

# 数组的构造与填充相关题目

## 人员

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## 作业检查

陶汇笙、董浩桢、邹忆航、李沛都 完成 4 题

郭栩睿、温郝冬、张昱霖 完成 3 题

马瑞昕、洪晨栋、洪晨棋、崔宸赫、魏子喆 完成 2 题

罗启宸 完成 1 题

## 作业

<https://www.luogu.com.cn/contest/197240>

A、B、C 3道题目为课上题目，要求同学们在家补完，下节课要求大家默写

D 题为课后选做作业

## 课堂表现

课堂纪律整体比较好，同学们课后一定要要好好复习 A B C 3 道题，下周要求默写

## 课堂内容

### P1789 【Mc生存】插火把

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

using namespace std;

const int maxn = 100 + 5;
int a[maxn][maxn];

int main()
{
    int n, m, k;
    cin >> n >> m >> k;
    while (m -- ) {
        int x, y;
        cin >> x >> y;
        for (int i = x-2; i <= x+2; i++) {
            for (int j = y-2; j <= y+2; j++) {
                if (i>=1 && i<=n && j>=1 && j<=n && abs(x-i) + abs(y-j) <= 2) {
                    a[i][j] = 1;
                }
            }
        }
    }
}
```

```

        }
    }
}
while (k -- ) {
    int x, y;
    cin >> x >> y;
    for (int i = x-2; i <= x+2; i++) {
        for (int j = y-2; j <= y+2; j++) {
            if (i>=1 && i<=n && j>=1 && j<=n) {
                a[i][j] = 1;
            }
        }
    }
}

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

```

### U476048 按要求构造数组

```

#include <bits/stdc++.h>

using namespace std;

const int maxn = 2000 + 5;
int a[maxn][maxn];

int main()
{
    int n;
    cin >> n;
    int m = 2*n - 1;

    int x = m, y = n, cnt = 0, id = 1;
    while (cnt < m*m) {
        a[x][y] = id;
        if (x==m && y==1) {
            x--;
        }
        else if (x == m) {
            x = 1, y--;
        }
    }
}

```

```
    }
    else if (y == 1) {
        y = m, x++;
    }
    else if (a[x+1][y-1] != 0) {
        x--;
    }
    else {
        x++, y--;
    }
    cnt++;
    id++;
}

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

#### U476049 数组填充

```
#include <iostream>

using namespace std;

int a[505][505];

int main()
{
    int n;
    cin >> n;
    int value = 1;
    for (int k = 2*n; k >= 2; k--) {
        if (k%2==1) {
            for (int i = 1; i <= n; i++) {
                for (int j = 1; j <= n; j++) {
                    if (i+j == k) {
                        a[i][j] = value;
                        value++;
                    }
                }
            }
        }
        else {
            for (int i = n; i >= 1; i--) {
                for (int j = 1; j <= n; j++) {
                    if (i+j == k) {
```

```
        a[i][j] = value;
        value++;
    }
}
}

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