 71, 19, 5, 70

Add the following annotations:

Array name (e.g., "Array A")

Index numbers below each cell

Value labels above or inside each cell

**A3. Selection Sort – First Three Steps**

Instructions: Show the detailed execution of the first three iterations of selection sort. For each step, track the array state, identify the minimum element, record any swaps performed, and show the resulting array.

Step1 (i = 0):

| Array before step (with indices) |
|---|
| [22] [90] [95] [100] [71] [19] [5] [70] |
| 0 1 2 3 4 5 6 7 |
| Searching range: indices 0 to 7 |

| |
|---|
| Minimum element found: Value = 5, Index = 6 |
| Swap performed: Index 0 <-> Index 6 |
| (Circle YES or NO): YES / NO |
| Array after step (with indices) |
| [ 5 ] [ 90 ] [ 95 ] [ 100 ] [ 71 ] [ 19 ] [ 22 ] [ 70 ]<br>0 1 2 3 4 5 6 7 |

Step2 (i = 1):

| |
|---|
| Array before step (with indices) |
| [ 5 ] [ 90 ] [ 95 ] [ 100 ] [ 71 ] [ 19 ] [ 22 ] [ 70 ]<br>0 1 2 3 4 5 6 7 |
| Searching range: indices 1 to 7 |
| Minimum element found: Value = 19, Index = 5 |
| Swap performed: Index 1 <-> Index 5 |
| (Circle YES or NO): YES / NO |
| Array after step (with indices) |
| [ 5 ] [ 19 ] [ 95 ] [ 100 ] [ 71 ] [ 90 ] [ 22 ] [ 70 ]<br>0 1 2 3 4 5 6 7 |

Step3 (i = 2):

| |
|---|
| Array before step (with indices) |
| [ 5 ] [ 19 ] [ 95 ] [ 100 ] [ 71 ] [ 90 ] [ 22 ] [ 70 ]<br>0 1 2 3 4 5 6 7 |
| Searching range: indices 2 to 7 |
| Minimum element found: Value = 22, Index = 6 |
| Swap performed: Index 2 <-> Index 6 |
| (Circle YES or NO): YES / NO |
| Array after step (with indices) |
| [ 5 ] [ 19 ] [ 22 ] [ 100 ] [ 71 ] [ 90 ] [ 95 ] [ 70 ]<br>0 1 2 3 4 5 6 7 |