11 Yashraj Deepak Devrat

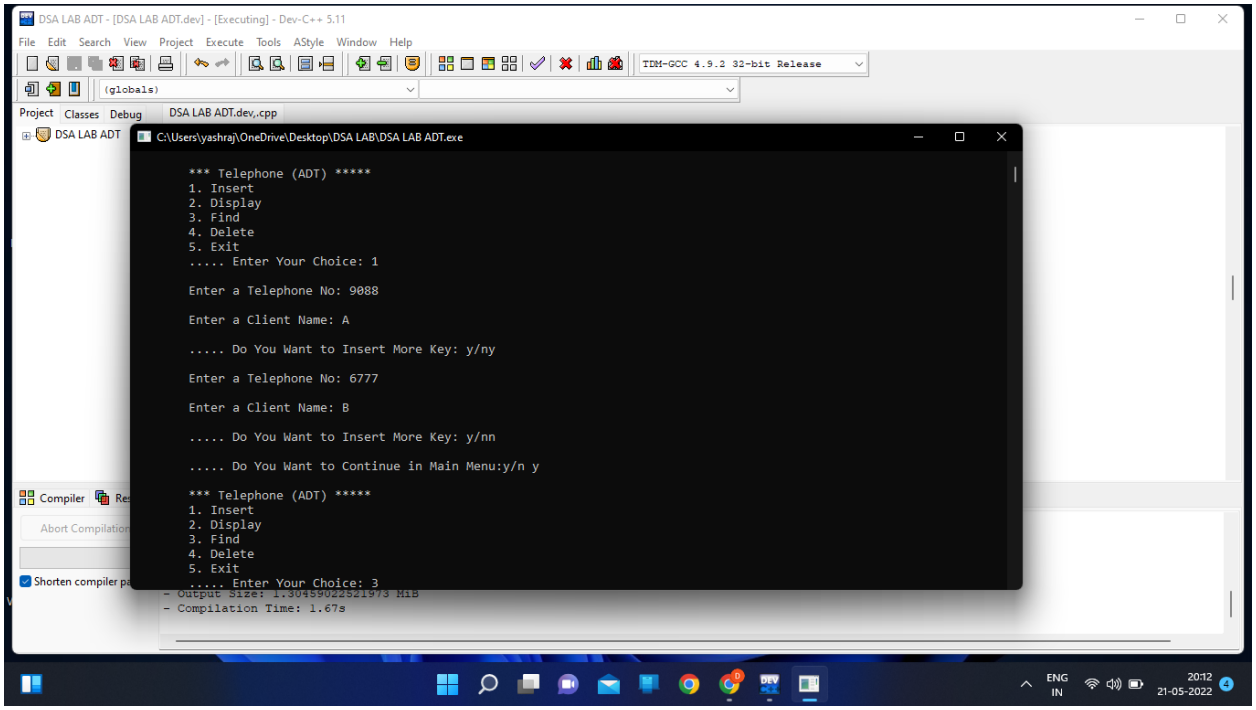
```
#include<iostream>
#include<string.h>
using namespace std;
class HashFunction
 {
         typedef struct hash
        {
                 long key;
                 char name[10];
}hash;
 hash h[10];
          public:
 HashFunction();
                 void insert();
                 void display();
                 int find(long);
 void Delete(long);
 };
HashFunction::HashFunction()
 {
        int i;
        for(i=0;i<10;i++)
         {
                 h[i].key=-1;
                 strcpy(h[i].name,"NULL");
         }
 }
void HashFunction::Delete(long k)
 {
 int index=find(k);
 if(index==-1)
         {
  cout<<"\n\tKey Not Found";
         }
```

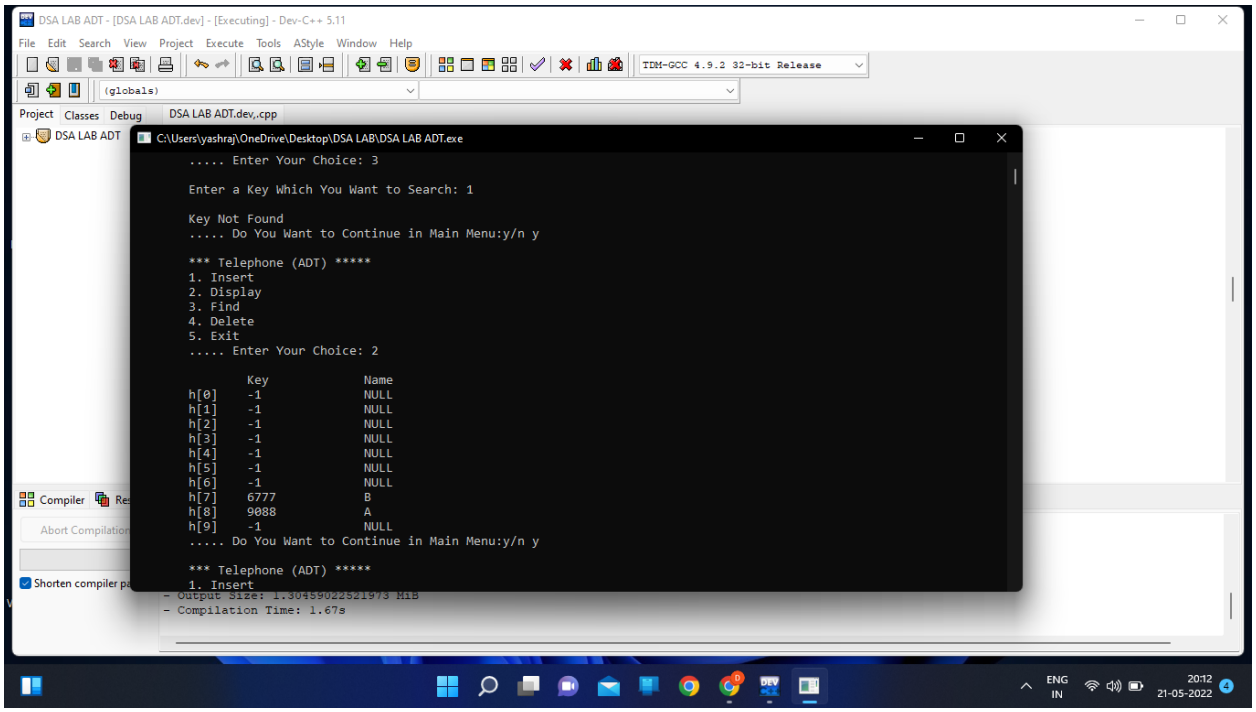
```
 else
        {
                h[index].key=-1;
                strcpy(h[index].name,"NULL");
  cout<<"\n\tKey is Deleted";
        }
  }
int HashFunction::find(long k)
  {
        int i;
        for(i=0;i<10;i++)
        {
                 if(h[i].key==k)
                {
cout<<"\n\t"<<h[i].key<<" is Found at "<<i<<" Location With Name "<<h[i].name;
                 return i;
                 }
        }
 if(i==10)
        {
                return -1;
   }
  }
void HashFunction::display()
  {
        int i;
        cout<<"\n\t\tKey\t\tName";
        for(i=0;i<10;i++)
         {
                 cout<<"\n\th["<<i<<"]\t"<<h[i].key<<"\t\t"<<h[i].name;
         }
  }
void HashFunction::insert()
  {
        char ans,n[10],ntemp[10];
        long k,temp;
 int v,hi,cnt=0,flag=0,i;
```

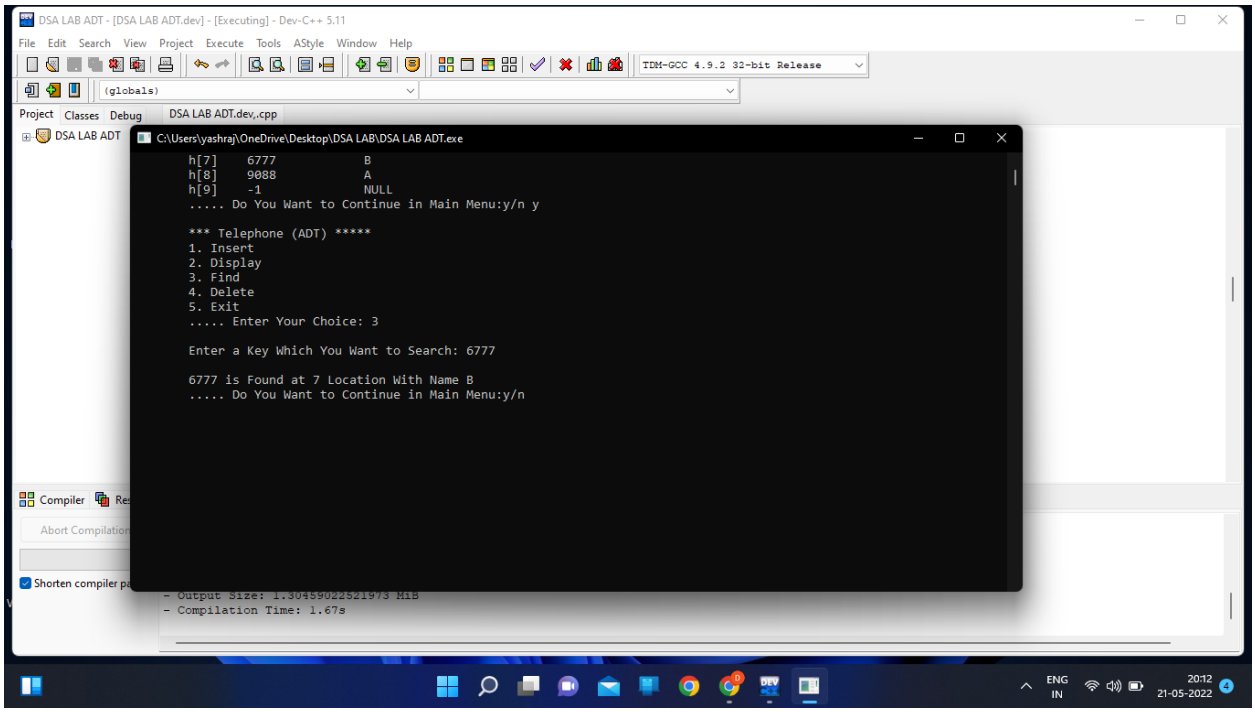
```
do
        {
                 if(cnt>=10)
                {
                        cout<<"\n\tHash Table is FULL";
                        break;
                 }
                cout<<"\n\tEnter a Telephone No: ";
                 cin>>k;
                 cout<<"\n\tEnter a Client Name: ";
