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INSTITUTE OF TECHNOLOGY

DHULE (M.S.)

DEPARTMENT OF COMPUTER ENGINEERING

Subject: Competitive Programming Lab (BTCOL606)

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Date :

Title : Problem 6:Write a Program to implement Shoemaker' s Problem.

Remark

Signature

Code:

```
// MOHAMMAD_ANAS_31_TY_COMP
```

```
#include <iostream>
```

```
#include <algorithm>
```

```
using namespace std;
```

```
const int MAX = 1000;
```

```
int time[MAX], fine[MAX], index[MAX];
```

```
bool compare(int i, int j) {
```

```
    // Compare based on fine[i] * time[j] vs fine[j] * time[i]
```

```
    // to avoid floating point division
```

```
    if (fine[i] * time[j] == fine[j] * time[i])
```

```
        return i < j;
```

```
    return fine[i] * time[j] > fine[j] * time[i];  
}
```

```
int main() {  
    int T;  
    cin >> T;  
    string temp;  
    getline(cin, temp); // consume newline  
    getline(cin, temp); // consume blank line
```

```
    while (T--) {  
        int N;  
        cin >> N;  
  
        for (int i = 0; i < N; i++) {  
            cin >> time[i] >> fine[i];  
            index[i] = i; // store job number (0-based)  
        }
```

```
        sort(index, index + N, compare);
```

```
        for (int i = 0; i < N; i++) {  
            cout << (index[i] + 1);  
            if (i != N - 1) cout << " ";  
        }
```

```
cout << "\n";
```

```
if (T) cout << "\n";
```

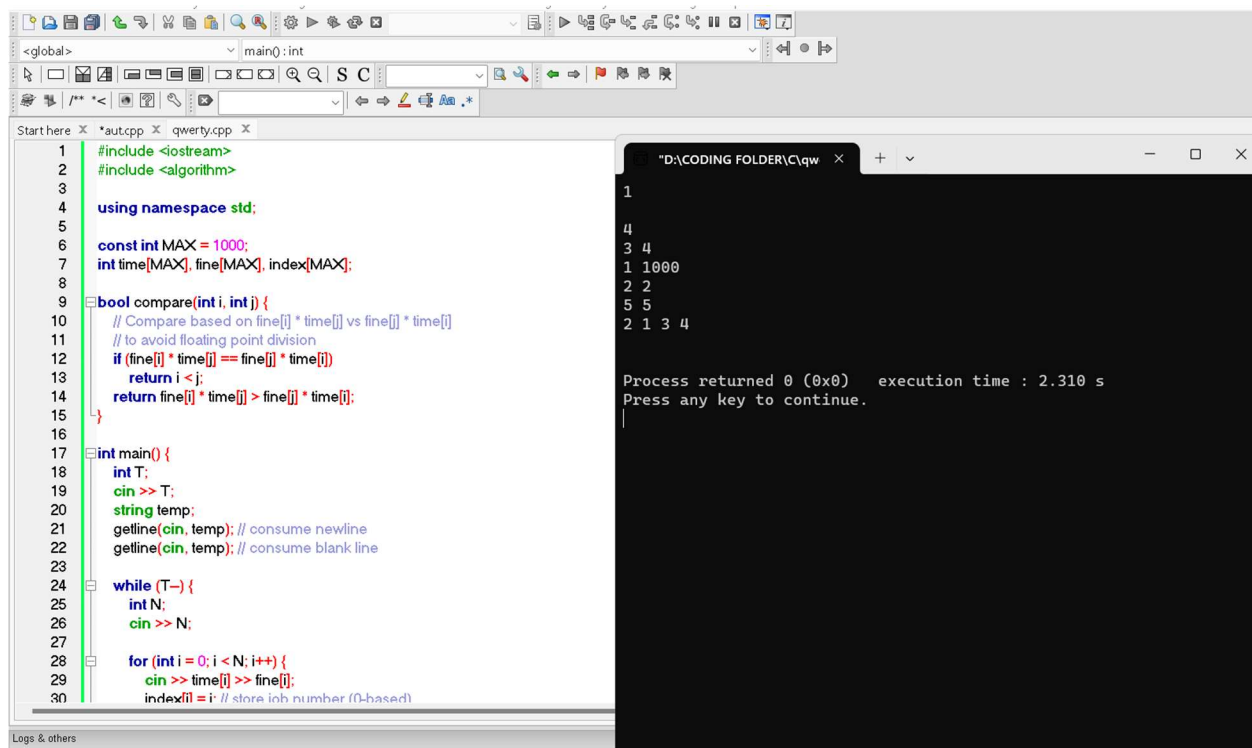
```
getline(cin, temp); // consume newline
```

```
getline(cin, temp); // consume blank line
```

```
}
```

```
return 0;
```

}Output:



The screenshot shows a C++ IDE with a source file named `qwerty.cpp` and a terminal window. The source code implements a sorting algorithm with a `compare` function and a `main` function that reads input and prints the sorted output. The terminal shows the output of the program, which is a list of numbers: 1, 4, 3, 4, 1, 1000, 2, 2, 5, 5, 2, 1, 3, 4. Below the output, the terminal displays the message "Process returned 0 (0x0) execution time : 2.310 s Press any key to continue."

```
1 #include <iostream>
2 #include <algorithm>
3
4 using namespace std;
5
6 const int MAX = 1000;
7 int time[MAX], fine[MAX], index[MAX];
8
9 bool compare(int i, int j) {
10     // Compare based on fine[i] * time[j] vs fine[j] * time[i]
11     // to avoid floating point division
12     if (fine[i] * time[j] == fine[j] * time[i])
13         return i < j;
14     return fine[i] * time[j] > fine[j] * time[i];
15 }
16
17 int main() {
18     int T;
19     cin >> T;
20     string temp;
21     getline(cin, temp); // consume newline
22     getline(cin, temp); // consume blank line
23
24     while (T--) {
25         int N;
26         cin >> N;
27
28         for (int i = 0; i < N; i++) {
29             cin >> time[i] >> fine[i];
30             index[i] = i; // store job number (0-based)
31         }
32
33         sort(index, index + N, compare);
34
35         for (int i = 0; i < N; i++) {
36             cout << index[i] << " ";
37             if (i % 10 == 9) cout << "\n";
38         }
39     }
40 }
```

```
1
4
3 4
1 1000
2 2
5 5
2 1 3 4

Process returned 0 (0x0)   execution time : 2.310 s
Press any key to continue.
```