



ADVANCED CODING

Assignment -2



918. Maximum Sum Circular Subarray :

```
int maxSubarraySumCircular(int* nums, int numsSize){
    short sNumsSize = numsSize;
    int nTotal = 0, nMax = INT_MIN, nMaxTmp = 0, nMin = INT_MAX, nMinTmp = 0;
    while(numsSize-- > 0)
    {
        nTotal += *nums;

        // check max
        if(nMaxTmp > 0)
        {
            nMaxTmp += *nums;
        }
        else
        {
            nMaxTmp = *nums;
        }
        if(nMaxTmp > nMax) nMax = nMaxTmp;

        // check min
        if(nMinTmp < 0)
        {
            nMinTmp += *nums;
        }
        else
        {
            nMinTmp = *nums;
        }
        if(nMinTmp < nMin) nMin = nMinTmp;

        nums++;
    }

    // get result from nTotal - nMin
    nTotal -= nMin;

    return nMax < 0? nMax: (nTotal > nMax? nTotal: nMax);
}
```

Op:

DescriptionAccepted × EditorialSolutionsSubmissions

918. Maximum Sum Circular Subarray

Solved

MediumTopicsCompaniesHint

Given a **circular integer array** `nums` of length `n`, return the *maximum possible sum of a non-empty **subarray*** of `nums`.

A **circular array** means the end of the array connects to the beginning of the array. Formally, the next element of `nums[i]` is `nums[(i + 1) % n]` and the previous element of `nums[i]` is `nums[(i - 1 + n) % n]`.

A **subarray** may only include each element of the fixed buffer `nums` at most once. Formally, for a subarray `nums[i], nums[i + 1], ..., nums[j]`, there does not exist `i <= k1, k2 <= j` with `k1 % n == k2 % n`.

Example 1:

Input: `nums = [1,-2,3,-2]`

Output: 3

Explanation: Subarray [3] has maximum sum 3.

Example 2:

Input: `nums = [5,-3,5]`

Output: 10

Explanation: Subarray [5,5] has maximum sum 5 + 5 = 10.

Example 3:

Input: `nums = [-3,-2,-3]`

Output: -2

6.8K79

73 Online

Code

```
C /
8
9 // check_max
10 if (nMaxTmp > 0)
11 {
12     nMaxTmp += *nums;
13 }
```

Ln 11, Col 30 SavedRunSubmit

TestcaseTest Result

AcceptedRuntime: 0 ms

Case 1Case 2Case 3

Input

nums =
[1,-2,3,-2]

Output

3

Expected

3

Contribute a testcase

936. Stamping The Sequence :

```
int isSubstr(char* s, char* a, int index){
    int lengthS = strlen(s), status = 0;
    for(int i = 0; i < lengthS; i++){
        if(s[i] != a[i+index] && a[i+index] != '*')
            return 0;
        if(s[i] == a[i+index])
            status = 1;
    }
    return status == 0 ? 0 : 1;
}

int notStar(char* target){
    int lengthTarget = strlen(target);
    for(int i = 0; i < lengthTarget; i++)
        if(target[i] != '*')
            return 1;
    return 0;
}

int* movesToStamp(char* stamp, char* target, int* returnSize){
    int* result = (int*)malloc(sizeof(int) * 10 * strlen(target));
    *returnSize = 0;
    int lengthT = strlen(target), lengthS = strlen(stamp);
    while(notStar(target)){
        int status = 0;
        for(int i = 0; i <= (lengthT - lengthS); i++){
            if(isSubstr(stamp, target, i)){
                for(int j = 0; j < lengthS; j++){
                    target[j+i] = '*';
                }
                result[(*returnSize)++] = i;
                status = 1;
            }
        }
        if(status == 0){
            *returnSize = 0;
            break;
        }
    }
    for(int i = 0, j = *returnSize - 1; i < j; i++, j--){
        int temp = result[i];
        result[i] = result[j];
        result[j] = temp;
    }
    return result;}
```

Op:

Problem List

Description | Accepted | Editorial | Solutions | Submissions

936. Stamping The Sequence

Solved

Hard | Topics | Companies

You are given two strings `stamp` and `target`. Initially, there is a string `s` of length `target.length` with all `s[i] == '?'`.

In one turn, you can place `stamp` over `s` and replace every letter in the `s` with the corresponding letter from `stamp`.

