

**RAJKUMAR V**

**CSE -C**

**22CS132**

**DATASTRUCTURE  
ASSIGNMENT**



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## 1) Problem

Linked List Cycle II

### Code

```
/**
 * Definition for singly-linked list.
 * struct ListNode {
 *     int val;
 *     struct ListNode *next;
 * };
 */
struct ListNode *detectCycle(struct ListNode *head) {
    struct ListNode *fast=head;
    struct ListNode *slow=head;
    struct ListNode *temp=head;
```



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```
int i=0;
if(head==0)
{
    return NULL;
}
else
{
    while(fast!=0&&fast->next!=0&&fast->next->next!=0)
    {

fast=fast->next->next;

        slow=slow->next;
        if(fast==slow)
        {
            slow=head;
            while(slow!=fast)
            {
                fast=fast->next;
                slow=slow->next;
            }
            return fast;
        }
    }
    return NULL;
```



}

}



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## 2) Problem

Search a 2D Matrix

Code

```
bool searchMatrix(int** matrix, int matrixSize, int* matrixColSize, int target){  
    for(int i=0;i<matrixSize;i++){  
        for(int j=0;j<*matrixColSize;j++){  
            if(target==matrix[i][j])  
                return 1;  
        }  
    }  
    return 0;  
}
```



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## Search a 2D Matrix

## Submission Detail

133 / 133 test cases passed.

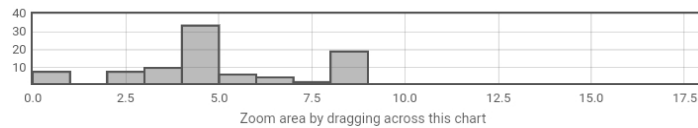
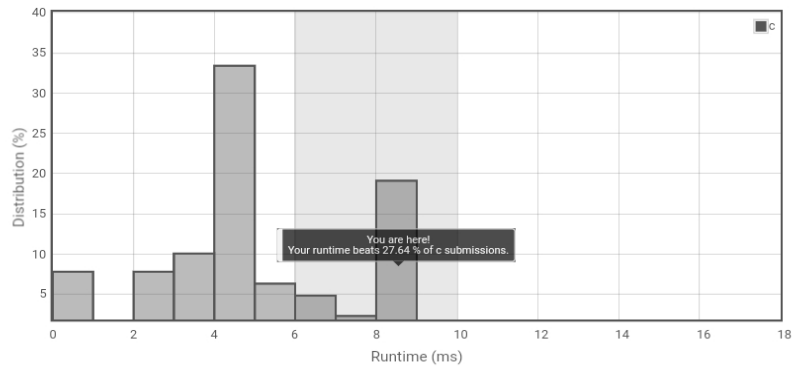
Status: Accepted

Runtime: 8 ms

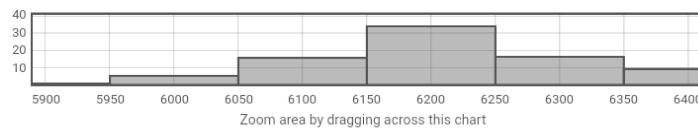
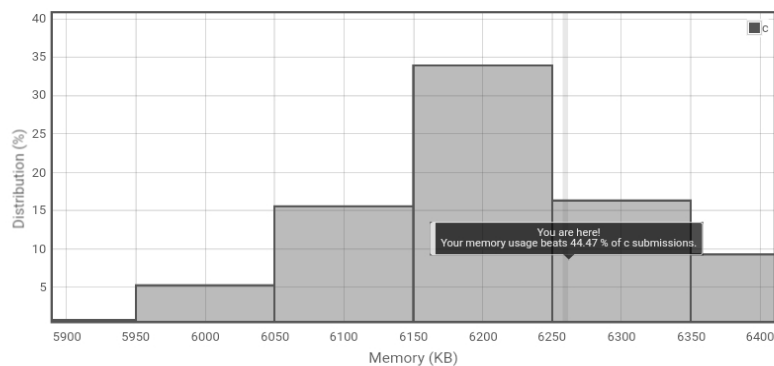
Submitted: 0 minutes ago

Memory Usage: 6.3 MB

## Accepted Solutions Runtime Distribution



## Accepted Solutions Memory Distribution



Invite friends to challenge Search a 2D Matrix

Submitted Code: 0 minutes ago

Language: c

Edit Code

