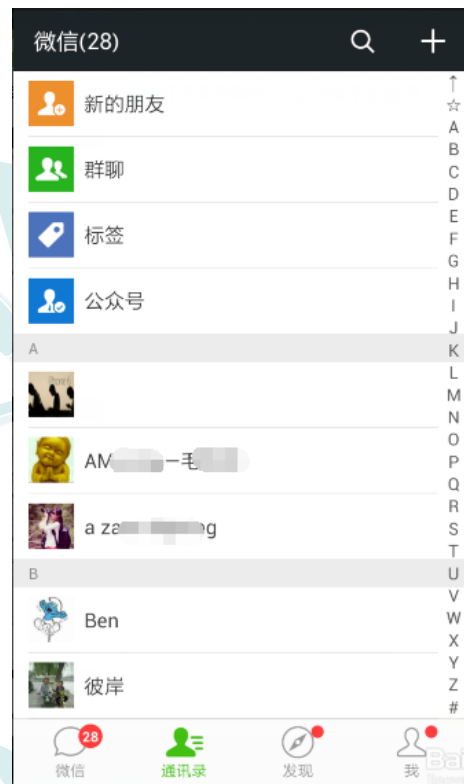


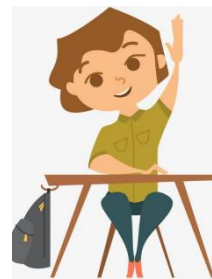
# C/C++程序设计案例实战 ——手机通讯录

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# 案例分析

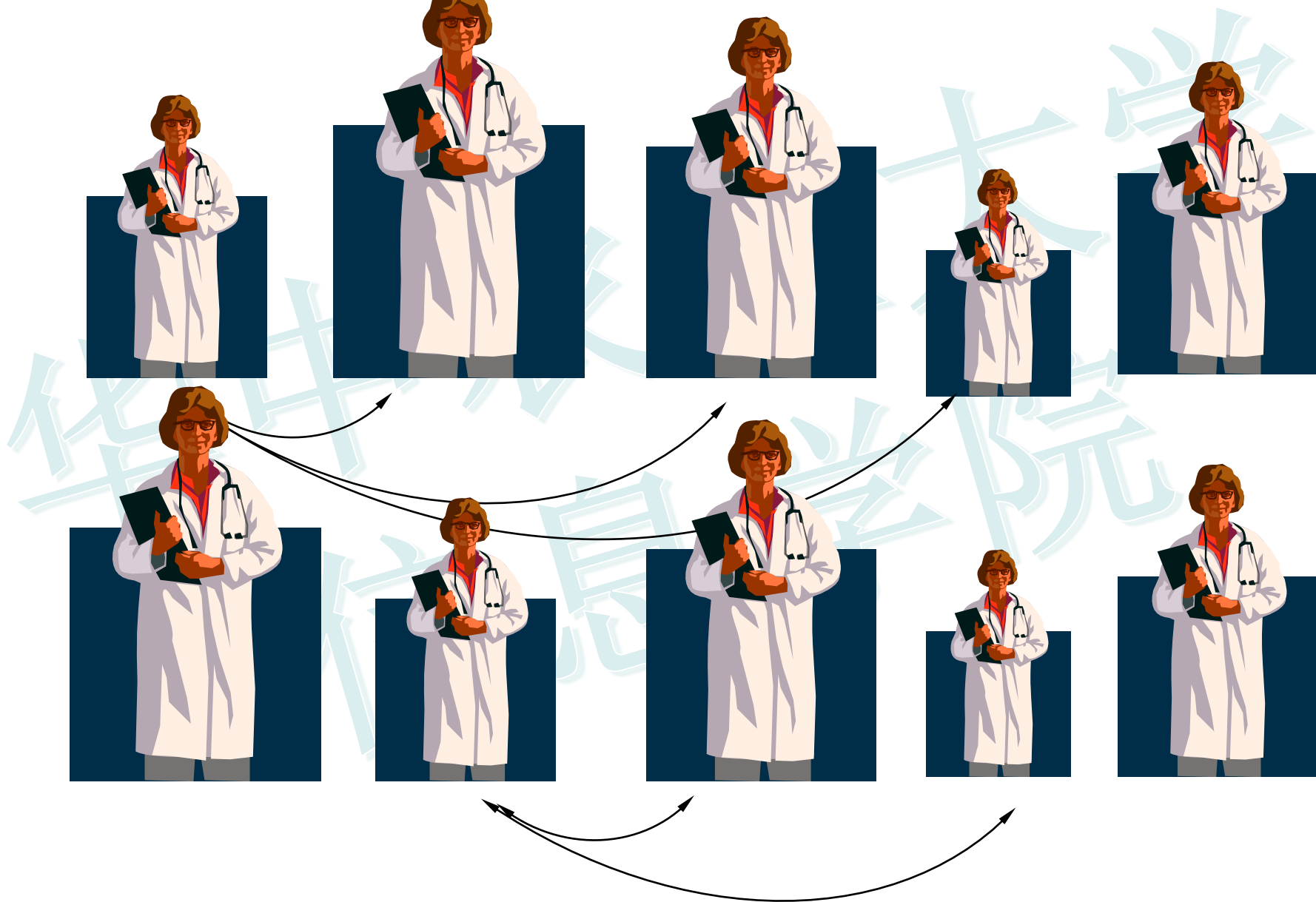


手机、微信通讯录

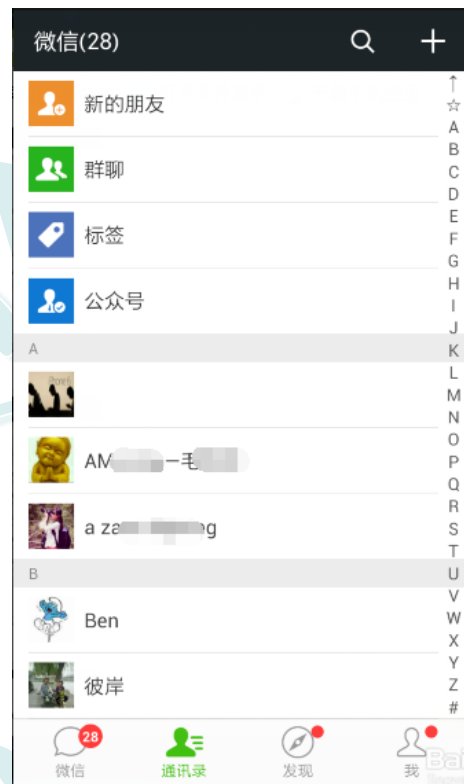


怎么排序

?







```
void DataSort(char name[][20])  
{  
    int i,j;  
    char str[20];
```

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```
void DataSort(char name[][20])
{
    int i,j;
    char str[20];
    for(i=0;i<N-1;i++){
        for(j=i+1;j<N;j++){
```

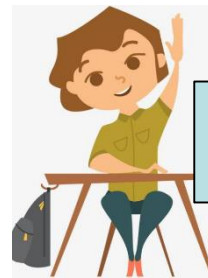
```
void DataSort(char name[][20])
{
    int i,j;
    string str;
    for(i=0;i<N-1;i++){
        for(j=i+1;j<N;j++){
            if(strcmp(name[j],name[i])<0){
                strcpy(str,name[j]);
                strcpy(name[j],name[i]);
                strcpy(name[i],str);
            }
        }
    }
}
```



```
#include<iostream>
#include<cstring>
#define N 5
using namespace std;
int main()
{
    char name[N][20];
    char str[20];
    int i,j;
    for(i=0;i<N;i++)
        cin>>name[i];
```

```
#include<iostream>
#include<cstring>
#define N 5
using namespace std;
int main()
{
    char name[N][20];
    char str[20];
    int i,j;
    for(i=0;i<N;i++)
        cin>>name[i];
    DataSort(name);
```

