Project 1 Sequence

CS 211 – Fall 2018

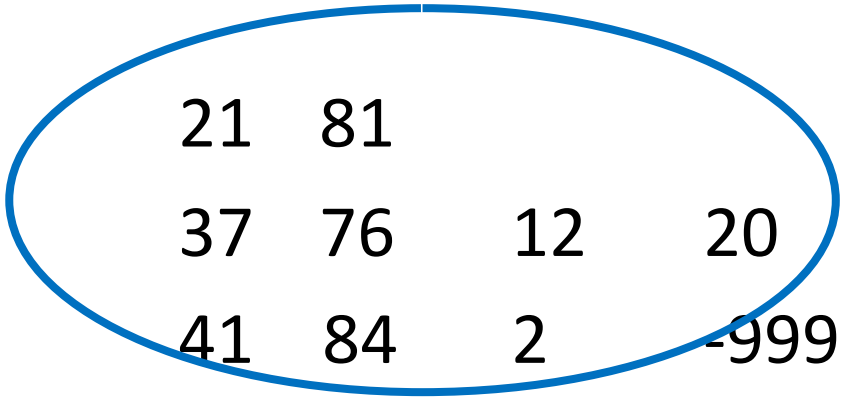
Step 1 – read in data & store in array

- Data file contains multiple integers with two values of -999

```
21   81
37   76     12     20
41   84     2      -999
36   88
46   19   -999
```

Step 1 – read in data & store in array

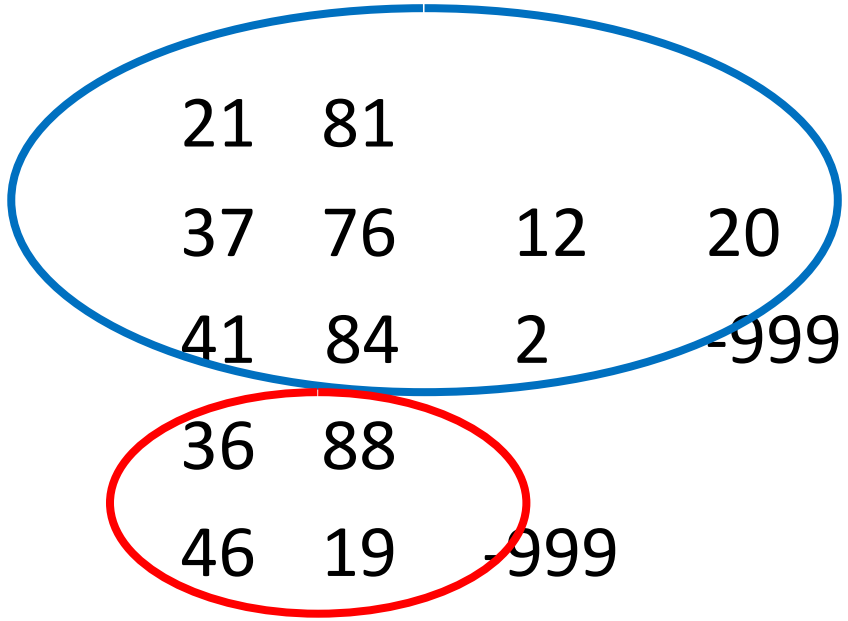
- Data file contains multiple integers with two values of -999



Data to be stored in the array

Step 1 – read in data & store in array

- Data file contains multiple integers with two values of -999



Data to be stored in the array

Data to use for searching

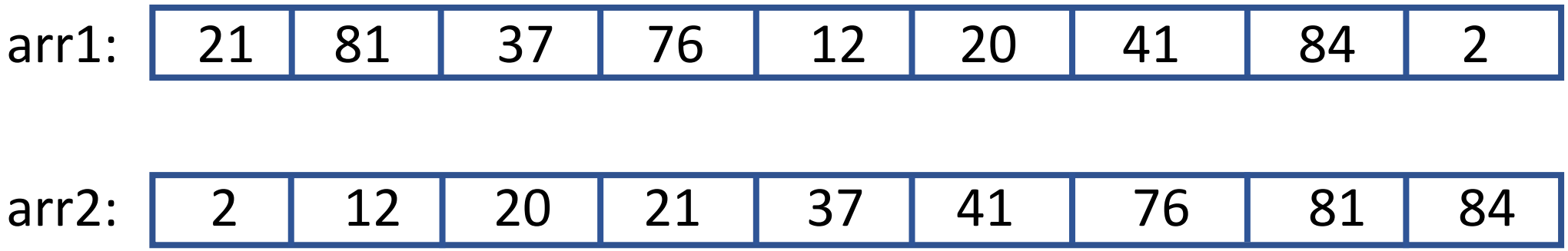
Step 1 – read in data & store in array

- First read in values until first -999 is encountered
- Store these values into an array

Dynamic Memory Allocation/Grow discussed a bit later

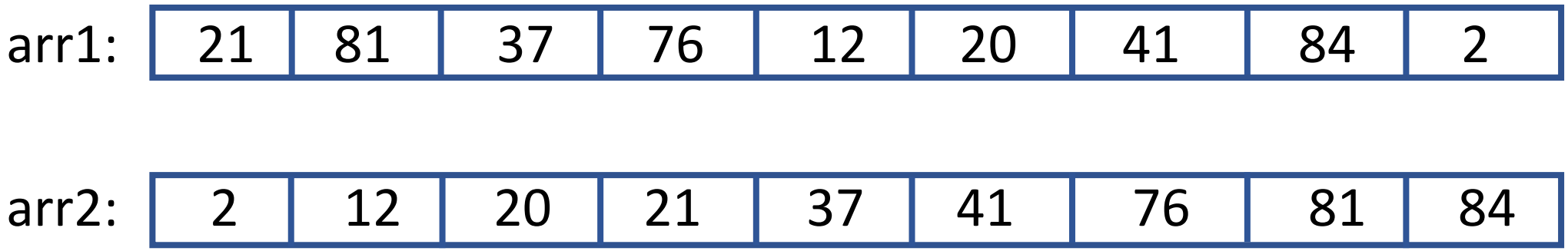
Step 2 – Make of copy of the array

- Allocated enough space for the copy
- Call arrayCopy() to transfer values



Step 3 – Sort one of the arrays

- Call myFavoriteSort()
- “Write your own function….” i.e. you can’t call a library routine



