**Showcase Algorithm and problem-solving skills:**

Create a short application using any version of Java 
Create a Java class called Person-java with fields for the person's name 
and age 
Create an ArrayList using the Person-java class. Use the following data to 
populate the array : 
Name 
John Smith 
Katherine Jones 
Rick Perry 
Johnny Walker 
Amy Andersen 
Sort the list by age 
10 
20 
55 
80 
30 
Create a variable called maxAge with a value of the oldest person in the 
Create a variable called minAge with a value of the youngest person in 
the list 
Create a variable called averageAge with a value of the average age of 
people that are 30 years or younger using the array created above. 
Print the value of averageAge, maxAge, minAge, and all the names and 
agefrom youngest to oldest 
Output Should look as follows: 
averageAge = 
maxAge= 
minAge= 
Namel age= 
Name2 age= 
Name3 age= 
Name4 age= 
Name5 age= 

public static void main (StringC) args) { 
// TODO Auto-generated method stub 
personList 
new 
int avg = e; 
int avgs; 
personList . add (new 
personList . add (new 
personList . add (new 
personList . add (new 
personList. add (new 
Person ("John Smith", 
la)); 
Person ("Katherine Jones", 
2ø)); 
Person ("Rick Perry", 55)); 
Person ("Johnny Walker", 
Person ("Amy Andersen", 313)); 
/ 'Calculating average age 
for(Person averageVaIue : personList) 
averageVaIue . getAge ( ) ; 
avg / 5; 
avgs 
"+avgs); 
"*Collections .max(personList)); 
"*Collections 
Collections . sort (person List) ; 
for(Person str: personList) { 
System.out. age= "+str); 
class Person implements { 
37 
29 • S 
private String name; 
private int age; 
public Person (String name, 
int age) 
// super(); 
this.name = 
this.age = 
n ame• 
public String getName() 
return name; 
public void setName(String name) 
this. name = 
n ame• 
public int getAge() 
return age; 
public void setAge(int 
this. age = 
age; 
@Override 
age) 
Console Debug Markdown View GFM V 
test [Java Application] FilesUava\ir 
averageAge= 39 
maxAge= Johnny Walker age=8ß 
minAge= John Smith age=lß 
public String toString() 
return name + " age=" + age; 
public int compareTo(Person argg) { 
// TODO Auto-generated method stub 
int . getAge(); 
return this. age-compared; 
Name 
Name 
Name 
Name 
Name 
age = 
age= 
age= 
age= 
age = 
John Smith age=lß 
Katherine Jones age=2ß 
Amy Andersen age=3ß 
Rick Perry age=55 
Johnny Walker age=8ß 

**Add Binary**

Description 
67. Add Binary 
Solution 
Discuss (egg.) 
O 
Submissions 
Java 
Easy 2252 300 0 Add to List CC Share 
Given two binary strings, return their sum (also a binary string). 
The input strings are both non-empty and contains only characters 1 or e . 
Example 1: 
Input: a 
Output: "lea" 
Example 2: 
"1e1ø% b 
Input: a 
output: "Imar• 
Constraints: 
• Autocomplete 
class Solution { 
public String addBinary(String a, String b) { 
/ "Using stringBuiIder 
Stringauilder st 
new StringBuiIder() 
// initialize a and b 
int i = 
a. length() -I; 
int 
= b. length() -I; 
int carry = e; // initialize carry so that we can carry I m.'er when calculating 
/ "while the length of a and b is greater/equal to '3 
/ 'making sure they have e and above 
while(i 
int sum = 
carry; //camj the over 
/ 'make sure i and not out of bound 
// calculate 
if(i e) sum 
a. charAt (i) 
if (j e) sum b.charAt(j) 
"lail" 
5b. append(sum 2); 
carry = sum / 2; 
if (carry 
e) st. append(carry); 
return st. reverse(). tostring(); 
Testcase Run Code Resu It Debuaaer 
Accepted Runtime: O ms 
Your input 
Output 
Expected 
//put I to the end 
// reverse value of '001" 
to 
"lae" 
Each string consists only of 'a' or '1' characters. 
I a.length, b.length IOA4 
Each string is either "e" or doesn't contain any leading zero. 
Accepted 529,280 
submissions 
Seen this question in a real interview before? 
Companies 
Related Topics 
Similar Questions 