```
#include<iostream>
#include<cstring>
#define N 5
using namespace std;
int main()
{
    char name[N][20];
    char str[20];
    int i,j;
    for(i=0;i<N;i++)
        cin>>name[i];
    DataSort(name);
    for(i=0;i<N;i++)
        cout<<name[i]<<" ";
    return 0;
}
```



怎么查找？

# 案例进阶



价格10元~50元  
,  
猜猜!



低了!



30元



low



10...15...20...25...30...35...40...45...50

high



mid



$low = mid + 1$

高了!



40元



low high  
10...15...20...25...30 31...35...40...45...50  
mid

**high=mid-1**



低了!



35元



low high  
10...15...20...25...30 31...35...39 40...45...50  
mid

$\text{low} = \text{mid} + 1$



恭喜，猜中了！



37元



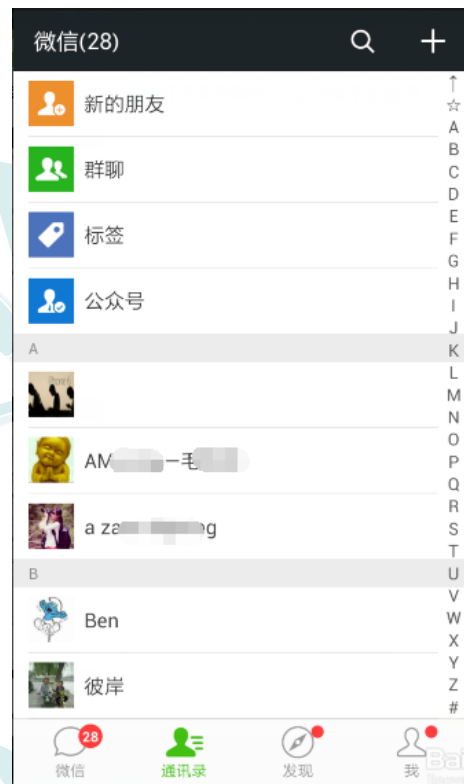
low

high

10...15...20...25...30 31...35 36 37 38 39 40...45...50

mid

# 案例进阶



## 手机、微信通讯录



怎么实现折半查找

?

```
int  BinSearch(char name[][20], char nm[])  
{
```

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```
int  BinSearch(char name[][20], char nm[])
{
    int  low, high, mid;
    low = 0;
    high = N - 1;
```

```
int  BinSearch(char name[][20], char nm[])
{
    int  low, high, mid;
    low = 0;
    high = N - 1;
    while (low <= high){
        mid = (high + low) / 2;
```

```
int  BinSearch(char name[][20], char nm[])
{
    int  low, high, mid;
    low = 0;
    high = N - 1;
    while (low <= high){
        mid = (high + low) / 2;
        if(strcmp(nm,name[mid])>0)
            low=mid+1;
        else if(strcmp(nm,name[mid])<0)
            high=mid-1;
        else
            return(mid) ;
    }
}
```

```
int  BinSearch(char name[][20], char nm[])
{
    int  low, high, mid;
    low = 0;
    high = N - 1;
    while (low <= high){
        mid = (high + low) / 2;
        if(strcmp(nm,name[mid])>0)
            low=mid+1;
        else if(strcmp(nm,name[mid])<0)
            high=mid-1;
        else
            return(mid) ;
    }
    return(-1);
}
```

```
int main()
{
    char name[N][20];
    char str[20];
    int i,j;
    cout<<"请输入联系人姓名: ";
    for(i=0;i<N;i++)
        cin>>name[i];
```



```
int main()
{
    char name[N][20];
    char str[20];
    int i,j;
    cout<<"请输入联系人姓名: ";
    for(i=0;i<N;i++)
        cin>>name[i];
    DataSort(name);
    cout<<"通讯录中升序排列的名字: ";
    for(i=0;i<N;i++)
        cout<<name[i]<<" ";
```

```
int main()
{
    char name[N][20];
    char str[20];
    int i,j;
    cout<<"请输入联系人姓名: ";
    for(i=0;i<N;i++)
        cin>>name[i];
    DataSort(name);
    cout<<"通讯录中升序排列的名字: ";
    for(i=0;i<N;i++)
        cout<<name[i]<<" ";
    cout<<endl<<"请输入你要找的名字:";
    cin>>str;
```

```
int main()
{
    char name[N][20];
    char str[20];
    int i,j;
    cout<<"请输入联系人姓名: ";
    for(i=0;i<N;i++)
        cin>>name[i];
    DataSort(name);
    cout<<"通讯录中升序排列的名字: ";
    for(i=0;i<N;i++)
        cout<<name[i]<<" ";
    cout<<endl<<"请输入你要找的名字:";
    cin>>str;
    j=BinSearch(name,str);
```

# 小结

交换排序

折半查找

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## 小结

交换排序

折半查找

## 延伸

请调研手机通讯录的所有特征，完善手机通讯录，请编写代码实现。