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Batch-A2

```c
#include<stdio.h>

int max=1000;

struct hashtable{
   int key;
   int val;
   int flag;
} table[1000];



int hashcode(int key){
   return (key%max);
}

int insert(int key, int val){
   int hash=hashcode(key);
   if(table[hash].flag==0){
       table[hash].val=val;
       table[hash].key=key;
       table[hash].flag=1;
       return 1;
   }
   else{
       int i=1;
       while(table[(hash+1)%max].flag!=1){
           hash=(hash+1)%max;
       }
       table[(hash+i+1)%max].val=val;
       table[(hash+i+1)%max].key=key;
       table[(hash+i+1)%max].flag=1;
       return 1;
   }
}
```

```
int search(int key){
   int hash=hashcode(key);
   if(table[hash].flag==0){
       return -1;
   }
   if(table[hash].key==key){
       return table[hash].val;
   }
   else{
       int i=1;
       while(table[(hash+1)%max].key!=key){
           hash=(hash+1)%max;
       }
       return table[(hash+1)%max].val;
   }

}

int main(){

   int choice=0;
   while(choice!=3){
       printf("1. Insert an element\n2. Search an element\n3. Exit\nEnter
your choice: ");
       scanf("%d",&choice);
       if(choice==1){
           int key,value;
           printf("Enter the key and value you want to insert: ");
           scanf("%d%d",&key,&value);
           insert(key,value);
       }
       else if(choice==2){
           int key;
           printf("Enter the key of the element you want to search: ");
           scanf("%d",&key);
           int x=search(key);
           if(x!=-1) printf("Value: %d\n",x);
           else printf("Key not found\n");
       }
       else if(choice==3){
```

```
            continue;
        }
        else{
            printf("Invalid choice");
        }
    }
}
```

```
● → d:\testing ./a.out
 1. Insert an element
 2. Search an element
 3. Exit
 Enter your choice: 1
 Enter the key and value you want to insert: 1000 50
 1. Insert an element
 2. Search an element
 3. Exit
 Enter your choice: 1
 Enter the key and value you want to insert: 2000 60
 1. Insert an element
 2. Search an element
 3. Exit
 Enter your choice: 2
 Enter the key of the element you want to search: 2000
 Value: 60
 1. Insert an element
 2. Search an element
 3. Exit
 Enter your choice: 2
 Enter the key of the element you want to search: 50
 Key not found
 1. Insert an element
 2. Search an element
 3. Exit
 Enter your choice: 1
 Enter the key and value you want to insert: 1005 80
 1. Insert an element
 2. Search an element
 3. Exit
 Enter your choice: 1
 Enter the key and value you want to insert: 5 90
 1. Insert an element
 2. Search an element
 3. Exit
 Enter your choice: 2
 Enter the key of the element you want to search: 5
 Value: 90
 1. Insert an element
 2. Search an element
 3. Exit
 Enter your choice: 2
 Enter the key of the element you want to search: 1005
 Value: 80
 1. Insert an element
 2. Search an element
 3. Exit
```

```
➜  d:\testing ./a.out
 1. Insert an element
 2. Search an element
 3. Exit
 Enter your choice: 1
 Enter the key and value you want to insert: 1002 50
 1. Insert an element
 2. Search an element
 3. Exit
 Enter your choice: 1
 Enter the key and value you want to insert: 2 80
 1. Insert an element
 2. Search an element
 3. Exit
 Enter your choice: 2
 Enter the key of the element you want to search: 2
 Value: 80
 1. Insert an element
 2. Search an element
 3. Exit
 Enter your choice: 3
➜  d:\testing
```