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Pledge: “I pledge my honor that I have abided by the Stevens Honor System”

1. **Consider an array containing the following 40 integers:**

**5 2 4 4 0 1 6 7 3 1 1 0 5 1 5 4 4 5 7 0 6 1 0 7 5 2 7 6 5 3 7 0 5 5 7 1 1 2 6 5**

**How many counters does CountingSort need to sort this array:** Allocate an array of size max+1 of counters, so 7+1= 8 counters

**Give the value of each counter after the array of counters has been fully initialized:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0  5 | 1  7 | 2  3 | 3  2 | 4  4 | 5  9 | 6  4 | 7  6 |

[5,7,3,2,4,9,4,6]

1. **Consider an array containing the following 32-bit unsigned integers, written as hexadecimal values to save space. Imagine you are using a version of RadixSort that sorts in increasing order (top-down) on one byte at a time (so two hexadecimal digits) using a stable version of CountingSort. Write the full content of the array after each of the four runs of CountingSort:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 4EC1EEA9  520B6E78  1E90D74E  52DB6E42  5F05EF13  74284442  794E8117  55526E42 | 5F05EF13  794E8117  52DB6E42  74284442  55526E42  1E90D74E  520B6E78  4EC1EEA9 | 74284442  52DB6E42  55526E42  520B6E78  794E8117  1E90D74E  4EC1EEA9  5F05EF13 | 5F05EF13  520B6E78  74284442  794E8117  55526E42  1E90D74E  4EC1EEA9  52DB6E42 | 1E90D74E  4EC1EEA9  520B6E78  52DB6E42  55526E42  5F05EF13  74284442  794E8117 |
|  |  |  |  |  |
|  |  |  |  |  |