```
1 bool searchMatrix(int** matrix, int matrixSize, int* matrixColSize, int target)
2 {
3     for(int i=0;i<matrixSize;i++){
4         for(int j=0;j<*matrixColSize;j++){
5             if(target==matrix[i][j])
6                 return 1;
7         }
8     }
9     return 0;
}
```



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### 3) Problem

#### Merge Two Sorted Lists

##### Code

```
/**
 * Definition for singly-linked list.
 * struct ListNode {
 *     int val;
 *     struct ListNode *next;
 * };
 */
struct ListNode* mergeTwoLists(struct ListNode* list1, struct ListNode* list2){
    struct ListNode* temp=list1;
    int k;
    if(temp==0)
    {
        return list2;
    }
    else
    {
        while(temp->next!=0)
        {
            temp=temp->next;
        }
    }
}
```





```
temp->next=list2;

temp=list1;

for(struct ListNode* i=list1;i!=0;i=i->next)
{
    for(struct ListNode* j=i->next;j!=0;j=j->next)
    {
        if(i->val>=j->val)
        {
            k=i->val;
            i->val=j->val;
            j->val=k;
        }
    }
}

return list1;
}
```



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Jun 06, 2023 14:46

Jun 06, 2023

C

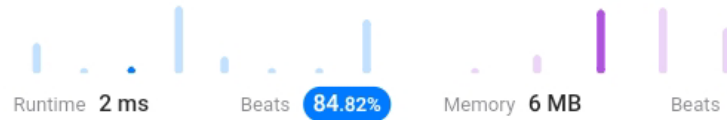


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```
/**
 * Definition for singly-linked list.
 * struct ListNode {
 *     int val;
 *     struct ListNode *next;
 * };
 */
struct ListNode* mergeTwoLists(struct ListNode* list1, struct ListNode* list2) {
    struct ListNode* temp=list1;
    int k;
    if(temp==0)
    {
        return list2;
    }
    else
    {
        while(temp->next!=0)
        {
            temp=temp->next;
        }
        temp->next=list2;
        temp=list1;
        for(struct ListNode* i=list1;i!=0;i=i->next)
        {
            for(struct ListNode* j=i->next;j!=0;j=j->next)
            {
                if(i->val>=j->val)
                {
                    k=i->val;
                    i->val=j->val;
                    j->val=k;
                }
            }
        }
    }
}
```



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#### 4) Problem

##### Remove Element

##### Code

```
int removeElement(int* nums, int numsSize, int val){
    int count=0;
    for(int i=0;i<numsSize;i++)
    {
        if(nums[i]==val)
            count++;
        else
        {
            nums[i-count]=nums[i];
        }
    }
    return numsSize-count;
}
```



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Jun 06, 2023 15:13

Jun 06, 2023

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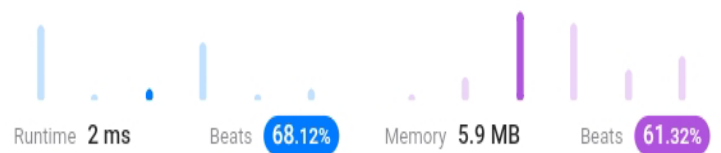
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```
int removeElement(int* nums, int numsSize, int val){
    int count=0;
    for(int i=0;i<numsSize;i++)
    {
        if(nums[i]==val)
            count++;
        else
        {
            nums[i-count]=nums[i];
        }
    }
    return numsSize-count;
}
```



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## 5) Problem

Find the Index of the First Occurrence in a String

Code