**Binary Search**

Description 
704. Binary Search 
Solution 
Discuss (606) 
O 
Submissions 
Easy ± 967 50 0 Addt0List CC Share 
Given a sorted (in ascending order) integer array nums of n elements and a target value, 
write a function to search target in nums . If 
target exists, then return its index, otherwise 
Java 
18 
• Autocomplete 
class Solution { 
public int nums, int target) { 
int start = e; 
int end = nums.length - I; 
while(start 
end) { 
int mid 
(start + end) / 2 
if (nums [mid] 
return mid; 
}else if (target < nums 
end 
— mid 
} else{ 
return -1. 
Example 1: 
Input: nums = 
Output: 4 
Explanation : 
Example 2: 
Input: nums = 
Output: -I 
Explanation : 
Note: 
return 
9 exists • 
In nums 
2 does not exist 
target — 
and its 
i ndex 
target — 
In nums 
4 
so return -I 
1. You may assume that all elements in nums are unique. 
2. n will be in the range [1, løaøe] . 
3. The value of each element in nums will be in the range 
Testcase Run Code Result 
start = mid + I; 
Debuaaer 
[-9999, 
9999] 
Accepted 202,186 
submissions 376,298 
Seen this question in a real interview before? 
Companies 
Related Topics 
Accepted Runtime: O ms 
Your input 
Output 
Expected 

2868 
_ 287 
288 
291 
292 
294 
296 
297 
298 
3ß2 
311 
312 
313 
314 
315 
316 
317 
318 
32ø 
321 
322 
324 
325 
public static void main (StringC) args) { 
// TODO Auto-generated method stub 
// String hello = 
"Hello World"; 
intC] val 
{la, 12, 
int target 
Solution so 
new Solution(); 
int found 
so. search (Val, target); 
System. out. println (found ) ; 
class Solution { 
public int search (into vals, 
int start = e; 
int end = vals.length 
while(start end) { 
int mid 
(start 
int target) { 
end) / 2; 
if (vals [mid] 
target) { 
return mid; 
}else if (target < valsCmid)) { 
end = mid -I; 
}else { 
start = mid 
return 
Problems @ Javadoc Declaration 
Console 
test [Java Application] FilesUava\ireI .8.0 (Nov 14, 2020, PM) 

**Same Tree**

Description 
100. Same Tree 
Easy 2652 73 
Solution 
Add to List 
Discuss (egg.) 
Share 
O 
Submissions 
Java 
Given two binary trees, write a function to check if they are the same or not. 
Two binary trees are considered the same if they are structurally identical and the nodes have 
• Autocomplete 
* Definition for a binary tree node. 
* public class TreeNode { 
int Val; 
TreeWode left; 
TreeWode right; 
Treenode() 
Treenode(int Val) { this. val 
Val; } 
Treenode(int Val, TreeNode left, TreeNode right) { 
the same value. 
Example 1: 
Input : 
Output: true 
Example 2: 
Input : 
[1,2), 
Output: false 
Example 3: 
this . val 
Val; 
this . left 
left ; 
this. right = right; 
class Solution { 
public boolean isSameTree(TreeNode p, Treenode 
/ 'Given two binary trees, write a function 
// Two binay trees are considered the same 
// first check if those 2 nodes is null. if is, 
// check to see if p or q is null. if is return 
// check to see if p and q val not equal. if is 
// return isSameTree p, q left p, q right 
if(p = 
null q = 
return 
true; 
}else if(p = 
null q 
null) { 
false; 
return 
}else if(p.val 
false; 
return 
return 
to check if they are the same or not. 
if they are structurally identical and the nodes have the same value. 
return true 
false 
return false 
isSameTree(p.Ieft, q. left) isSameTree(p.right, 
Your previous code was restored from your local storage. Reset to default 
Testcase Run Code Resu It Debuaaer 
Accepted Runtime: O ms 
q. right); 
[I, null, 2] 
Input : 
Output: 
Your input 
Output 
Expected 
true 
true 
false 