Step 4 – read in the search data

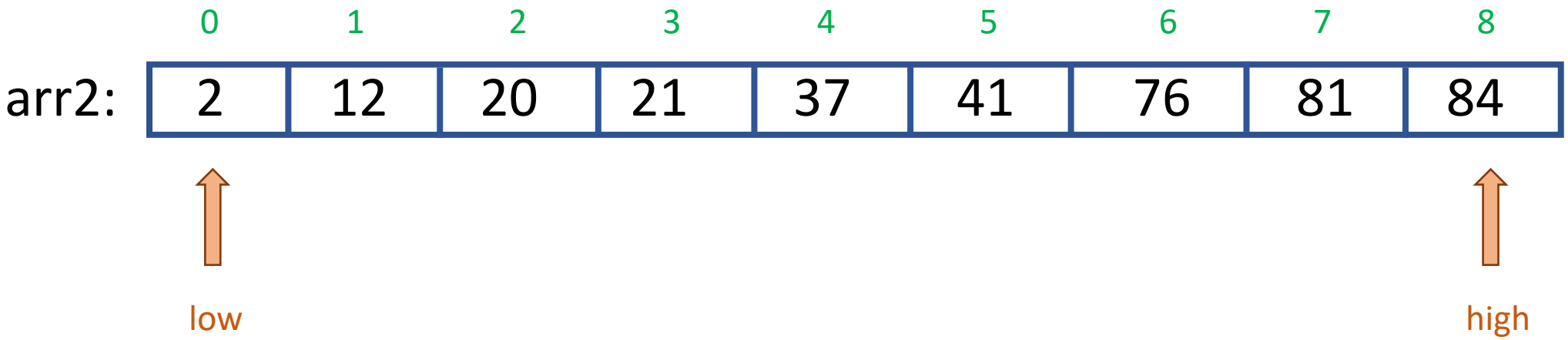
- Loop until second value of -999 is encountered
- For each value, call TwoSumFunction ()
  - Print out results in main() or whichever function calls the searches

21 81
37 76 12 20
41 84 2 -999
36 88
46 19 -999

Data to use for searching

Step 4 – Two Sum Search

- First value is 36
  - Set the iterators (index 0 and index size-1)



Step 4 – Two Sum Search

- First value is 36
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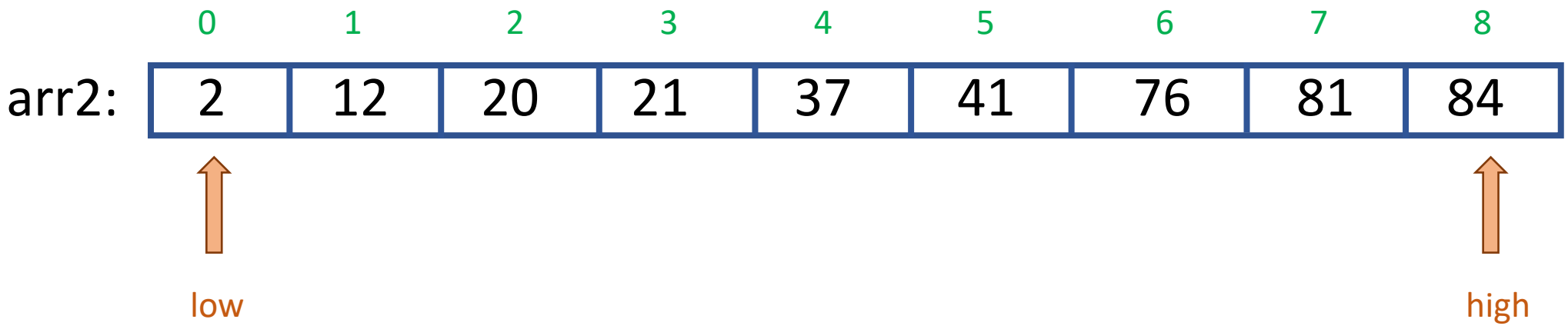
  - Check the sum of values “low” and “high” are pointing to



Step 4 – Two Sum Search

- First value is 36
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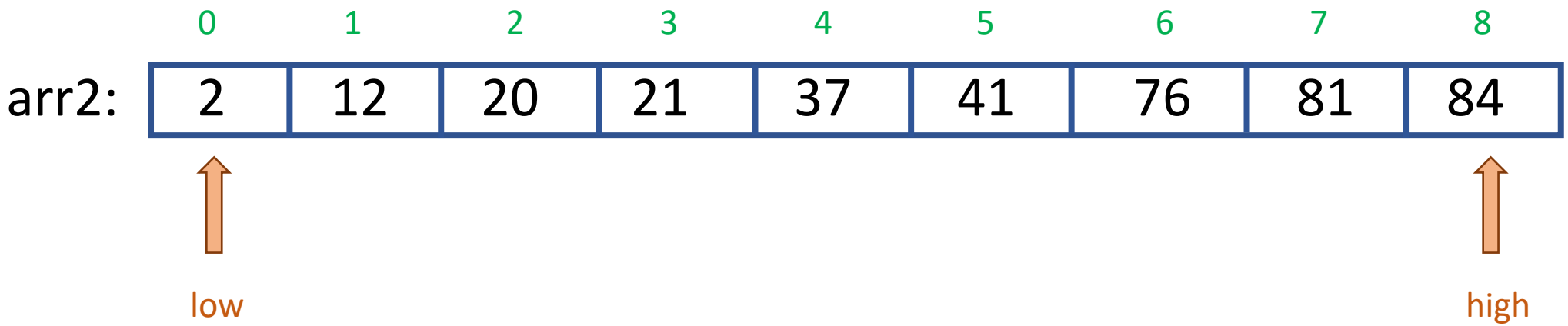
2 + 84 = 86 > 36 → Move “high” left



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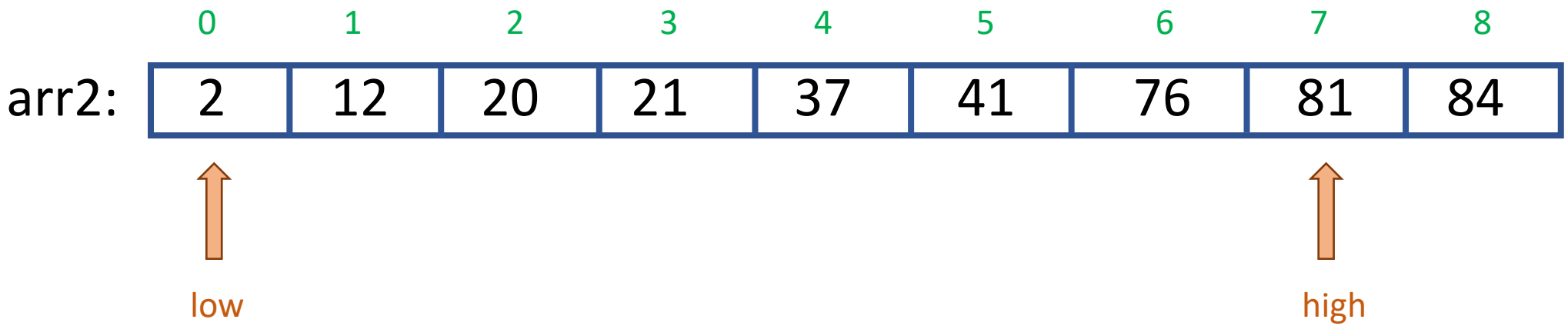

