Q2. Write a linear search algorithm to return index of last occurrence of key.

Algorithm

Initialize:

lastOccurrenceIndex is set to -1 initially. This will hold the index of the last occurrence of key. If key is not found in the array, lastOccurrenceIndex will remain -1.

Loop through the array:

Iterate through each element in the array using a for loop.

For each element, check if it is equal to key.

If the current element arr[i] is equal to key, update lastOccurrenceIndex to i. This way, lastOccurrenceIndex will always hold the index of the most recent occurrence of key found so far.

Output:

After completing the loop, return lastOccurrenceIndex. This will be the index of the last occurrence of key in the array, or -1 if key is not found.

Example

For an array arr = {1, 3, 5, 2, 4, 4, 2, 1, 8, 9, 7, 4, 2} and key = 4:

Start with lastOccurrenceIndex = -1.

Iterate through the array:

At index 4, find 4. Update lastOccurrenceIndex to 4.

At index 5, find 4. Update lastOccurrenceIndex to 5.

At index 11, find 4. Update lastOccurrenceIndex to 11.

The loop completes and lastOccurrenceIndex is 11.

Return 11.

The index of the last occurrence of 4 is 11.