Array

——String handling funciton

Lecturer：Huaidong Chen

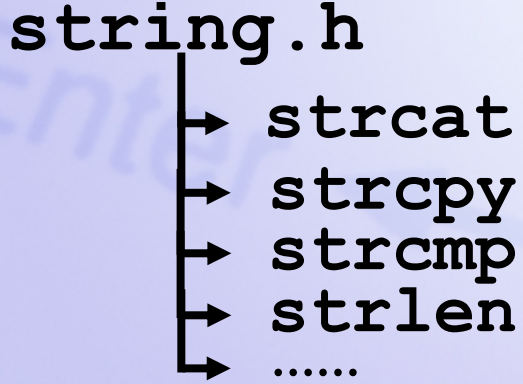
6.5 String handling function

1. Common function
2. example

1. Common funcitons

要使用标准库字符串处理函数，程序前应该包含：

#include <string.h>



1. Common functions

1. strcat

调用格式：strcat(str1,str2)

功能：

将str2中的字符串连接到str1数组中

并删除字符串str1中的字符串结束符'\0'

strcat的返回值是字符串str1的首地址

1. Common functions

1. 字符串连接函数

```
#include<string.h>
void main()
{
        char source_string[] = "is very good";
        char target_string[30] = "ACCP 4.0 ";
        strcat(target_string,source_string);
        printf("\n 源字符串  = %s", source_string);
        printf("\n 目标字符串  = %s\n", target_string);
}
```

```
源字符串 = is very good
目标字符串 = ACCP 4.0 is very good
```

1. Common functions

2. strcpy

调用格式：strcpy(str1,str2)

功能：

将str2中的字符串复制到str1数组中

1. Common functions

2. strcpy

```
#include <string.h>
void main()
{       char source[] = "We change lives";
        char target[20];
        strcpy(target,source);
        printf("\n 源字符串  = %s
        printf ("\n 目标字符串  = %
}
```

target = source ; ?

字符串不能直接整体赋值，

必须借助strcpy！

源字符串 = We change lives

目标字符串 = We change lives

1. Common functions

3. strcmp

调用格式：strcmp(str1,str2)

功能：

按照ASCII码顺序比较两个数组中的字符串，并由函数返回值返回比较结果。

若str1=str2，返回值为0；

若str1>str2，返回1；

若str1<str2，返回-1；

1. Common functions

3. strcmp

```
#include <string.h>
void main()
{
        char str1[] = “Student";
        char str2[]=“student”;
        int t = strcmp(str1,str2);
        printf("\n %d", t);
}
```

```
-1
```

1. Common functions

3. strcmp

```
#include <string.h>
void main()
{
        char username[15],pwd[15];
        printf("\n 请输入用户名：  " );
        gets(username);
        printf("\n 请输入密码：  ");
        gets(pwd);
        if((strcmp(username,"John")==0) &&
    (strcmp(pwd,"123456")==0))
          printf("\n 您已成功登录  \n ");
        else
          printf("\n 用户名和/或密码无效  \n "); }
```

username == "John" ?

和/或密码无效

字符串不能用关系运算符比较大小，必须借助**strcmp**!

1. Common functions

4. strlen

调用格式： strlen(str)

功能：

计算字符串的实际长度（不含字符串结束标志'\0'）并将计算结果作为函数返回值。

1. Common functions

4. strlen

```
#include <string.h>
void main()
{
  char arr[] = "Beijing";
  int len1, len2;
  len1 = strlen(arr);
  len2 = strlen("Shanghai");
  printf("\n string = %s length = %d", arr, len1);
  printf("\n string = %s length = %d \n","Shanghai",len2);
}
```

```
string = Beijing length = 7
string = Shanghai length = 8
```

2. Example

eg. 按奥运会参赛国国名在字典中的顺序（由小到大）对其入场次序进行排序，效果如右图：

```
How many countries? 5 ↙
Input their names:
America ↙
England ↙
Australia ↙
Sweden ↙
Finland ↙
Sorted results:
America
Australia
England
Finland
Sweden
```

二. 库函数使用举例


```
#include <stdio.h>
#include <string.h>
main()
{
    char a[100][20],t[20];
    int i,j,n;
  printf("How many  countries:");
  scanf("%d",&n);
  printf("input their name:\n");
    for(i=0;i<n;i++)
    {
     gets(a[i]);
    }
```

```
for(i=1;i<n;i++)
{
 for(j=0;j<n-i;j++)
 if(strcmp(a[j],a[j+1])<0)
 {
      strcpy(t,a[j]);
      strcpy(a[j],a[j+1]);
      strcpy(a[j+1],t);
    }
 printf("Sorted results:\n");
    for(i=0;i<n;i++)
    {
    puts(a[i]);
     }
```

Summary

- Common string handling function：strcpy、 strcat、 strcmp、 strlen 、 strlwr 、 strupr
- example