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362. Design Hit Counter

Medium
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Design a hit counter which counts the number of hits received in the past 5 minutes (i.e., the past 300 seconds).

Your system should accept a `timestamp` parameter (**in seconds** granularity), and you may assume that calls are being made to the system in chronological order (i.e., `timestamp` is monotonically increasing). Several hits may arrive roughly at the same time.

Implement the `HitCounter` class:

- `HitCounter()` Initializes the object of the hit counter system.
- `void hit(int timestamp)` Records a hit that happened at `timestamp` (**in seconds**). Several hits may happen at the same `timestamp`.
- `int getHits(int timestamp)` Returns the number of hits in the past 5 minutes from `timestamp` (i.e., the past 300 seconds).

Example 1:

Input

```
["HitCounter", "hit", "hit", "hit", "getHits", "hit", "getHits", "getHits"]
[[], [1], [2], [3], [4], [300], [300], [301]]
```

Output

```
[null, null, null, null, 3, null, 4, 3]
```

Explanation

```
HitCounter hitCounter = new HitCounter();
hitCounter.hit(1);       // hit at timestamp 1.
hitCounter.hit(2);       // hit at timestamp 2.
hitCounter.hit(3);       // hit at timestamp 3.
hitCounter.getHits(4);    // get hits at timestamp 4, return 3.
hitCounter.hit(300);     // hit at timestamp 300.
hitCounter.getHits(300);  // get hits at timestamp 300, return 4.
hitCounter.getHits(301); // get hits at timestamp 301, return 3.
```

Constraints:

- $1 \leq \text{timestamp} \leq 2 * 10^9$
- All the calls are being made to the system in chronological order (i.e., `timestamp` is monotonically increasing).
- At most 300 calls will be made to `hit` and `getHits`.

Follow up: What if the number of hits per second could be huge? Does your design scale?

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Autocomplete

```
1 class HitCounter {
2     int sum;
3     queue< pair<int,int>
4 >q;
5 public:
6     HitCounter() {
7         sum = 0;
8     }
9     void hit(int
10 timestamp) {
11         sum++;
12         if(q.empty() or
13 q.front().first !=
14 timestamp)
15 {
16     q.push({timestamp,1});
17 }
18     pair<int,int> curr =
19 q.front();
20     q.pop();
21     q.push({timestamp,curr.
22 second+1});
23 }
24     int getHits(int
25 timestamp) {
26         while(!q.empty()
27 and timestamp-
28 q.front().first>=300)
29 {
30     sum -=
31 q.front().second;
32     q.pop();
33 }
34     return sum;
35 }
36 };
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```

Testca... Run Code Res... Debug...

Accepted Runtime: 3 ms

Your input `["HitCounter", "hit",
[[], [1], [2], [3], [4]`

Output `[null, null, null, null, 3, null, 4, 3]`

Expected `[null, null, null, null, 3, null, 4, 3]`

Run Code Submit