**Merge Sorted Array**

88. Merge Sorted Array 
Easy 2846 4617 0 Add to List CC Share 
Given two sorted integer arrays nums,l and nums2, merge nums2 into nums7 as one sorted 
array. 
Note: 
The number of elements initialized in numsl and nums2 are m and n respectively. 
You may assume that nums7 has enough space (size that is equal to m + n) to hold 
additional elements from nums2. 
Example: 
Input : 
numsl 
nums2 
Output . 
Constraints: 
-IOA9 numsl[i], 
numsl . length 
nums2. length 
nums2[i) 
lang 
Accepted 706,732 
submissions 
Seen this question in a real interview before? 
Companies 
Related Topics 
Similar Questions 
class Solution { 
public void 
numsl, int 
intC] nums2, int n) { 
m, 
for (int m-I, j=n-l, m+n-l; k--){ 
numsl[ k) 
numsl[i) < nums2[j]) 
Your previous code was restored from your local storage. Reset to default 
Testcase Run Code Resu It Debuaaer 
Accepted Runtime: O ms 
Your input 
Output 
Expected 

**Remove Duplicates from Sorted Array**

Description 
Solution 
Discuss (egg.) 
O 
Submissions 
26. Remove Duplicates from Sorted Array 
Easy 3124 5962 Add to List Share 
Given a sorted array nums, remove the duplicates in-place such that each element appears 
only once and returns the new length. 
Do not allocate extra space for another array, you must do this by modifying the input array 
in-place with 0(1) extra memory. 
Clarification: 
Confused why the returned value is an integer but your answer is an array? 
Note that the input array is passed in by reference, which means a modification to the input 
Java 
18 
• Autocomplete 
class Solution { 
public int nums) { 
// remove duplicate sorted arrays nums = 
/ 'create a place holder for the index 
/ 'check to see if the first index is match the next index 
// if does not match then store that index to the place holder 
int index = I; // place holder 
for (int -I; // loop through the array - I to keep it inbound 
if(numsCi] ! — 
nums[i + I)) { // if first element in the array not equal to the next element 
return 
array will be known to the caller as well. 
Internally you can think of this: 
// nums is passed in by reference. 
int len 
removeDupIicates (nums) • 
(i.e., 
without making a copy) 
// any modification to nums in your function would be known by the caller. 
// using the length returned by your function, it prints the first len 
nums C index+] 
nums[i + I]; 
/ 'store that next element to the index 
index; 
// return index 
Debuaaer 
elements . 
for (int i = e; i < Len; i") { 
print(nums 
Example 1: 
Input: nums = 
Output: 2, nums — 
Explanation: Your function should return length 
elements of nums being I and 2 respectively. It 
leave beyond the returned length . 
Testcase Run Code Result 
Accepted Runtime: O ms 
with the first 
doesn 't matter what 
Your input 
two 
Output 
you 
Expected 
[1,21 
[1,21 

**Remove Duplicates from Sorted List**

Description 
Solution 
Discuss (egg.) 
O 
Submissions 
Java 
• Autocomplete 
83. Remove Duplicates from Sorted List 
Easy 1956 130 0 Add toList Share 
Given a sorted linked list, delete all duplicates such that each element appear only once. 
Example 1: 
Input: 
Output: I->2 
Example 2: 
Input: 
* Definition for singly-linked list. 
* public class ListNode 
int Val; 
ListWode next; 
ListWode() { } 
ListWode(int Val) 
this . val - 
Val; } 
ListWode(int Val, 
ListNode next) { 
this . val - 
Val; this. next 
class Solution { 
next ; 
Output: 
Accepted 517,695 
submissions 
Seen this question in a real interview before? 
Companies 
Related Topics 
Similar Questions 
public ListNode deleteDupIicates(ListNode head) { 
//set current node to the head node 
//while current node not NULL, also check current node next to see if is not NULL 
//if current node val equal to current node next val 
//set the next node to the current node in the next index 
/ 'else set current node next to current node 
// return head 
Listuode current node = 
head; 
null current _ node. next I— 
if (current_node . val 
cur rent_node . next . Val) { 
current node. next = 
current node. next. next; 
} else{ 
current node = current node. next; 
return head 
Your previous code was restored from your local storage. Reset to default 
Testcase Run Code Resu It Debuaaer 
Accepted Runtime: O ms 
Your input 
Output 
Expected 
[1,21 
[1,21 