```
int strStr(char * haystack, char * needle){
```

```
    int l=strlen(needle);
```

```
    if(strlen(haystack)<l)
```

```
    {
```

```
        return -1;
```

```
    }
```

```
    else{
```

```
        for(int i=0;i<=strlen(haystack)-l;i++)
```

```
        {
```

```
            for(int j=0;j<l;j++){
```

```
                if(needle[j]!=haystack[i+j])
```

```
                {
```

```
                    break;
```

```
                }
```

```
                if(j==l-1)
```

```
                {
```

```
                    return i;
```

```
                }
```

```
            }
```

```
        }
```


```
        return -1;
```






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}

}

 **Problem List** < > 🔍

Premium   0 

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Jun 11, 2023 15:26

Accepted 5 hours ago C

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Accepted Jun 06, 2023 Python3

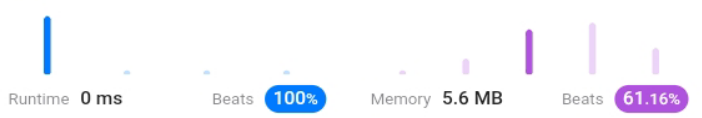
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Jun 11, 2023 15:26

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C



Runtime **0 ms** Beats **100%** Memory **5.6 MB** Beats **61.16%**

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Notes

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```
int strStr(char * haystack, char * needle){  
  
    int l=strlen(needle);  
    if(strlen(haystack)<l)  
    {  
        return -1;  
    }  
    else{  
        for(int i=0;i<=strlen(haystack)-l;i++)  
        {  
            for(int j=0;j<l;j++){  
                if(needle[j]!=haystack[i+j])  
                {  
                    break;  
                }  
                if(j==l-1)  
                {  
                    return i;  
                }  
            }  
        }  
        return -1;  
    }  
}
```

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6)

## Divide Two Integers

### Code

```
int divide(long int dividend, int long divisor){  
  
    if(dividend==2147483648&&divisor==1)  
    {  
        return -(dividend-divisor);  
    }  
    else  
    {  
        return dividend/divisor;  
    }  
}
```



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Problem List

Premium

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Description

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May 31, 2023 19:19

May 31, 2023

C

Wrong Answer

May 31, 2023

C

Wrong Answer

May 31, 2023

C

Wrong Answer

May 31, 2023

C

Runtime Error

May 31, 2023

C

rajkumar\_v

May 31, 2023 19:19

Details

+ Solution

C

Runtime

0 ms

Beats

100%

Memory

5.6 MB

Beats

39.43%

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0/5

```
int divide(long int dividend, int long divisor){  
  
    if(dividend==2147483648&&divisor==1)  
    {  
        return -(dividend-divisor);  
    }  
    else  
    {  
        return dividend/divisor;  
    }  
}
```




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## 7)Problem


```
int reverse(int x)
{
    long int last,rev=0;
    while(x)
    {
        last=x%10;
        rev=rev*10+last;
        x=x/10;
    }
    if(rev>=INT_MIN&&rev<=INT_MAX)
        return rev;
    else
        return 0;
}
```






 [Problem List](#)

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Feb 08, 2023 19:24

Feb 08, 2023

X



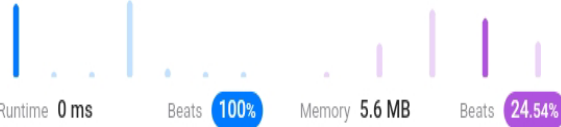
 **rajkumar\_v**

Feb 08, 2023 19:24

Details

+ Solution

C



Runtime 0 msBeats 100%Memory 5.6 MBBeats 24.54%

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Notes

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Related Tags

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```
int reverse(int x)
{
    long int last, rev=0;
    while(x)
    {
        last=x%10;
        rev=rev*10+last;
        x=x/10;
    }
    if(rev>=INT_MIN&&rev<=INT_MAX)
        return rev;
    else
        return 0;
}
```



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## 8) Problem

Find First and Last Position of Element in Sorted Array

```
int reverse(int x)
{
    long int last,rev=0;
    while(x)
    {
        last=x%10;
        rev=rev*10+last;
        x=x/10;
    }
    if(rev>=INT_MIN&&rev<=INT_MAX)
        return rev;
    else
        return 0;
}
```



Problem List

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Jun 11, 2023 15:17  
5 hours ago

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Jun 06, 2023Python3

Wrong Answer  
Jun 06, 2023Python3

Wrong Answer  
Jun 06, 2023Python3

Wrong Answer  
Jun 06, 2023Python3

rajkumar\_v  
Jun 11, 2023 15:17

Details+ Solution

C

Runtime10 msBeats63.38%

Memory7.7 MBBeats10.56%

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Notes

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/\*\*  
 \* Note: The returned array must be malloced, assume caller calls free.  
 \*/  
int\* searchRange(int\* nums, int numsSize, int target, int\* returnSize)  
{  
 \*returnSize=2;  
 int \*b;  
 b=(int\*)malloc(2\*sizeof(int));  
 int j=0,c=0;  
 for(int i=0;i<numsSize;i++)  
 {  
 if(nums[i]==target)  
 {  
 b[j]=i;  
 j++;  
 c++;  
 }  
 }  
 if(c>=2)  
 return b;  
 else if(c==1)  
 {  
 b[1]=b[0];  
 return b;  
 }  
 else  
 {  
 b[0]=-1;  
 b[1]=-1;  
 return b;  
 }  
}



## 9) Problem

### Roman to Integer


#### Code