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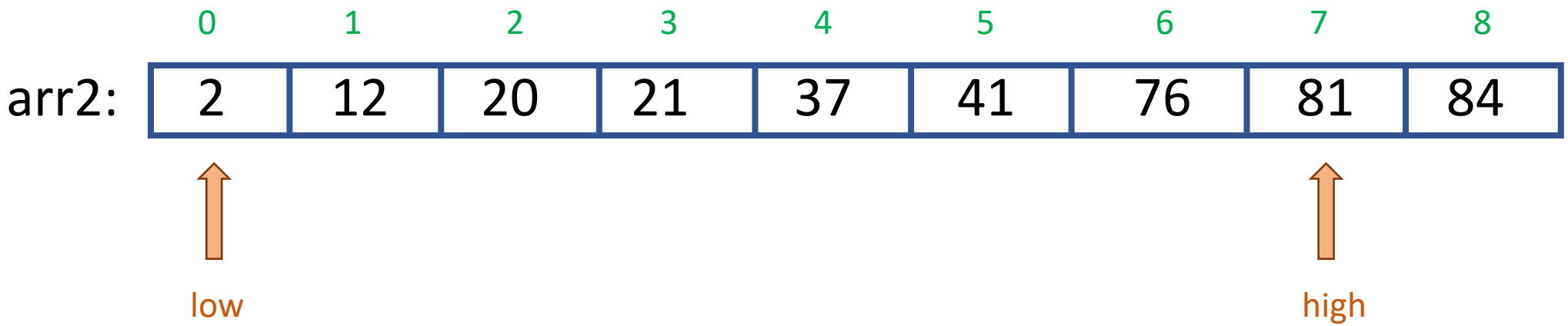
2 + 81 = 83 > 36 → Move “high” left



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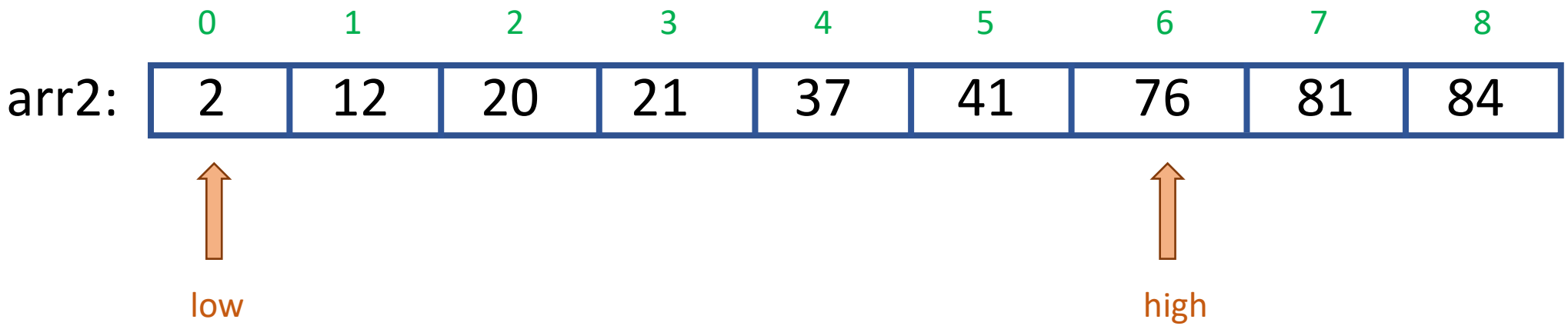

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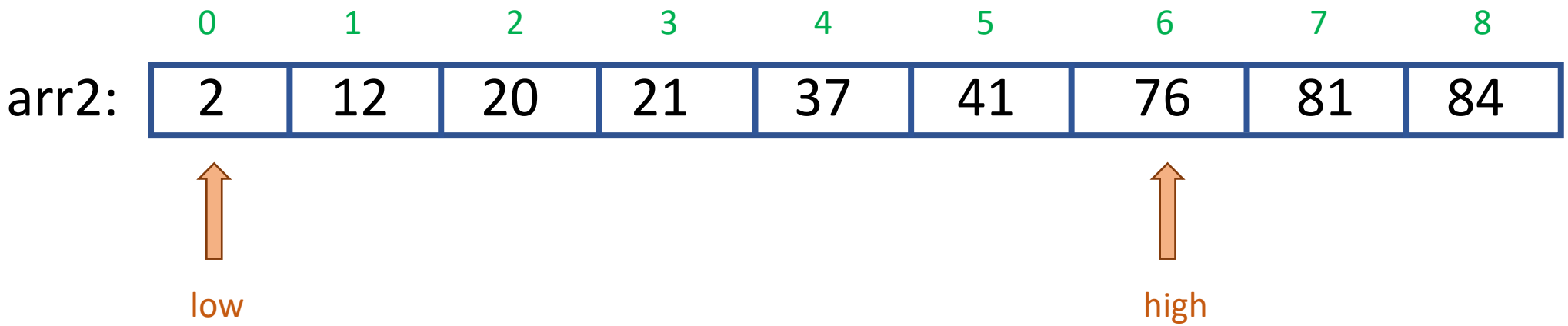
2 + 76 = 78 > 36 → Move “high” left



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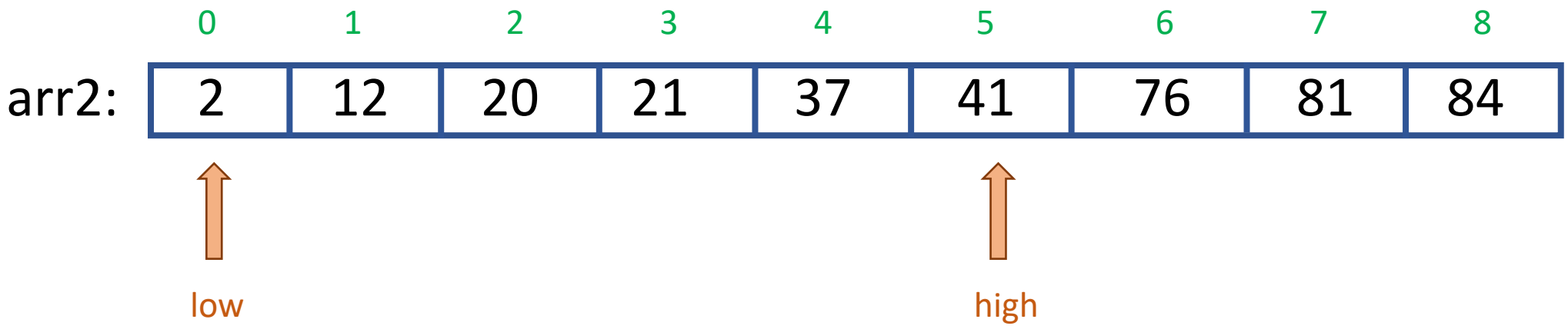

