

C:\Users\Admin\Desktop\1BM24CS164\lab10.exe

Enter hash table size (m): 4

1. Insert
2. Search
3. Display
4. Exit

Enter your choice: 1

Enter 4-digit employee key: 2332

Key 2332 inserted at address 0

1. Insert
2. Search
3. Display
4. Exit

Enter your choice: 1

Enter 4-digit employee key: 2333

Key 2333 inserted at address 1

1. Insert
2. Search
3. Display
4. Exit

Enter your choice: 1

Enter 4-digit employee key: 2334

Key 2334 inserted at address 2

1. Insert
2. Search
3. Display
4. Exit

Enter your choice: 1

Enter 4-digit employee key: 2335

Key 2335 inserted at address 3

1. Insert
2. Search
3. Display
4. Exit

Enter your choice: 3

Hash Table:

Address 0 : 2332

Address 1 : 2333

Address 2 : 2334

Address 3 : 2335

1. Insert
2. Search
3. Display
4. Exit

Enter your choice: 2

Enter key to search: 2333

Key 2333 found at address 1

1. Insert
2. Search
3. Display
4. Exit

Enter your choice: 4

Exiting...

Process returned 0 (0x0) execution time : 38.507 s

Press any key to continue.

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Type here to search



18°C Sunny



ENG
IN

10.49.56 AM
15-12-2025



```
33 int startIndex = index;
34 while (HT[index].used) {
35     if (HT[index].key == key) {
36         printf("Key %d found at address %d\n", key, index);
37         return;
38     }
39     index = (index + 1) % m;
40     if (index == startIndex)
41         break;
42 }
43 printf("Key %d not found\n", key);
44 }
45 void display() {
46     printf("\nHash Table:\n");
47     for (int i = 0; i < m; i++) {
48         if (HT[i].used)
49             printf("Address %d : %d\n", i, HT[i].key);
50         else
51             printf("Address %d : EMPTY\n", i);
52     }
53 }
54 int main() {
55     int choice, key;
56     printf("Enter hash table size (m): ");
57     scanf("%d", &m);
58     initTable();
59     do {
60         printf("\n1. Insert\n2. Search\n3. Display\n4. Exit\n");
61         printf("Enter your choice: ");
62         scanf("%d", &choice);
63         switch (choice) {
64             case 1:
65                 printf("Enter 4-digit employee key: ");
66                 scanf("%d", &key);
67                 insert(key);
68                 break;
69             case 2:
70                 printf("Enter key to search: ");
71                 scanf("%d", &key);
72                 search(key);
73                 break;
74             case 3:
75                 display();
76                 break;
77             case 4:
78                 printf("Exiting...\n");
79                 break;
80             default:
81                 printf("Invalid choice\n");
82         }
83     } while (choice != 4);
84     return 0;
85 }
86
```

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```
1  #include <stdio.h>
2  #define MAX 100
3  struct Employee {
4      int key;
5      int used;
6  };
7  struct Employee HT[MAX];
8  int m;
9  void initTable() {
10     for (int i = 0; i < m; i++) {
11         HT[i].used = 0;
12     }
13 }
14 int hashFunction(int key) {
15     return key % m;
16 }
17 void insert(int key) {
18     int index = hashFunction(key);
19     int startIndex = index;
20     while (HT[index].used) {
21         index = (index + 1) % m;
22     }
23     if (index == startIndex) {
24         printf("Hash table is full. Cannot insert %d\n", key);
25         return;
26     }
27     HT[index].key = key;
28     HT[index].used = 1;
29     printf("Key %d inserted at address %d\n", key, index);
30 }
31 void search(int key) {
32     int index = hashFunction(key);
33     int startIndex = index;
34     while (HT[index].used) {
35         if (HT[index].key == key) {
36             printf("Key %d found at address %d\n", key, index);
37             return;
38         }
39         index = (index + 1) % m;
40         if (index == startIndex)
41             break;
42     }
43     printf("Key %d not found\n", key);
44 }
45 void display() {
46     printf("\nHash Table:\n");
47     for (int i = 0; i < m; i++) {
48         if (HT[i].used)
49             printf("Address %d : %d\n", i, HT[i].key);
50         else
51             printf("Address %d : EMPTY\n", i);
52     }
53 }
54 int main() {
```

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