

Code คลงกรรม เจริญกรรมกิจ 65090500415

```
#include <bits/stdc++.h>
```

```
using namespace std;
```

```
struct Scoreboard {  
    string name;  
    double score;  
    Scoreboard* prev;  
    Scoreboard* next;  
};
```

```
class ScoreboardList {  
    Scoreboard* head;  
    Scoreboard* tail;  
    int size;  
public:  
    ScoreboardList() {  
        head = NULL;  
        tail = NULL;  
        size = 0;  
    }  
    void add(string name, double score) {  
        Scoreboard* newScoreboard = new Scoreboard;  
        newScoreboard->name = name;  
        newScoreboard->score = score;  
        newScoreboard->prev = NULL;  
        newScoreboard->next = NULL;  
        if (head == NULL) {  
            head = newScoreboard;  
            tail = newScoreboard;  
        } else {  
            tail->next = newScoreboard;  
            newScoreboard->prev = tail;  
            tail = newScoreboard;  
        }  
        size++;  
    }  
    Scoreboard* get(string name) {
```

```

Scoreboard* current = head;
while (current != NULL) {
    if (current->name == name) {
        return current;
    }
    current = current->next;
}
return NULL;
}

Scoreboard* get(int index) {
    Scoreboard* current = head;
    for (int i = 0; i < index; i++) {
        current = current->next;
    }
    return current;
}

int getSize() {
    return size;
}

void sort() {
    for (int i = 0; i < size; i++) {
        for (int j = 0; j < size - 1; j++) {
            if (get(j)->score > get(j + 1)->score) {
                double tempScore = get(j)->score;
                string tempName = get(j)->name;
                get(j)->score = get(j + 1)->score;
                get(j)->name = get(j + 1)->name;
                get(j + 1)->score = tempScore;
                get(j + 1)->name = tempName;
            }
        }
    }
}

void print() {
    Scoreboard* current = head;
    while (current != NULL) {
        cout << current->name << " " << current->score << endl;
        current = current->next;
    }
}

```

```
};
```

```
void printScoreboardList(ScoreboardList scoreboardList) {  
    for (int i = 0; i < scoreboardList.getSize(); i++) {  
        cout << scoreboardList.get(i)->name << " " << scoreboardList.get(i)->score << endl;  
    }  
}
```

```
string newname;  
double newscore;
```

```
int main() {  
    ScoreboardList scoreboardList;  
    scoreboardList.add("A", 40);  
    scoreboardList.add("B", 100);  
    scoreboardList.add("C", 60);  
    scoreboardList.add("D", 80);  
    scoreboardList.add("E", 20);  
    scoreboardList.add("F", 10);  
    scoreboardList.add("G", 70);  
    scoreboardList.add("H", 90);  
    scoreboardList.add("I", 30);  
    scoreboardList.add("J", 50);  
    cout << endl;  
    scoreboardList.sort();  
    scoreboardList.print();  
    cout << "Enter new name and score \n";  
    cin >> newname;  
    cin >> newscore;  
    scoreboardList.add(newname, newscore);  
    cout << "\n";  
    scoreboardList.sort();  
    scoreboardList.print();  
    cout << endl;  
}
```

Output

```
F 10
E 20
I 30
A 40
J 50
C 60
G 70
D 80
H 90
B 100
Enter new name and score
Z 0

Z 0
F 10
E 20
I 30
A 40
J 50
C 60
G 70
D 80
H 90
B 100
```