



Shri Vile Parle Kelavani Mandal's  
**INSTITUTE OF TECHNOLOGY**  
**DHULE (M.S.)**  
**DEPARTMENT OF COMPUTER ENGINEERING**

**Subject:** Competitive Programming Lab (BTCOL606)

**Name :** Mohammad Anas Aarif Baig Mirza

**Roll No. :** 31

**Class :** T.Y Comp

**Batch :** T2

**Division:** T

**Expt. No. :**03

**Date :**

**Title : Problem 2: Sales By Match**

Remark

Signature

**Code:**

```
// MOHAMMAD ANAS Student_31
#include <iostream>
#include <vector>
using namespace std;
void countPairs(const vector<int>& arr, int& paired, int& unpaired) {
    int n = arr.size();
    vector<int> visited(n, 0);
    paired = 0;
    unpaired = 0;
    for (int i = 0; i < n; i++) {
        if (visited[i] != 0) continue;
        for (int j = i + 1; j < n; j++) {
            if (arr[i] == arr[j] && visited[j] == 0) {
                paired += 1;
                visited[i] = visited[j] = -1;
                break;
            }
        }
        if (visited[i] == 0) {
            unpaired++;
            visited[i] = 1;
        }
    }
}
int main() {
```

```

int n;
cout << "Enter the size of color code array: ";
cin >> n;
vector<int> arr(n);
cout << "Enter element of color code array: ";
for (int i = 0; i < n; i++) {
    cin >> arr[i];
}
int paired, unpaired;
countPairs(arr, paired, unpaired);
cout << "Paired socks: " << paired << endl;
cout << "Unpaired socks: " << unpaired << endl;
return 0;
}
Output:

```

The screenshot displays a C++ IDE with the source code for 'sellsbymatch.cpp' on the left and a terminal window on the right showing the program's execution.

**Source Code (sellsbymatch.cpp):**

```

1  #include <iostream>
2  #include <vector>
3  using namespace std;
4
5  void countPairs(const vector<int>& arr, int& paired, int& unpaired) {
6      int n = arr.size();
7      vector<int> visited(n, 0);
8      paired = 0;
9      unpaired = 0;
10
11     for (int i = 0; i < n; i++) {
12         if (visited[i] != 0) continue;
13         for (int j = i + 1; j < n; j++) {
14             if (arr[i] == arr[j] && visited[j] == 0) {
15                 paired += 1;
16                 visited[i] = visited[j] = -1;
17                 break;
18             }
19         }
20         if (visited[i] == 0) {
21             unpaired++;
22             visited[i] = 1;
23         }
24     }
25 }

```

**Terminal Output:**

```

"D:\CODING FOLDER\C\sell x
Enter the size of color code array: 5
Enter element of color code array: 2
2
2
1
1
Paired socks: 2
Unpaired socks: 1

Process returned 0 (0x0)   execution time : 19.367 s
Press any key to continue.

```

The terminal output matches the expected results from the code: for an array of size 5 with elements [2, 2, 1, 1, ...], there are 2 pairs and 1 unpaired element.