

# 一维数组练习

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## 人员

初锦阳、田心一、吴言恩、周沁言、谢梓轩、李知朔、郭韩、赵牧之、吴念远、李瑞涵、胡曠辰、郭雨宸、孙泽轩、纪博涵、燕润石、元骏泽、周纪先 到课

## 作业

<https://www.luogu.com.cn/contest/199517>

## 课堂表现

同学们课上听课纪律都很好，做题也很认真，心一 同学这节课做题最快最好，提出表扬！

## 课堂内容

### U477531 找“大数”的数量

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

using namespace std;

int main()
{
    int a[105];
    int n;
    cin >> n;
    for (int i = 1; i <= n; i++) {
        cin >> a[i];
    }

    int cnt = 0;
    for (int i = 2; i <= n-1; i++) {
        if (a[i]>a[i-1] && a[i]>a[i+1]) {
            cnt++;
        }
    }
    cout << cnt << endl;
    return 0;
}
```

### U477532 输出奇偶数

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

using namespace std;
```

```
int main()
{
    int a[105];
    int n;
    cin >> n;
    for (int i = 1; i <= n; i++) {
        cin >> a[i];
    }

    for (int i = 1; i <= n; i++) {
        if (a[i]%2 == 1) {
            cout << a[i] << " ";
        }
    }
    cout << endl;

    for (int i = 1; i <= n; i++) {
        if (a[i]%2 == 0) {
            cout << a[i] << " ";
        }
    }
    return 0;
}
```

### U477560 200相关的变化

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

using namespace std;

int main()
{
    long long n, k;
    cin >> n >> k;
    for (int i = 1; i <= k; i++) {
        if (n%200 == 0) {
            n /= 200;
        }
        else {
            n = n*1000 + 200;
        }
    }

    cout << n << endl;
    return 0;
}
```

### U477534 求和

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

using namespace std;

int main()
{
    int a[5005];
    int n;
    cin >> n;
    for (int i = 1; i <= n; i++) {
        cin >> a[i];
    }
    int k;
    cin >> k;

    int sum = 0;
    for (int i = 1; i <= n; i++) {
        if (a[i]%k == 0) {
            sum += a[i];
        }
    }
    cout << sum << endl;
    return 0;
}
```

### U477537 数字之和为x的整数

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

using namespace std;

int main()
{
    int a[10005];
    int n;
    cin >> n;
    for (int i = 1; i <= n; i++) {
        cin >> a[i];
    }
    int k;
    cin >> k;

    int cnt = 0, sum = 0;
    for (int i = 1; i <= n; i++) {
        int t = a[i], he = 0;
        while (t != 0) {
            he += t%10;
            t /= 10;
        }
    }
}
```

```
        if (he == k) {
            cnt++;
            sum += a[i];
        }
    }
    cout << cnt << " " << sum << endl;
    return 0;
}
```

## P9517 drink

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

using namespace std;

int main()
{
    int a[100005];
    int n;
    cin >> n;
    for (int i = 1; i <= n; i++) {
        cin >> a[i];
    }

    int cnt = 0;
    for (int i = 1; i <= n; i++) {
        if (a[i] == 1) {
            cnt++;
        }
    }
    if (cnt == 0) {
        cout << 0 << endl;
        return 0;
    }

    int l, r;
    for (int i = 1; i <= n; i++) {
        if (a[i] == 1) {
            l = i;
            break;
        }
    }
    for (int i = n; i >= 1; i--) {
        if (a[i] == 1) {
            r = i;
            break;
        }
    }
    cout << r-l+1 << endl;
}
```

```
    return 0;
}
```

### B3652 [语言月赛202208] 渡荆门送别

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

using namespace std;

int main()
{
    long long a[1000005];
    int n;
    cin >> n;
    for (int i = 1; i <= n; i++) {
        cin >> a[i];
    }

    long long maxx = 0, minn = 1000000000000000000+1;
    for (int i = 1; i <= n; i++) {
        if (a[i] > maxx) {
            maxx = a[i];
        }
        if (a[i] < minn) {
            minn = a[i];
        }
    }

    for (int i = 1; i <= n; i++) {
        cout << maxx-a[i] << " ";
    }
    cout << endl;

    for (int i = 1; i <= n; i++) {
        cout << a[i]-minn << " ";
    }
    return 0;
}
```

### 数组定义

数组一定是定义在 `int main()` 的上面, 这样数组默认就全都是 0

```
#include <iostream>
using namespace std;

int a[100005]; // 像这样, 定义在 int main() 上面

int main() {
```

```
    return 0;
}
```

## U480291 求排名

1. 输入  $n$  个学生的成绩
2. 求这  $n$  个学生的排名

求 1/2/3/.../n 的排名

```
for (int i = 1; i <= n; i++) {
    求第 i 个人的排名
    -> 第 i 个人的排名怎么求?
    要看有多少人的成绩比第 i 个人的成绩高

    第 i 个人的成绩: a[i]
    其他人的成绩: a[1], a[2], a[3], ..., a[n]
```

看 a[1]~a[n] 中, 有几个数比 a[i] 大

```
    int cnt = 0;
    for (int j = 1; j <= n; j++) {
        if (a[j] > a[i]) {
            cnt++;
        }
    }
```

一共有 cnt 个人的成绩比第 i 个人的成绩高, 第 i 个人排 cnt+1 名

```
}
```

```
#include <iostream>

using namespace std;

int a[1005];

int main()
{
    int n;
    cin >> n;
    for (int i = 1; i <= n; i++) {
        cin >> a[i];
    }

    for (int i = 1; i <= n; i++) {
        int cnt = 0;
        for (int j = 1; j <= n; j++) {
```

```
        if (a[j] > a[i]) {
            cnt++;
        }
    }
    cout << cnt+1 << " ";
}
return 0;
}
```

### U480301 判断数组是否对称

```
i = 最左边, j = 最右边
while (???) {
    if (a[i] != a[j]) {
        一定不对称
    }
    else {
        i --- j 这 2 个位置对应没问题了
        应该再往里看
    }
}
```

```
#include <iostream>
using namespace std;

int a[25];

int main() {
    int n;
    cin >> n;
    for (int i = 1; i <= n; i++) {
        cin >> a[i];
    }

    int i = 1, j = n;
    while (i < j) {
        if (a[i] == a[j]) {
            i++;
            j--;
        }
        else {
            cout << "NO" << endl;
            return 0;
        }
    }
    cout << "YES" << endl;
    return 0;
}
```

**U480297 交换**

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

using namespace std;

int w[1005];

int main()
{
    int n;
    cin >> n;
    for (int i = 1; i <= n; i++) {
        cin >> w[i];
    }
    int a, b, c, d;
    cin >> a >> b >> c >> d;

    int i = a, j = c;
    while (i <= b) {
        int t = w[i];
        w[i] = w[j];
        w[j] = t;
        i++;
        j++;
    }

    for (int i = 1; i <= n; i++) {
        cout << w[i] << " ";
    }
    cout << endl;
    return 0;
}
```