数据结构笔记1

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1 基本概念

魔方程序

```
#include<stdio.h>
#include<stdlib.h>
#define MAX_SIZE 15

void main(void)
{
        static int square[MAX_SIZE][MAX_SIZE];
        int i, j, row, column;
        int count;
        int size;

        printf("Enter the size of the square:");
        scanf_s("%d", &size);
        if (size <1 || size>MAX_SIZE + 1)
        {
                fprintf(stderr, "REEOR! Size is out of range\n");
                exit(1);
        }
        if (!(size % 2))
        {
                fprintf(stderr, "REEOR! Size is even\n");
                exit(1);
        }
        for (i = 0; i < size; i++)
                for (j = 0; j < size; j++)
                        square[i][j] = 0;
        square[0][(size - 1) / 2] = 1;
        i = 0;
        j = (size - 1) / 2;
        for (count = 2; count <= size*size; count++)
```

```
31          {
32                  row = (i - 1 < 0) ? (size - 1) : (i - 1);
33                  column = (j - 1 < 0) ? (size - 1) : (j - 1);
34                  if (square[row][column])
35                          i = (++i) % size;
36                  else
37                  {
38                          i = row;
39                          j = (j - 1 < 0) ? (size - 1) : --j;
40                  }
41                  square[i][j] = count;
42          }
43          printf("Magic square of size %d:\n\n", size);
44          for (i = 0; i < size; i++) {
45                  for (j = 0; j < size; j++)
46                          printf("%5d", square[i][j]);
47                  printf("\n");
48          }
49          getchar();
50          printf("\n\n");
51  }
```