Implementation of hash table with overflow handling technique

Program

```
#include <stdio.h>
#include<stdlib.h>
#define TABLE_SIZE 5
int h[TABLE_SIZE]={0};
void insert()
{
int key,index,i,flag=0,hkey;
printf("\nEnter a value to insert into hash table\n");
scanf("%d",&key);
hkey=key%TABLE_SIZE;
for(i=0;i<TABLE_SIZE;i++)
{
index=(hkey+i)%TABLE_SIZE;
if(h[index] == 0)
{
h[index]=key;
break;
}
}
if(i == TABLE_SIZE)
printf("\nElement cannot be inserted!!\n");
}
void search()
{
int key,index,i,flag=0,hkey;
printf("\nEnter search element\n");
scanf("%d",&key);
hkey=key%TABLE_SIZE;
for(i=0;i<TABLE_SIZE; i++)
{
index=(hkey+i)%TABLE_SIZE;
if(h[index]==key)
{
printf("Value is found at index %d",index);
break;
}
}
if(i == TABLE_SIZE)
printf("\n Value is not found\n");
}
void display()
{
int i;
```

```
printf("\nElements in the hash table are \n");
for(i=0;i< TABLE_SIZE; i++)
printf("\nat index %d \t value =  %d",i,h[i]);
}
int main()
{
int opt,i;
while(1)
{
printf("\nPress 1. Insert\t 2. Display \t3. Search \t4.Exit \n");
scanf("%d",&opt);
switch(opt)
{
case 1:
insert();
break;
case 2:
display();
break;
case 3:
search();
break;
case 4:exit(0);
}
}
}
```

Output

```
csea1@student-Veriton-M200-H81: ~/indrajith
csea1@student-Veriton-M200-H81:~/indrajith$ gcc hashtable.c
csea1@student-Veriton-M200-H81:~/indrajith$ ./a.out

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

Enter a value to insert into hash table
5

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

Enter a value to insert into hash table
17

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

Enter a value to insert into hash table
4

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

Enter a value to insert into hash table
21

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

Enter a value to insert into hash table
14

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

Enter a value to insert into hash table
9

Element cannot be inserted!!

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

Elements in the hash table are

at index 0       value =  5
at index 1       value =  21
at index 2       value =  17
at index 3       value =  14
at index 4       value =  4
Press 1. Insert  2. Display     3. Search       4.Exit
3

Enter search element
21
Value is found at index 1
Press 1. Insert  2. Display     3. Search       4.Exit
3

Enter search element
7

 Value is not found

Press 1. Insert  2. Display     3. Search       4.Exit
4
csea1@student-Veriton-M200-H81:~/indrajith$
```