

linearprob.c - Code::Blocks 20.03

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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     }
```

Activate Windows
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C:\Users\Admin\Desktop\linearprob.c

C/C++

Windows (CR+LF)

WINDOWS-1252

Line 79, Col 8, Pos 1609

Insert

Read/Write

default



Type here to search



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<global> main(): int

singly linked list

Management

Projects Files FSymbols

Workspace

```
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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C/C++ Windows (CR+LF) WINDOWS-1252 Line 79, Col 8, Pos 1609 Insert Read/Write default

C:\Users\Admin\Desktop\linearprob.c

Type here to search

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C:\Users\Admin\Desktop\linearprob.exe

Enter hash table size (m): 4

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

Enter your choice: 1

Enter 4-digit employee key: 2222

Key 2222 inserted at address 2

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

Enter your choice: 1

Enter 4-digit employee key: 3333

Key 3333 inserted at address 1

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

Enter your choice: 1

Enter 4-digit employee key: 4444

Key 4444 inserted at address 0

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

Enter your choice: 3

Hash Table:

Address 0 : 4444

Address 1 : 3333

Address 2 : 2222

Address 3 : EMPTY

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

Enter your choice: 2

Enter key to search: 2222

Key 2222 found at address 2

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

Enter your choice: 4

Exiting...

Process returned 0 (0x0) execution time : 28.547 s

Press any key to continue.

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