Step 4 – Two Sum Search

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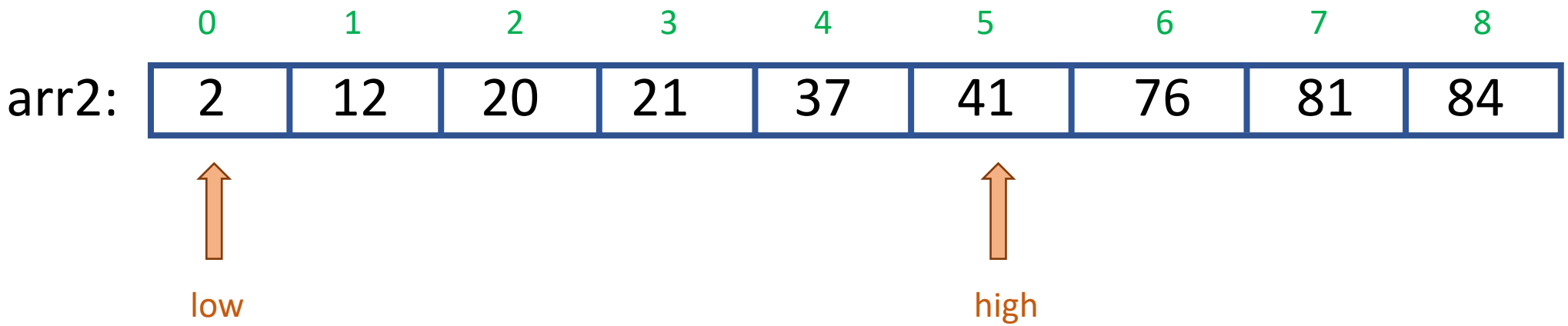
2 + 41 = 43 > 36 → Move “high” left



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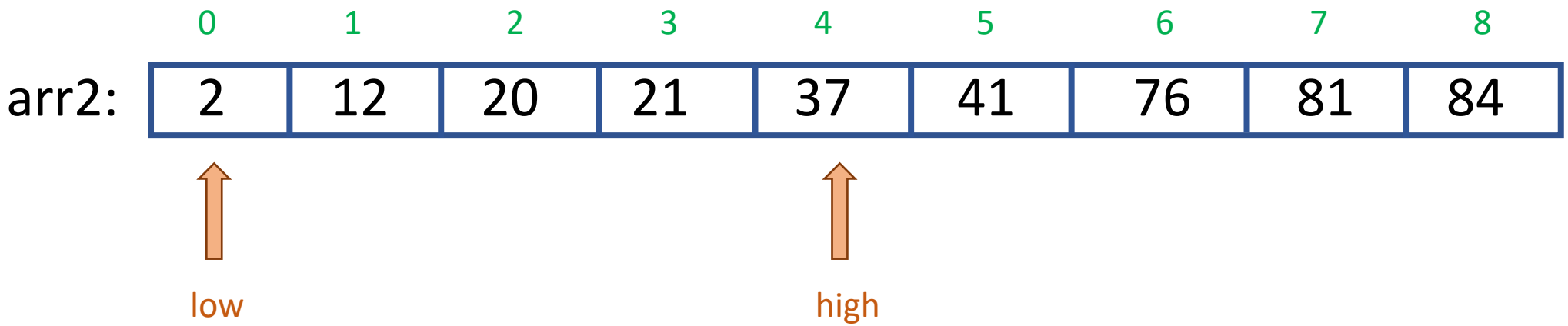

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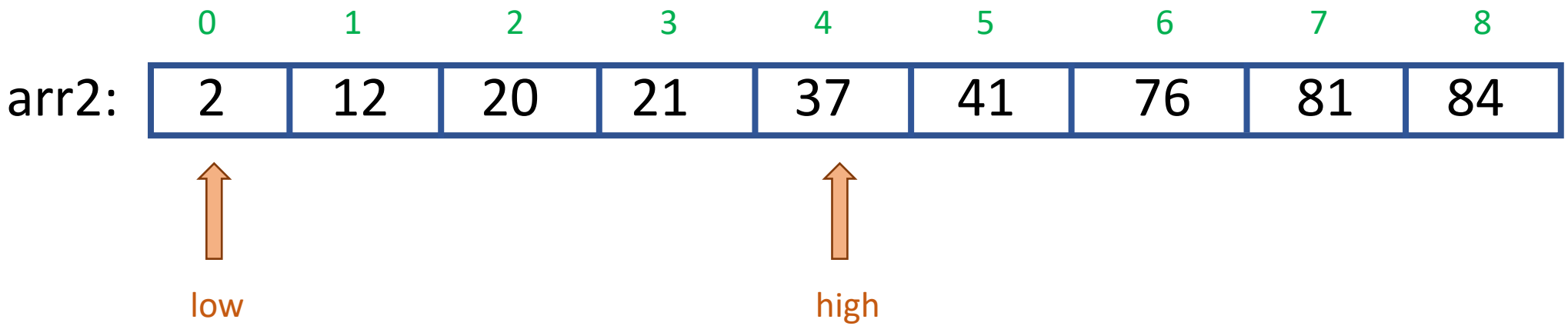
2 + 37 = 39 > 36 → Move “high” left



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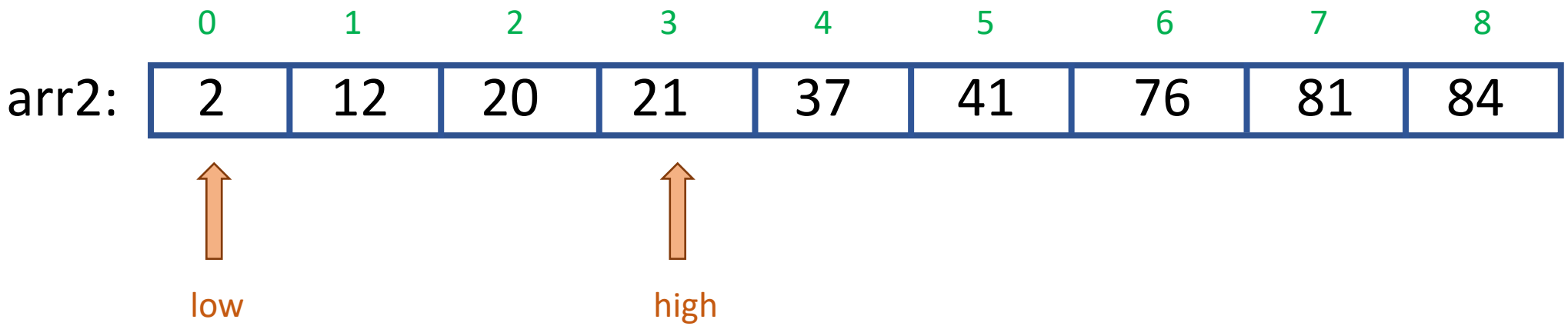

