**Counting Sort**

**Input Array:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1 | 4 | 1 | 2 | 5 | 2 |

**Counting Array: range 0-5**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 |
| 0 | 2 | 2 | 0 | 1 | 1 |

**Modified Array:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Index** | **0** | **1** | **2** | **3** | **4** | **5** |
| Initial | 0 | 2 | 4 | 4 | 5 | 6 |
| Pass1: 1 | 0 | 1 | 4 | 4 | 5 | 6 |
| Pass2: 4 | 0 | 1 | 4 | 4 | 4 | 6 |
| Pass3: 1 | 0 | 0 | 4 | 4 | 4 | 6 |
| Pass4: 2 | 0 | 0 | 3 | 4 | 4 | 6 |
| Pass5: 5 | 0 | 0 | 3 | 4 | 4 | 5 |
| Pass6: 2 | 0 | 0 | 2 | 4 | 4 | 5 |

**Output Array:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Index** | **0** | **1** | **2** | **3** | **4** | **5** |
| Pass1: 1 | - | 1 | - | - | - | - |
| Pass2: 4 | - | 1 | - | - | 4 | - |
| Pass3: 1 | 1 | 1 | - | - | 4 | - |
| Pass4: 2 | 1 | 1 | - | 2 | 4 | - |
| Pass5: 5 | 1 | 1 | - | 2 | 4 | 5 |
| Pass6: 2 | 1 | 1 | 2 | 2 | 4 | 5 |

**Final Array:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Index** | **0** | **1** | **2** | **3** | **4** | **5** |
| Output | 1 | 1 | 2 | 2 | 4 | 5 |