Phill-CPP-0405

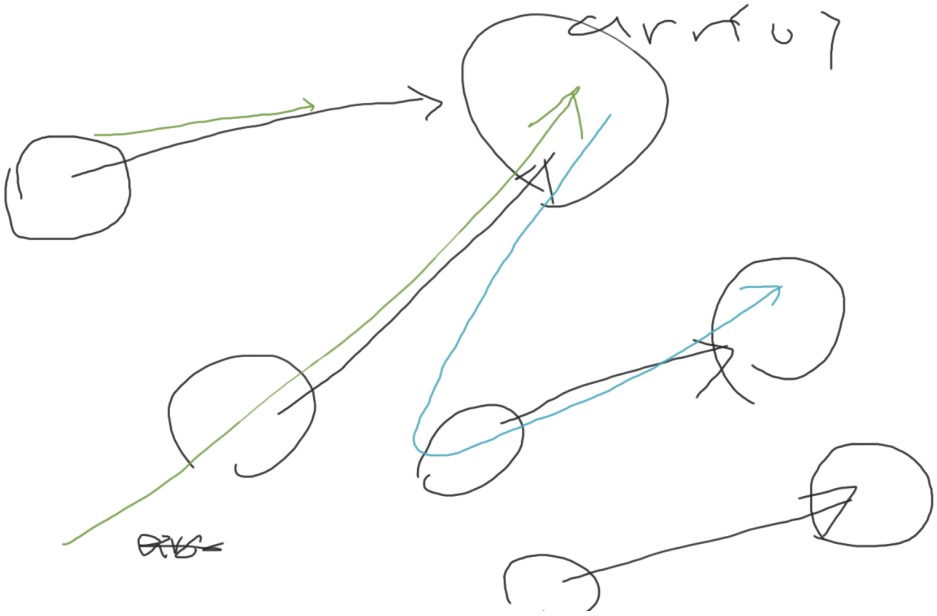
練習

用指標 計算陣列中的大小

- 指標 接受陣列元素地址
- 最大 最小 → pointers *2

→ int arr[] = {3,5,2,7,1,8};

- put address → pointer
- put value via pointer → address



```
#include <iostream>
using namespace std;

int main()
{
    int arr[] ={3,5,2,7,1,8};
    // int b = 3;
    // cout << &b <<endl;
    // cout << arr;
    int size = sizeof(arr)/sizeof(arr[0]); //元素數量
    // cout << size ;

    int min, max;

    int *p_min=&min, *p_max=&max;
```

```
    *p_min=arr[0];
    *p_max=arr[0];

    for(int i=1; i<size; i++){
      //cout << "i=" << i << " value=" << arr[i] <<endl;
      //cout << "----------"<< endl;
      //cout << arr[i] << ",*p_min:" << *p_min << ",*p_max" << *p_max<<endl;
      if(arr[i] < *p_min){
        //cout <<"changed!" <<endl;
        *p_min = arr[i]; //give a value
      }
      if(arr[i] > *p_max){
        *p_max = arr[i];
      }
    }

    cout << "maximum=" << *p_max << "; minimum=" << *p_min;

    return 0;
}
```

pointer 使用時機

函式 function

called by value

```
#include <iostream>
using namespace std;

void sum(int a, int b , int c){
    c = a+b;
    cout <<" in function-> "<< c <<endl;
}


int main() {
    // Write C++ code here
    int total;
    sum(1,2, total);
    cout << "in main:"<< total;

    return 0;
}
```

用 pointer 傳遞參數 改變數值

```
#include <iostream>
using namespace std;

void sum(int a, int b , int *c){
```

```
    *c = a+b;
    cout <<" in function-> "<< *c <<endl;
}


int main() {
    // Write C++ code here
    int total;
    int *p_total=&total;
    sum(1,2, p_total);
    cout << "in main:"<< total;

    return 0;
}
```

pointer 幫助函式多參數的修改

```
#include <iostream>
using namespace std;

void findMinMax(int *arr, int size, int *min, int *max){
    *min = *max = arr[0];

    for(int i=1; i<size; i++){
      if(arr[i] < *min){
        *min = arr[i]; //give a value
      }
      if(arr[i] > *max){
        *max = arr[i];
      }
    }
}

int main()
{
    int arr[] ={3,5,2,7,1,8};
    int size = sizeof(arr)/sizeof(arr[0]); //元素數量
    int min, max;

    findMinMax(arr, size, &min, &max);
    cout << "maximum=" << max << "; minimum=" << min;

    return 0;
}
```