Step 4 – Two Sum Search

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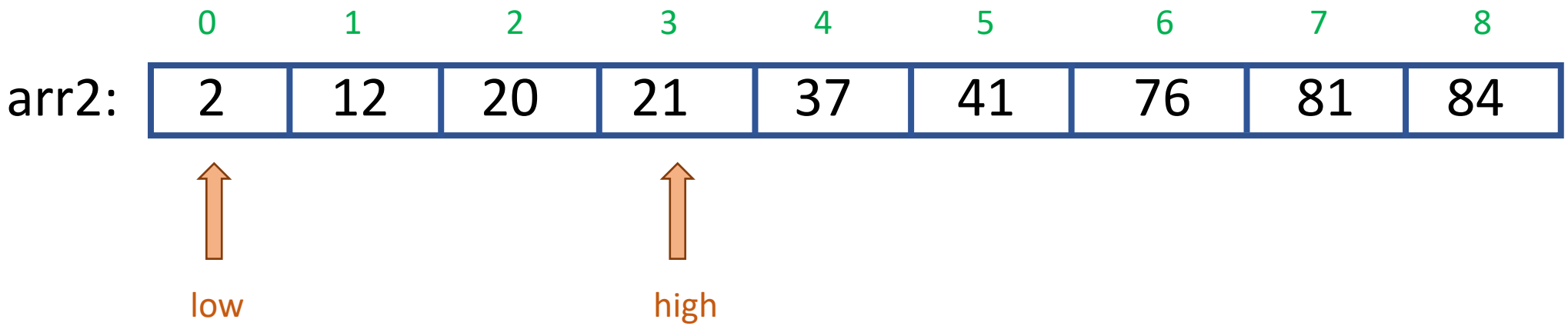
2 + 21 = 23 < 36 → Move “low” right



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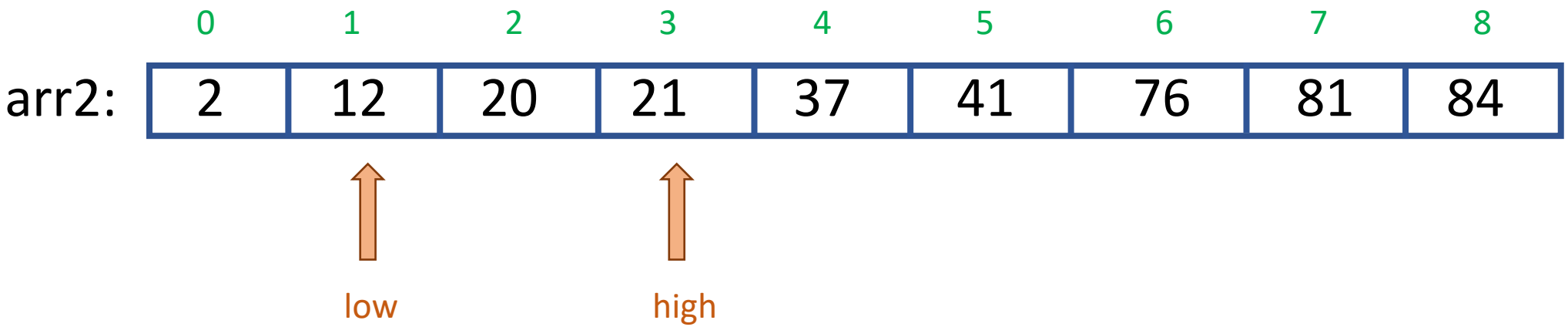

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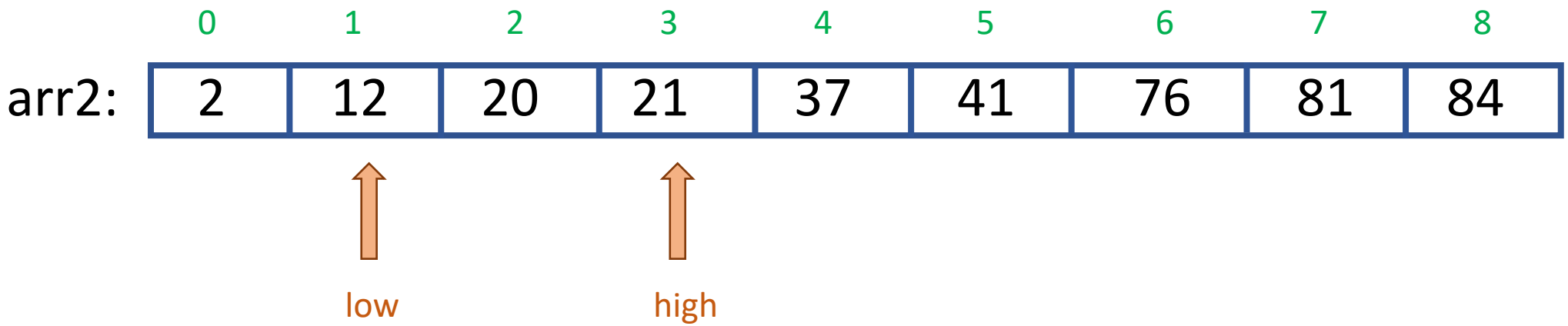
12 + 21 = 33 < 36 → Move “low” right



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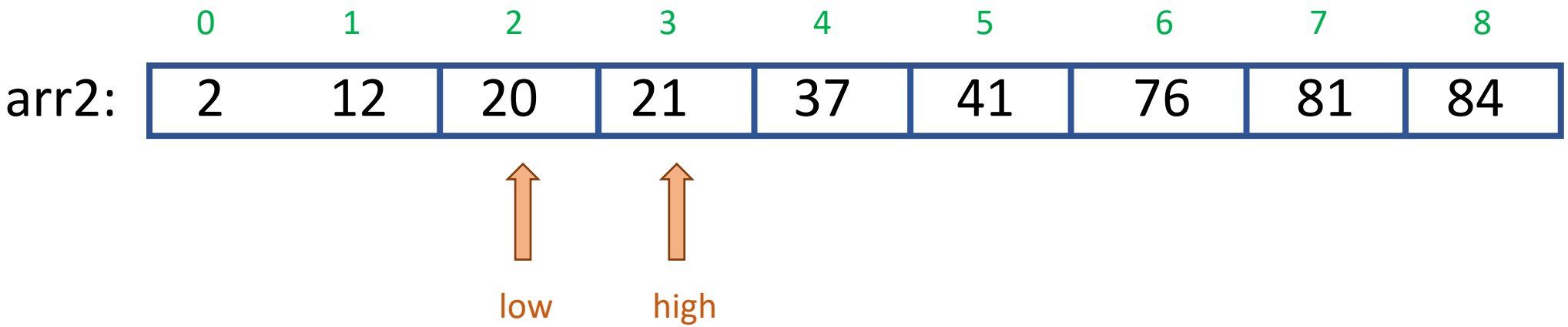