**Linked List Cycle**

141. Linked List Cycle 
Easy 3523 559 0 Add to List Share 
Given head , the head of a linked list, determine if the linked list has a cycle in it. 
There is a cycle in a linked list if there is some node in the list that can be reached again by 
continuously following the next pointer. Internally, pos is used to denote the index of the 
node that tail's next pointer is connected to. Note that pos is not passed as a parameter. 
Return true ifthere is a cycle in the linked list Otherwise, return false . 
* Definition for singly-linked list. 
* class ListNode { 
int Val; 
ListWode next ; 
ListWode(int x) { 
val = x; 
next = null; 
public class Solution { 
public boolean hasCycIe(Listuode head) { 
/ "will need 2 pointers 
// I. create 2 pointers first and second 
,//2. loop, make sure first and second pointers not null. 
,//3. Run a check to see if second pointer is null and if next pointer is null. 
,//4. set first = first next inline and second 
— second next inline 
// 5. return true 
if(head 
Listuode first = 
head; 
Listuode second 
head . next; 
while (first 
= nun Il 
if (second 
second. next 
return false; 
return false 
Example 1: 
3 
2 
Input: head 
Output: true 
Explanation : 
the 1st node 
pos 
There is a cycle in 
(e -indexed) 
-4 
the 
the 
first = 
second = 
first . next; 
second. next . next; 
Example 2: 
1 
2 
linked 
linked 
list, 
list, 
where 
where 
the 
the 
tail 
tail 
connects 
connects 
to 
to 
return true; 
Testcase Run Code Resu It Debuaaer 
Accepted Runtime: O ms 
Input: head 
[1,2), pos = e 
Output: true 
Explanation: There is a cycle in 
the 0th node. 
Example 3: 
Your input 
Output 
Expected 
true 
true 

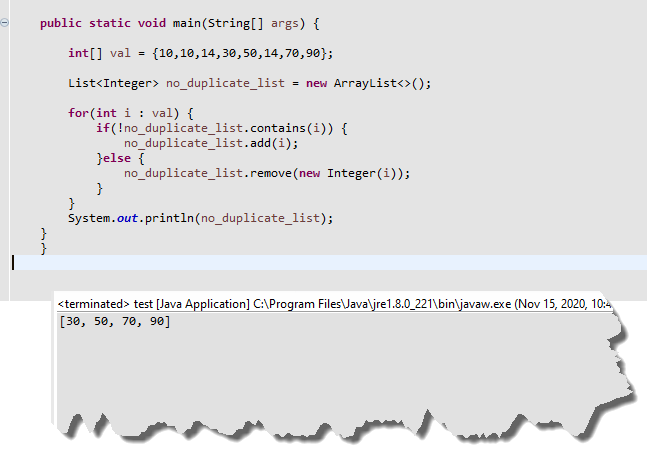
136. Single Number 
Easy 5220 179 0 Add to List 
Share 
Given a non-empty array of integers nums , even' element appears twice except for one. Find 
that single one. 
Follow up: Could you implement a solution with a linear runtime complexity and without 
using extra memory? 
Example 1: 
Input: nums = 
Output: I 
Example 2: 
class Solution { 
public int nums) { 
int a = 
for(int 
return a; 
Input : 
Output. 
nums = 

**Single Number**

**Algorithm**

1. Iterate over all the elements in **nums**
2. If some number in **nums** is new to array, append it
3. If some number is already in the array, remove it

Given a **non-empty** array of integers, every element appears *twice* except for one. Find that single one.



136. Single Number 
Easy 5220 179 0 Add to List 
Share 
Given a non-empty array of integers nums , even' element appears twice except for one. Find 
that single one. 
Follow up: Could you implement a solution with a linear runtime complexity and without 
using extra memory? 
Example 1: 
Input: nums = 
Output: I 
Example 2: 
Input: nums = 
Output: 4 
Example 3: 
Input: nums = 
Output: I 
Constraints: 
I nums.length 3 * lea 
-3 * lea nums[i] 3 
Each element in the array appears twice except for one element which appears only 
class Solution { 
public int nums) { 
myList = 
new 
// Given a non-empty array of integers nums, every element appears twice except for one. 
// Input: nums = 
<-- find number 4 since it is not duplicate 
the arrays 
,/2. check and see if the first element equa/not equal to next element 
,/3. if not equal, store that element using the List 
,/4. if equal/ same delete the element 
/ 5. return the stored element 
for(int i: 
2myList. contains 
myList . add 
} else{ 
myList.remove(new Integer(i)); 
return Integer(e))• 
Your previous code was restored from your local storage. Reset to default 
Testcase Run Code Resu It Debuaaer 
Accepted Runtime: O ms 
Your input 
Output 
Expected 
Find that single one. 
once. 
Accepted 
Submissions 