数组

ARRAY STRUCTURE

4 数组与结构

- 下面我们写程序把10个人的成绩存入score数组中，找出最高分及所在位置。

输入： 10个人的成绩

输出： 最高分和所在位置

算法思想： 用一个整数存储找到的最高分，一个整数存储得最高分的位置，初始是第一个人。然后从第二个人依次判断是否比已经找到的最高分还高，如果是，则更新；然后继续对下一个人判断，直到10个人都处理完。

```
#include<stdio.h>
#include<stdlib.h>
int main(){
    int n=10,i,maxStudent=0;
    float scores[n], maxScores = 0;
    for (i = 1;i <= n;++i)
    scanf("%f", scores[i]);
    for (i = 1;i <= n;++i)
        if (maxScores < scores[i]){
            maxScores = scores[i];
            maxStudent=i;
        }
    printf("maxScores=%.2f,maxStudent is %d\n", maxScores,
    maxStudent);
    system("pause");
    return 0;
}
```

```
#include<stdio.h>
#include<stdlib.h>
int main(){
    int n=10,i,maxStudent=0;
    float scores[n], maxScores = 0;
    for (i = 1;i
    scanf("%f
    for (i = 1;i
        if (ma
            ma
            maxStudent=i;
        }
    printf("maxScores=%.2f,maxStudent is %d\n", maxScores,
    maxStudent);
    system("pause");
    return 0;
}
```

数组大小必须是值为正的常量，不能为变量

```
#include<stdio.h>
#include<stdlib.h>
int main(){
    int n=10,i
    float score
    for (i = 1;i <= n;++i)
    scanf("%f", scores[i]);
    for (i = 1;i <= n;++i)
        if (maxScores < scores[i]){
            maxScores = scores[i];
            maxStudent=i;
        }
    printf("maxScores=%.2f,maxStudent is %d\n", maxScores,
    maxStudent);
    system("pause");
    return 0;
}
```

一旦定义，不能改变大小!

```
#include<stdio.h>
#include<stdlib.h>
int main(){
   const int n=10;
      int i,maxStudent=0;
      float scores[n], maxScores = 0;
      for (i = 1;i <= n;++i)
      scanf("%f", scores[i]);
      for (i = 1;i <= n;++i)
            if (maxScores < scores[i]){
                  maxScores = scores[i];
                  maxStudent=i;
            }
      printf("maxScores=%.2f,maxStudent is
      %d\n", maxScores, maxStudent);
      system("pause");
      return 0;
}
```

```
#include<stdio.h>
#include<stdlib.h>
int main(){
   const int n=10;
      int i,maxStudent=0;
      float scores[n], maxScores =
      for (i = 1;i <= n;++i)
      scanf("%f", scores[i]);
      for (i = 1;i <= n;++i)
            if (maxScores < scores[i]){
                  maxScores = scores[i];
                  maxStudent=i;
            }
      printf("maxScores=%.2f,maxStudent is
      %d\n", maxScores, maxStudent);
      system("pause");
      return 0;
}
```

数组越界

```
#include<stdio.h>
#include<stdlib.h>
int main(){
   const int n=10;
      int i,maxStudent=0;
      float scores[n], maxScores = 0;
      for (i = 0;i < n;++i)
      scanf("%f", scores[i]);
      for (i = 0;i < n;++i)
            if (maxScores < scores[i]){
                  maxScores = scores[i];
                  maxStudent=i;
            }
      printf("maxScores=%.2f,maxStudent is
      %d\n", maxScores, maxStudent);
      system("pause");
      return 0;
}
```

```
#include<stdio.h>
#include<stdlib.h>
int main(){
   const int n=10;
      int i,maxStudent=0;
      float scores[n], maxScores
      for (i = 0;i < n;++i)
      scanf("%f", scores[i]);
      for (i = 0;i < n;++i)
            if (maxScores < scores[i]){
                  maxScores = scores[i];
                  maxStudent=i;
            }
      printf("maxScores=%.2f,maxStudent is
      %d\n", maxScores, maxStudent);
      system("pause");
      return 0;
}
```

scores[i]为数组元素；
scores+i或者&scores[i]为元素地址

```
#include<stdio.h>
#include<stdlib.h>
int main(){
   const int n=10;
      int i,maxStudent=0;
      float scores[n], maxScores = 0;
      for (i = 0;i < n;++i)
      scanf("%f", &scores[i]);
      for (i = 0;i < n;++i)
            if (maxScores < scores[i]){
                  maxScores = scores[i];
                  maxStudent=i;
            }
      printf("maxScores=%.2f,maxStudent is
      %d\n", maxScores, maxStudent);
      system("pause");
      return 0;
}
```

使用前必须初始化