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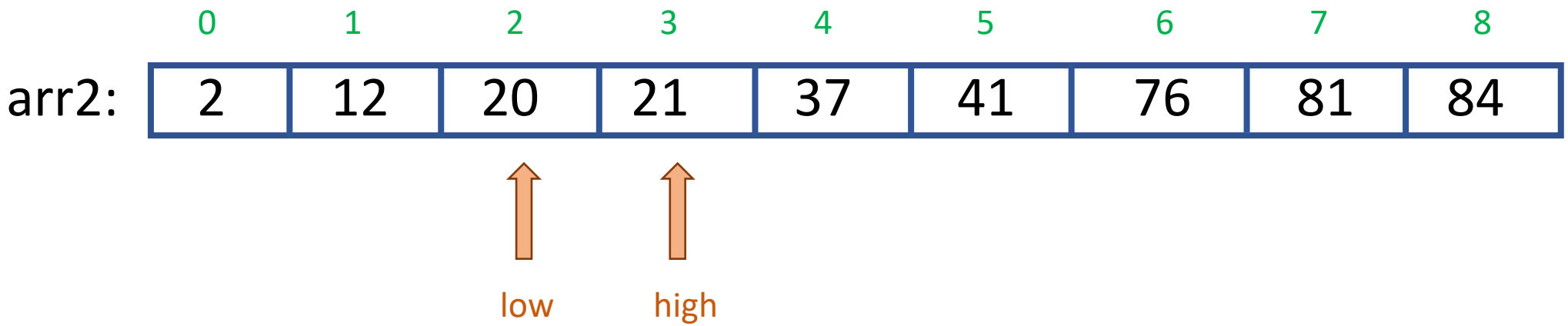
20 + 21 = 41 > 36 → Move “high” left



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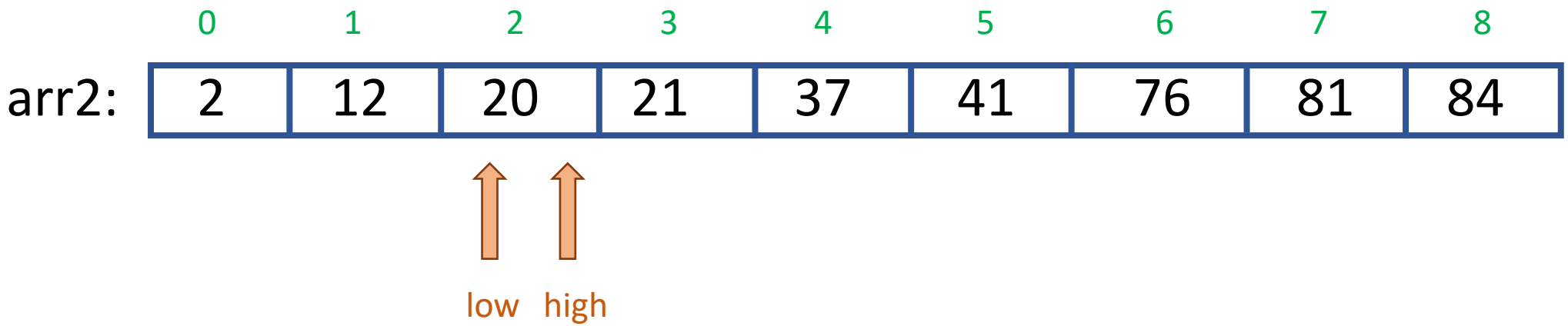
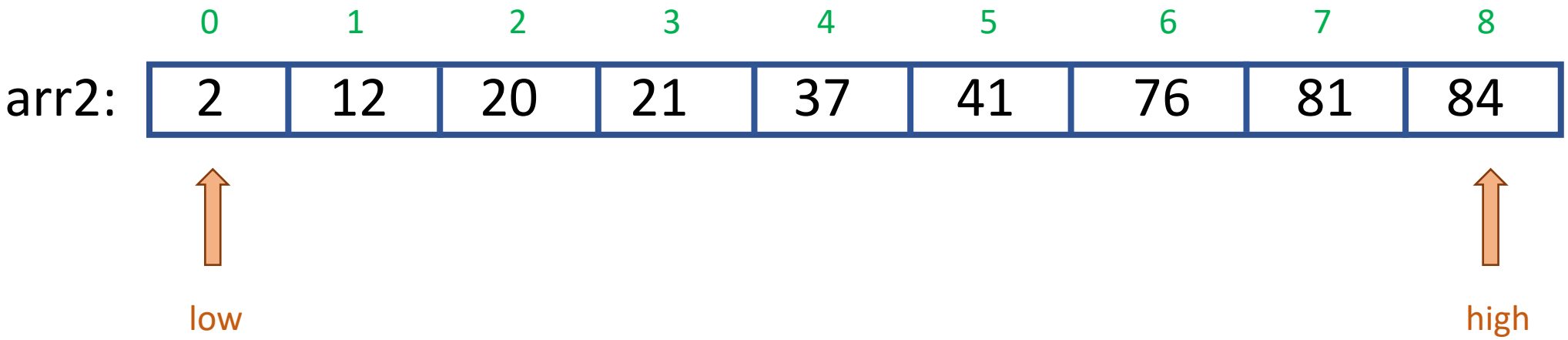
”low” and “high” align , return and print statement!



