計算機韌體實驗（P13）
大理石在哪兒?/Where is the Marble?

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解題要訣 (1/2)

- 先排序

```
25      while(scanf("%d %d", &N, &Q) == 2 && N){
26          vector<int> a; //block scope
27          printf("CASE# %d:\n", ++kase);
28          for(i=0; i<N; i++){
29              scanf("%d", &Z);
30              a.push_back(Z); Member Function
31          }
32
33          sort(a.begin(), a.end());Member Function
                        :
                        :
44      }
```

block scope:
a is valid during while{…},
lines 25…44

解題要訣 (2/2)

- 再搜尋

```
35          while(Q--){
36              scanf("%d", &Z);
37              p = lower_bound(a.begin(), a.end(), Z) - a.begin(); //lower_bound() 尋找大於或等於Z的
    第一個位置                                                          Lib.
38              if(p < a.size() && a[p] == Z){
39                  printf("%d found at %d\n", Z, p+1);
40              }else{
41                  printf("%d not found\n", Z);
42              }
43          }
```

Member Functions (1/2)

- void vector::push_back(const <*T*> &*val*);
  - Add a new element at the end of the vector, after its current last element
  - The content of *val* is copied to the new element
  - The size of the vector is increased by one

Member Functions (2/2)

- <*T*> *vector::begin()
  - Return a pointer to the first element in the vector
- <*T*> *vector::end()
  - Return a pointer to the *past-the-end* element in the vector, not be dereferenced

Lib. Functions

- <*T*> * lower_boud(*pointerA* to the first element,
  pointerB to the last element,
  const <*T*> &*val*);
  - Defined in <algorithm>
  - Return a pointer to the first element in the range [*pointerA*, *pointerB*) which not less than *val*
  - Cf. <*T*> *upper_bound(…)
    - Return a pointer to the first element which greater than *val*