```
int getValue(char * s){
    switch(*s)
    {
        case 'I':
            return (s[1]=='V'||s[1]=='X')?-1:1;
        case 'X':
            return (s[1]=='L'||s[1]=='C')?-10:10;
        case 'C':
            return (s[1]=='D'||s[1]=='M')?-100:100;
        case 'V':
            return 5;
        case 'L':
            return 50;
        case 'D':
            return 500;
        case 'M':
            return 1000;
    }
    return 0;
}
```




```
int romanToInt(char * s){  
    int result = 0;  
  
    for(;*s!=0; ++s)  
    {  
        result=result+getValue(s);  
    }  
    return result;  
}
```




 Problem List


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Premium



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Jun 11, 2023 15:00

Accepted

6 hours ago

C

X

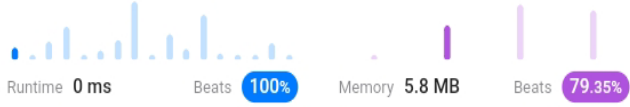
rajkumar\_v

Jun 11, 2023 15:00

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+ Solution

C



Runtime 0 msBeats 100%Memory 5.8 MBBeats 79.35%

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Notes

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```
int getValue(char * s){
    switch(*s)
    {
        case 'I':
            return (s[1]=='V' || s[1]=='X')?-1:1;
        case 'X':
            return (s[1]=='L' || s[1]=='C')?-10:10;
        case 'C':
            return (s[1]=='D' || s[1]=='M')?-100:100;
        case 'V':
            return 5;
        case 'L':
            return 50;
        case 'D':
            return 500;
        case 'M':
            return 1000;
    }
    return 0;
}

int romanToInt(char * s){
    int result = 0;

    for(;*s!=0; ++s)
    {
        result=result+getValue(s);
    }
    return result;
}
```

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## 10)Problem

Remove Nth Node From End of List

Code

```
/**
 * Definition for singly-linked list.
 * struct ListNode {
 *   int val;
 *   struct ListNode *next;
 * };
 */
struct ListNode* removeNthFromEnd(struct ListNode* head, int n){
    struct ListNode* temp=head;
    struct ListNode* prev=NULL;
    int count=0;
    if(head->next==0)
    {
        return NULL;
    }
    else
    {
        while(temp!=0)
        {
            temp=temp->next;
            count++;
        }
    }
}
```



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```
}  
if(n==count)  
{  
    head=head->next;  
}  
else  
{  
    temp=head;  
    for(int i=0;i<count-n-1;i++)  
    {  
        temp=temp->next;  
    }  
    temp->next=temp->next->next;  
}  
return head;  
}
```



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Jun 07, 2023 12:09

c

Jun 07, 2023

c

Runtime Error

Jun 07, 2023

c

Wrong Answer

Jun 07, 2023

c

Wrong Answer

Jun 06, 2023

c

Wrong Answer

Jun 06, 2023

c

×

rajkumar\_v

Jun 07, 2023 12:09

Details

+ Solution

c

Runtime

2 ms

Beats

64.32%

Memory

5.6 MB

Beats

99.62%

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Notes

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Related Tags

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/\*\*  
 \* Definition for singly-linked list.  
 \* struct ListNode {  
 \* int val;  
 \* struct ListNode \*next;  
 \* };  
 \*/  
struct ListNode\* removeNthFromEnd(struct ListNode\* head, int n).  
struct ListNode\* temp=head;  
struct ListNode\* prev=NULL;  
int count=0;  
if(head->next==0)  
{  
 return NULL;  
}  
else  
{  
 while(temp!=0)  
 {  
 temp=temp->next;  
 count++;  
 }  
}  
if(n==count)  
{  
 head=head->next;  
}  
else  
{  
 temp=head;  
 for(int i=0;i<count-n-1;i++)  
 {  
 temp=temp->next;  
 }  
 temp->next=temp->next->next;  
}  
return head;  
}

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