Step 4 – Two Sum Search

- Second value is 88
  - Set the iterators (index 0 and index size-1)



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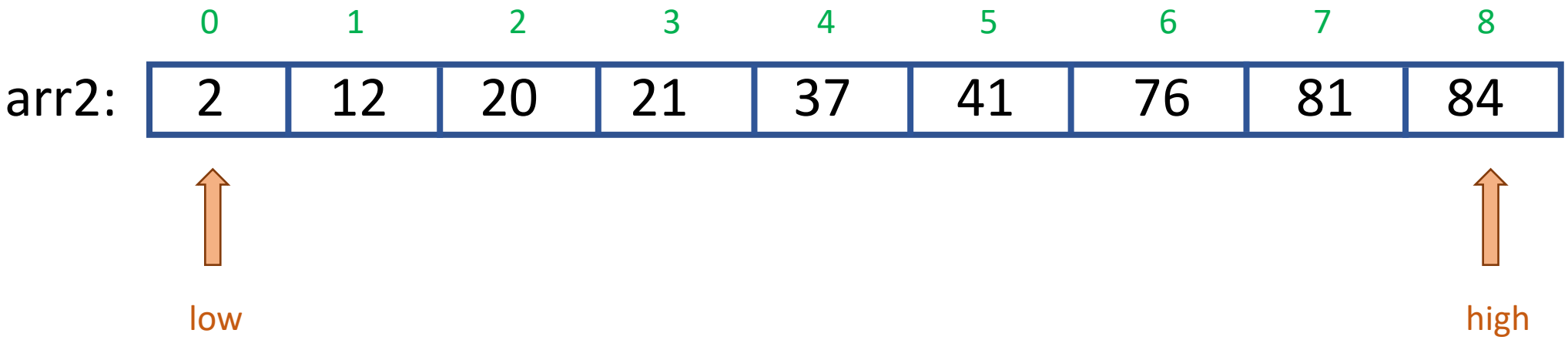

Step 4 – Two Sum Search

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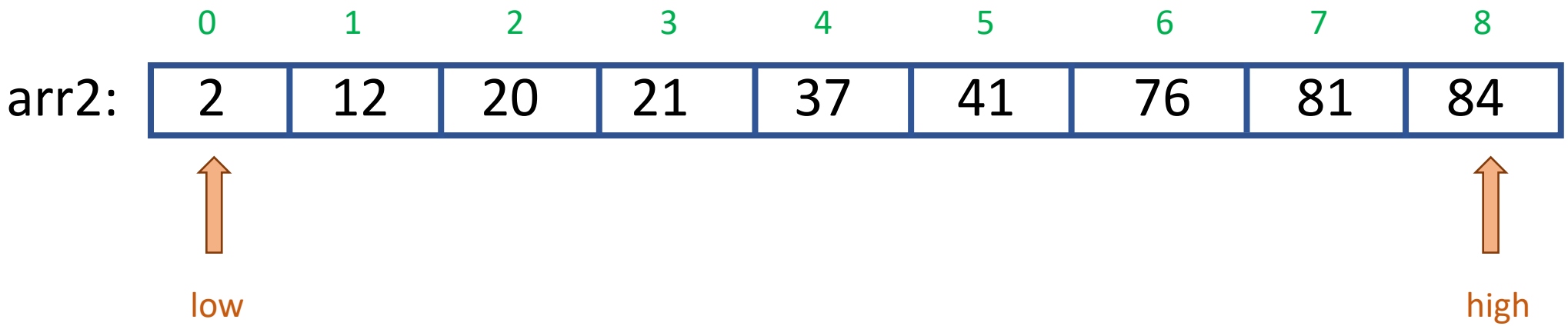
2 + 84 = 86 < 88 → Move “low” right



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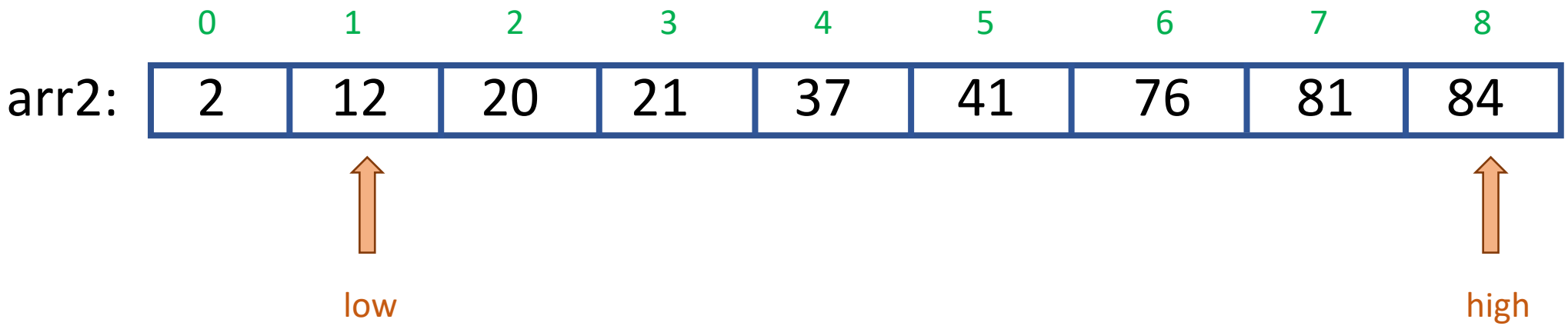

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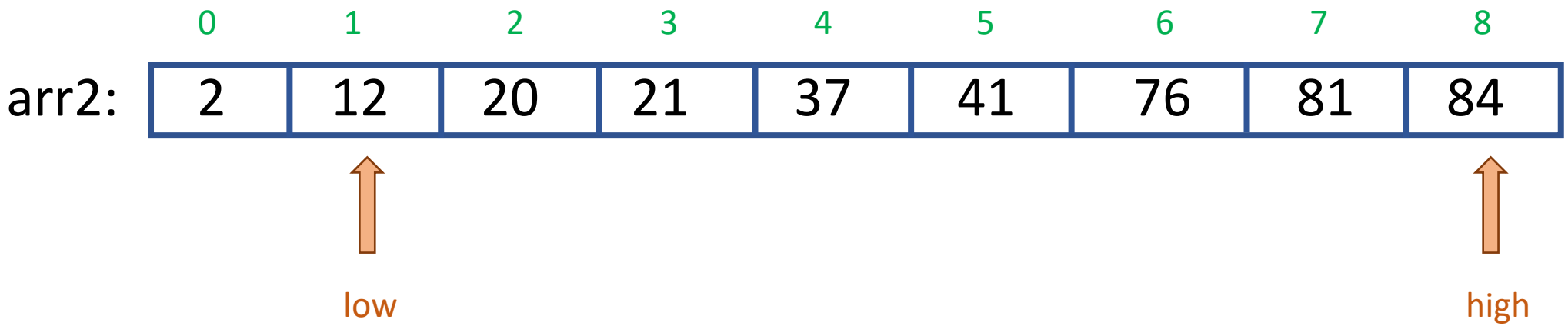
12 + 84 = 96 > 88 → Move “high” left



