一维前缀和

人员

初锦阳、李瑞涵、赵牧之、王馨琪、刘子轩、韩昱辰、苑钊、燕润石、温郝冬、倪炜艺、柳力玮、田心一、姜皓轩、纪博涵 到课

上周作业检查

上周作业链接: https://www.luogu.com.cn/contest/235071

2025-0309周日15:30

报名 | 编辑比赛 | 题目数 5 | 报名人数 18

比赛说明 | 题目列表 | 排行榜

名次	参赛者	总分	A	B	C	D	E
#1	柳力玮	500 (5.71h)	100 (17.32min)	100 (23.17min)	100 (56.15min)	100 (1.85h)	100 (2.24h)
#2	赵牧之	500 (3.43d)	100 (26.18min)	100 (36.58min)	100 (1.58h)	100 (1.90h)	100 (3.24d)
#3	李瑞涵	480 (7.77h)	100 (22.47min)	100 (27.52min)	100 (53.40min)	100 (1.93h)	80 (4.12h)
#4	刘梓勋	410 (12.78d)	100 (2.06h)	100 (57.47min)	100 (4.21d)	100 (4.21d)	10 (4.23d)
#5	田心一	400 (3.51h)	100 (19.85min)	100 (25.15min)	100 (58.18min)	100 (1.79h)	
#6	苑钊	400 (3.69h)	100 (19.07min)	100 (25.88min)	100 (59.22min)	100 (1.95h)	
#7	温郝冬	400 (3.85h)	100 (23.47min)	100 (34.43min)	100 (1.03h)	100 (1.85h)	
#8	燕润石	400 (4.03h)	100 (16.12min)	100 (40.77min)	100 (1.09h)	100 (1.99h)	
#9	王馨琪	400 (4.06h)	100 (26.72min)	100 (30.33min)	100 (1.11h)	100 (2.00h)	
#10	谢梓轩	300 (2.44h)	100 (21.57min)	100 (34.60min)	100 (1.50h)		
#11	李知朔	300 (2.63h)	100 (29.02min)	100 (38.88min)	100 (1.49h)		
#12	倪炜艺	300 (2.70h)	100 (23.03min)	100 (41.23min)	100 (1.63h)		
#13	刘子轩	200 (2.22h)		100 (37.08min)	100 (1.61h)		
#14	韩昱辰	200 (2.80h)		100 (48.90min)	100 (1.98h)		
#15	初锦阳	100 (38.35min)		100 (38.35min)			
#16	宋云朗	100 (1.66h)		100 (1.66h)			

作业

https://www.luogu.com.cn/contest/236358 (课上讲了 A ~ D 题, 课后作业是 E 题)

课堂表现

今天新讲了一维前缀和的内容, 整体内容不是很难, 同学们课上整体做题表现都不错, 课下也要好好复习。

课堂内容

T504031 回文字符串（palindrome）

```cpp
#include <bits/stdc++.h>

using namespace std;

const int maxn = 10000 + 5;
char s[maxn];

bool check(string a, string b) {
    if (a == b) return true;
    reverse(a.begin(), a.end());
    if (a == b) return true;
    return false;
}

int main()
{
    cin >> (s+1);
    int n = strlen(s+1);

    int cnt = 0;
    string a, b;
    for (int i = 1, j = n; i <= j; i++, j--) {
        a += s[i];
        b = s[j]+b;
        if (i == j) break;
        if (check(a,b)) {
            cnt += 2;
            a = "", b = "";
        }
    }

    if (a!="") cnt++;

    if (cnt <= 1) cout << "NO" << endl;
    else {
        cout << "YES" << endl;
        cout << cnt << endl;
    }

    return 0;
}
```

B3612 【深进1.例1】求区间和

```cpp
#include <bits/stdc++.h>

using namespace std;

const int maxn = 1e5 + 5;
int w[maxn], p[maxn];

int sum(int l, int r) { return (l<=r?p[r]-p[l-1]:0); }

int main()
{
  int n; cin >> n;
  for (int i = 1; i <= n; ++i) cin >> w[i], p[i] = p[i-1] + w[i];

  int m; cin >> m;
  while (m -- ) {
    int l, r; cin >> l >> r;
    cout << sum(l,r) << endl;
  }
  return 0;
}
```

P5638 【CSGRound2】光骓者的荣耀

```cpp
#include <bits/stdc++.h>

using namespace std;

typedef long long LL;
const int maxn = 1e6 + 5;
LL w[maxn], p[maxn];

LL sum(int l, int r) { return (l<=r?p[r]-p[l-1]:0); }

int main()
{
  int n, k; cin >> n >> k;
  for (int i = 1; i <= n-1; ++i) cin >> w[i], p[i] = p[i-1] + w[i];

  if (k >= n-1) { cout << 0 << endl; return 0; }

  LL res = p[n-1], maxx = 0;
  for (int i = 1; i <= n-1; ++i) {
    int j = i + k - 1;
    maxx = max(maxx, sum(i, j));
  }
  cout << res - maxx << endl;
  return 0;
}
```

P8772 [蓝桥杯 2022 省 A] 求和

```cpp
#include <bits/stdc++.h>

using namespace std;

typedef long long LL;
const int maxn = 2e5 + 5;
int w[maxn]; LL p[maxn];

LL sum(int l, int r) { return (l<=r?p[r]-p[l-1]:0); }

int main()
{
  int n; cin >> n;
  for (int i = 1; i <= n; ++i) cin >> w[i], p[i] = p[i-1] + w[i];

  LL res = 0;
  for (int i = 1; i <= n-1; ++i) res += w[i] * sum(i+1, n);
  cout << res << endl;
  return 0;
}
```

P1115 最大子段和

```cpp
#include <bits/stdc++.h>

using namespace std;

const int maxn = 2e5 + 5;
int w[maxn], p[maxn];
int p_min[maxn];

int main()
{
  int n; cin >> n;
  int res = -1000;
  for (int i = 1; i <= n; ++i) {
    cin >> w[i], p[i] = p[i-1] + w[i];
    p_min[i] = min(p_min[i-1], p[i]);
    res = max(res, p[i] - p_min[i-1]);
  }
  cout << res << endl;
  return 0;
}
```