- For example, if `stamp = "abc"` and `target = "abcba"`, then `s` is `"?????"` initially. In one turn you can:
- place `stamp` at index 0 of `s` to obtain `"abc???"`,
- place `stamp` at index 1 of `s` to obtain `"?abc??"`, or
- place `stamp` at index 2 of `s` to obtain `"??abc?"`.

Note that `stamp` must be fully contained in the boundaries of `s` in order to stamp (i.e., you cannot place `stamp` at index 3 of `s`).

We want to convert `s` to `target` using at most $10 * target.length$ turns.

Return an array of the index of the left-most letter being stamped at each turn. If we cannot obtain `target` from `s` within $10 * target.length$ turns, return an empty array.

Example 1:

Input: `stamp = "abc", target = "ababc"`

Output: `[0, 2]`

1.6K | 13 | 61 Online

Code

C | Auto

Ln 34, Col 6 | Saved

Run | Submit

Testcase | Test Result

Accepted | Runtime: 0 ms

Case 1 | Case 2

Input

stamp =
"abc"

target =
"ababc"

Output

[0, 2]

Expected

[0, 2]

Contribute a testcase

1472. Design Browser History :

```
typedef struct tab
{
    char* url;
    struct tab* next;
    struct tab* previous;
} tab;

typedef struct BrowserHistory
{
    tab* current;
} BrowserHistory;

tab* createTab(char* url)
{
    tab* newTab = malloc(sizeof(tab));

    newTab->url = url;
    newTab->next = NULL;
    newTab->previous = NULL;

    return newTab;
}

BrowserHistory* browserHistoryCreate(char* homepage)
{
    BrowserHistory* history = malloc(sizeof(BrowserHistory));
    history->current = createTab(homepage);

    return history;
}

void browserHistoryVisit(BrowserHistory* obj, char* url)
{
    BrowserHistory history = *obj;

    tab* newTab = createTab(url);
    history->current->next = newTab;
    newTab->previous = history->current;
    history->current = newTab;

    *obj = history;
}

char* browserHistoryBack(BrowserHistory* obj, int steps)
{
    BrowserHistory history = *obj;
```

```

    int back = 0;

    while(history.current->previous != NULL && back < steps)
    {
        back++;
        history.current = history.current->previous;
    }

    *obj = history;

    return history.current->url;
}

char * browserHistoryForward(BrowserHistory* obj, int steps)
{
    BrowserHistory history = *obj;
    int forward = 0;

    while(history.current->next != NULL && forward < steps)
    {
        forward++;
        history.current = history.current->next;
    }

    *obj = history;

    return history.current->url;
}

void browserHistoryFree(BrowserHistory* obj)
{
    BrowserHistory history = *obj;

    while(history.current->previous != NULL) history.current = history.current->previous;

    while(history.current != NULL)
    {
        tab* current = history.current;
        history.current = history.current->next;
        free(current);
    }

    *obj = history;
    free(obj);
}

```

Op:

DescriptionEditorialSolutionsAcceptedSubmissions

1472. Design Browser History

MediumTopicsCompaniesHint

You have a **browser** of one tab where you start on the **homepage**, and you can visit another **url**, get back in the history number of **steps** or move forward in the history number of **steps**.

Implement the **BrowserHistory** class:

- BrowserHistory(string homepage)** Initializes the object with the **homepage** of the browser.
- void visit(string url)** Visits **url** from the current page. It clears up all the forward history.
- string back(int steps)** Move **steps** back in history. If you can only return **x** steps in the history and **steps > x**, you will return only **x** steps. Return the current **url** after moving back in history **at most** **steps**.
- string forward(int steps)** Move **steps** forward in history. If you can only forward **x** steps in the history and **steps > x**, you will forward only **x** steps. Return the current **url** after forwarding in history **at most** **steps**.

Example:

Input:

```
["BrowserHistory","visit","visit","visit","back","back","forward","visit","forward","back","back"]
[["leetcode.com"],["google.com"],["facebook.com"],["youtube.com"],[1],[1],[1],["linkedin.com"],[2],[2],[7]]
```

Output:

```
[null,null,null,null,"facebook.com","google.com","facebook.com",null,"linkedin.com","google.com","leetcode.com"]
```

3.9K63114 Online

Code

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```

Ln 88, Col 20Saved

RunSubmit

TestcaseTest Result

AcceptedRuntime: 0 ms

Case 1

Input

["BrowserHistory","visit","visit","visit","back","back","forward","visit","forward","back","back"]

