

```

1  #include <iostream>
2  #include <unordered_map>
3  #include <string>
4
5  using namespace std;
6
7  class Dictionary
8  {
9      private:
10         unordered_map<string, string> hashTable; // Stores key-value pairs
11
12     public:
13         void insert (const string &key ,const string &value )
14         {
15             if (hashTable.find(key) != hashTable.end())
16             {
17                 cout << "Key '" << key << "' already exists. Updating its
value.\n";
18             }
19             hashTable[key] = value ;
20             cout << "Inserted/Updated: (" << key << ", " << value <<
")\n";
21         }
22
23         void find (const string &key)
24         {
25             if (hashTable.find(key) != hashTable.end( ))
26             {
27                 cout << "Found: (" << key << ", " << hashTable[key] << ") \n";
28             }
29             else
30             {
31                 cout << "'Key'" << key << "'not found .\n";
32             }
33         }
34
35         void remove (const string &key)
36         {
37             if (hashTable.erase(key))
38             {
39                 cout << "Key'" << key << "'deleted successfully.\n";
40             }
41             else
42             {
43                 cout << "Key '" << key << "'not found .\n";
44             }
45         }
46
47

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48     void display()
49     {
50         if (hashTable.empty())
51         {
52             cout << "The dictionary is empty.\n";
53         }
54         else
55         {
56             cout << "Current dictionary contents:\n";
57
58             for (const auto &pair : hashTable)
59             {
60                 cout<<"("<<pair.first<<","<<pair.second<<")\n";
61             }
62         }
63     }
64 };
65
66 int main ()
67 {
68     Dictionary dict ;
69     int choice ;
70     string key , value ;
71
72     do {
73         cout << "\n Dictionary Operations : \n";
74         cout << "1. Insert\n";
75         cout << "2. Find\n";
76         cout << "3. Delete\n";
77         cout << "4. Display\n";
78         cout << "5. Exit\n";
79
80         cout << "Enter your chioce :";
81         cin >> choice ;
82
83         switch (choice)
84         {
85             case 1:
86                 cout << "Enter Key : ";
87                 cin >> key ;
88                 cout << "Enter value : ";
89                 cin >> value ;
90                 dict.insert (key,value);
91                 break;
92
93             case 2 :
94                 cout << "Enter key to find : ";
95                 cin >> key ;
96                 dict.find (key);
97                 break;
98

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99         case 3 :
100             cout << "Enter key to delete : ";
101             cin >> key ;
102             dict.remove (key);
103             break;
104
105         case 4:
106             dict.display();
107             break;
108
109
110         case 5:
111             cout << "Exiting program.\n";
112             break;
113
114         default:
115             cout << "Invalid chice . Please try again .\n";
116     }
117 }
118 while (choice  $\neq$  5 );
119 return 0 ;
120 }

```

## Output:

```
Select D:\SE Computer\LAB CODES\DSA\DSA2.exe

Dictionary Operations :
1. Insert
2. Find
3. Delete
4. Display
5. Exit
Enter your choice: 1
Enter Key: Name
Enter Value: Shiv
Inserted/Updated: (Name, Shiv)

Dictionary Operations :
1. Insert
2. Find
3. Delete
4. Display
5. Exit
Enter your choice: 1
Enter Key: Age
Enter Value: 20
Inserted/Updated: (Age, 20)

Dictionary Operations :
1. Insert
2. Find
3. Delete
4. Display
5. Exit
Enter your choice: 1
Enter Key: Class
Enter Value: SE
Inserted/Updated: (Class, SE)

Dictionary Operations :
1. Insert
2. Find
3. Delete
4. Display
5. Exit
Enter your choice: 1
Enter Key: Div
Enter Value: C
Inserted/Updated: (Div, C)

Dictionary Operations :
1. Insert
2. Find
3. Delete
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3. Delete
4. Display
5. Exit
Enter your choice: 3
Enter key to delete: class
Key 'class' not found.

Dictionary Operations :
1. Insert
2. Find
3. Delete
4. Display
5. Exit
Enter your choice: 3
Enter key to delete: Class
Key 'Class' deleted successfully.

Dictionary Operations :
1. Insert
2. Find
3. Delete
4. Display
5. Exit
Enter your choice: 2
Enter key to find: Name
Found:(Name,Shiv)

Dictionary Operations :
1. Insert
2. Find
3. Delete
4. Display
5. Exit
Enter your choice: 4
Current dictionary contents:
(Age, 20)
(Div, C)
(Name, Shiv)

Dictionary Operations :
1. Insert
2. Find
3. Delete
4. Display
5. Exit
Enter your choice: 5
Exiting program.
```

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