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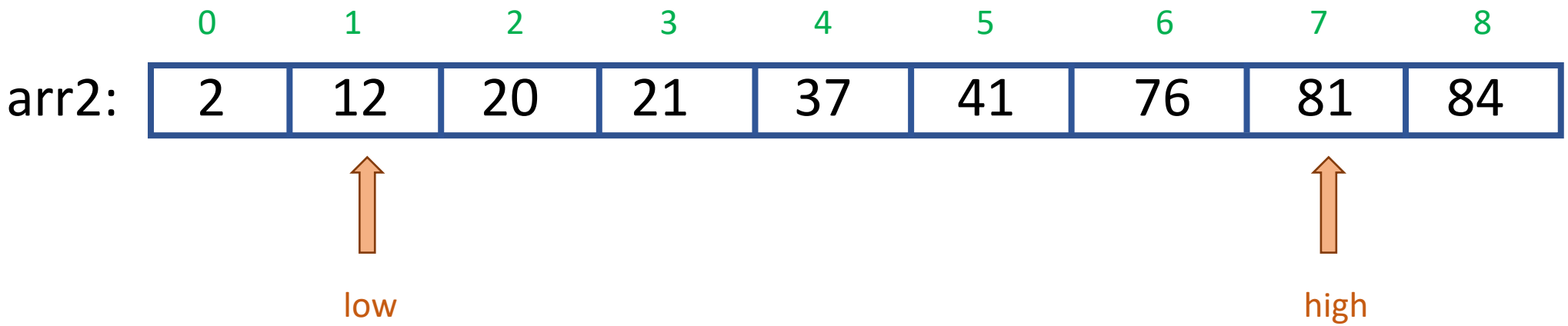

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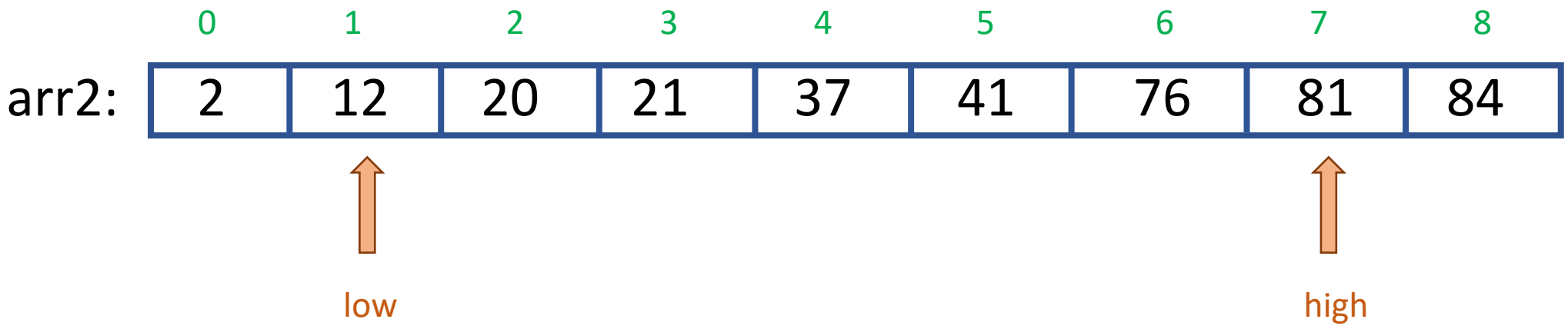
12 + 81 = 93 > 88 → Move “high” left



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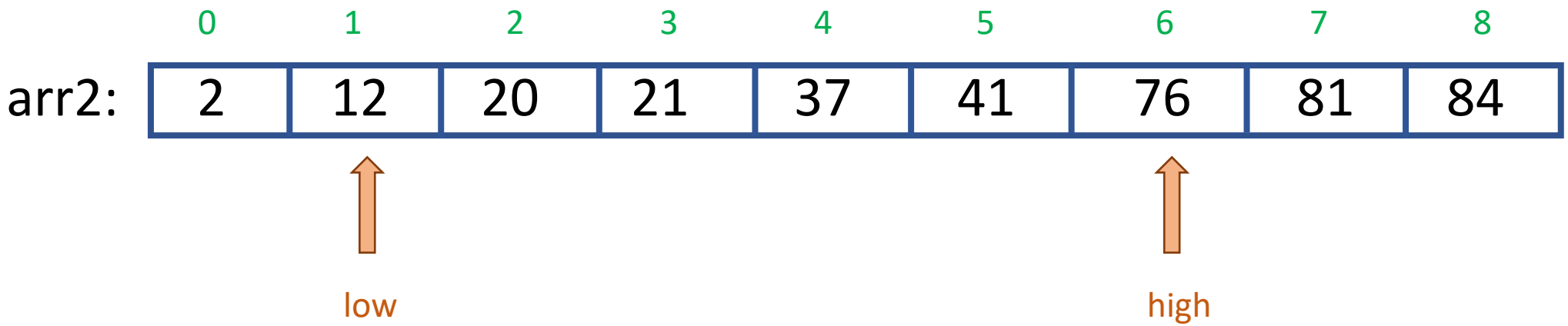

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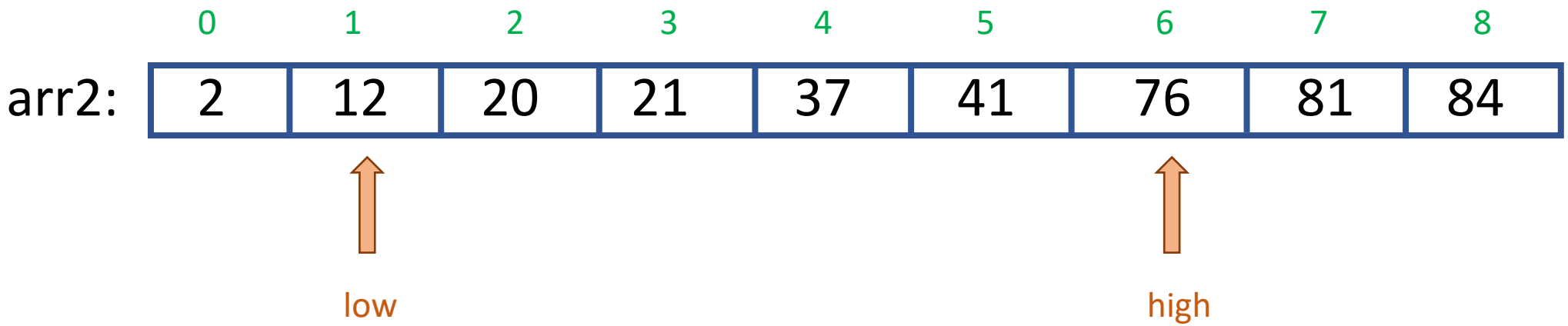
12 + 76 = 88 = 88 → Target matched, return and print statements



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Target matched, return and print statements