[["leetcode.com"],["google.com"],["facebook.com"],["youtube.com"],[1],[1],[1],["linkedin.com"],[2],[2],[7]]

Output

[null,null,null,null,"facebook.com","google.com","facebook.com",null,"linkedin.com","google.com","leetcode.com"]

Expected

[null,null,null,null,"facebook.com","google.com","facebook.com",null,"linkedin.com","google.com","leetcode.com"]

146. LRU Cache :

```
struct node {
    int key;
    int val;
    struct node *next;
    struct node *prev;
};

typedef struct {
    int cap;
    int count;
} LRUCache;

struct node *head;
struct node *tail;

struct node* rem[10001];
LRUCache* LRUCacheCreate(int capacity) {

    LRUCache *cache = malloc(sizeof(LRUCache));
    cache->cap = capacity;
    cache->count = 0;
    head = malloc(sizeof(struct node));
    tail = malloc(sizeof(struct node));

    head->next = tail;
    tail->prev = head;

    for (int i = 0; i < 10001; i++)
        rem[i] = NULL;

    return cache;
}

void del(struct node *curr) {

    curr->prev->next = curr->next;
    curr->next->prev = curr->prev;
}

void add(struct node *curr) {

    curr->next = head->next;
    curr->prev = head;
```

```

    head->next->prev = curr;
    head->next = curr;
}

int LRUCacheGet(LRUCache* obj, int key) {
    if(obj->count == 0)
        return -1;

    if(rem[key] == NULL)
        return -1;

    int val;
    struct node *curr = rem[key];
    val = curr->val;
    del(curr);
    add(curr);
    return val;
}

void LRUCachePut(LRUCache* obj, int key, int value) {

    printf("key=%d\n",key);
    if(rem[key] != NULL) {

        struct node *curr = rem[key];
        curr->val = value;
        del(curr);
        add(curr);
    }

    else {

        if(obj->count == obj->cap) {
            obj->count--;
            rem[tail->prev->key] = NULL;
            del(tail->prev);
        }

        obj->count++;
        struct node *curr = malloc(sizeof(struct node));
        curr->val = value;
        curr->key = key;
        printf("curr=%x\n",curr);
        printf("add key=%d val =%d \n",key,value);
        rem[key] = curr;
        add(curr);
    }
}

```

```

}

void LRUCacheFree(LRUCache* obj) {

    for(int i = 0; i <= 10000; i++)
        if(rem[i])
            free(rem[i]);

    free(head);
    free(tail);
    free(obj);

}

/**
 * Your LRUCache struct will be instantiated and called as such:
 * LRUCache* obj = LRUCacheCreate(capacity);
 * int param_1 = LRUCacheGet(obj, key);
 *
 * LRUCachePut(obj, key, value);
 *
 * LRUCacheFree(obj);
 */

```

Op:

Problem List

146. LRU Cache

Solved

Medium

Topics

Companies

Design a data structure that follows the constraints of a **Least Recently Used (LRU)** cache.

Implement the `LRUCache` class:

- `LRUCache(int capacity)` Initialize the LRU cache with **positive** size `capacity`.
- `int get(int key)` Return the value of the `key` if the key exists, otherwise return `-1`.
- `void put(int key, int value)` Update the value of the `key` if the `key` exists. Otherwise, add the `key-value` pair to the cache. If the number of keys exceeds the `capacity` from this operation, **evict** the least recently used key.

The functions `get` and `put` must each run in `O(1)` average time complexity.

Example 1:

Input
["LRUCache", "put", "put", "get", "put", "get", "put", "get", "get", "get"]
[[2], [1, 1], [2, 2], [1], [3, 3], [2], [4, 4], [1], [3], [4]]

Output
[null, null, null, 1, null, -1, null, -1, 3, 4]

Explanation
LRUCache lruCache = new LRUCache(2);
lruCache.put(1, 1); // cache is {1=1}

Code

Testcase Test Result

Accepted Runtime: 0 ms

Case 1

Input

["LRUCache", "put", "put", "get", "put", "get", "put", "get", "get", "get"]

[[2], [1, 1], [2, 2], [1], [3, 3], [2], [4, 4], [1], [3], [4]]

Stdout

key=1
curr=a0
add key=1 val =1
key=2
curr=d0
add key=2 val =2
key=3
curr=100

View more

Output

[null,null,null,1,null,-1,null,-1,3,4]

Expected

[null,null,null,1,null,-1,null,-1,3,4]

213K
253
596 Online