                 cin>>n;
                hi=k%10;// hash function
                if(h[hi].key==-1)
                  {
                        h[hi].key=k;
                         strcpy(h[hi].name,n);
                 }
                else
                {
                         if(h[hi].key%10!=hi)
                        {
                                 temp=h[hi].key;
                                strcpy(ntemp,h[hi].name);
                                h[hi].key=k;
                                strcpy(h[hi].name,n);
                                for(i=hi+1;i<10;i++)
                                 {
                                        if(h[i].key==-1)
                                         {
                                                h[i].key=temp;
                                                strcpy(h[i].name,ntemp);
                                                flag=1;
                                                break;
                                                }
                                 }
                                for(i=0;i<hi && flag==0;i++)
                                {
```

```
                        if(h[i].key==-1)
                        {
                                h[i].key=temp;
                                strcpy(h[i].name,ntemp);
                                break;
                         }
                        }
                 }
                 else
                 {
                        for(i=hi+1;i<10;i++)
                        {
                                if(h[i].key==-1)
                                 {
                                        h[i].key=k;
                                        strcpy(h[i].name,n);
                                         flag=1;
                                        break;
                                 }
                        }
                        for(i=0;i<hi && flag==0;i++)
                         {
                                if(h[i].key==-1)
                                {
                                        h[i].key=k;
                                        strcpy(h[i].name,n);
                                        break;
                                 }
                          }
                 }
           }
           flag=0;
           cnt++;
           cout<<"\n\t..... Do You Want to Insert More Key: y/n";
           cin>>ans;
     }while(ans=='y'||ans=='Y');
}
```

```
int main()
 {
long k;
int ch,index;
char ans;
HashFunction obj;
        do
         {
                cout<<"\n\t*** Telephone (ADT) *****";
               cout<<"\n\t1. Insert\n\t2. Display\n\t3. Find\n\t4. Delete\n\t5. Exit";
               cout<<"\n\t..... Enter Your Choice: ";
                cin>>ch;
                switch(ch)
               {
                        case 1:  obj.insert();
                                 break;
                        case 2: obj.display();
                                  break;
                        case 3: cout<<"\n\tEnter a Key Which You Want to Search: ";
                                 cin>>k;
                                index=obj.find(k);
                                if(index==-1)
                                 {
                                         cout<<"\n\tKey Not Found";
                                }
                                 break;
                        case 4: cout<<"\n\tEnter a Key Which You Want to Delete: ";
                                  cin>>k;
                                 obj.Delete(k);
                                 break;
                        case 5:
                                  break;
               }
               cout<<"\n\t..... Do You Want to Continue in Main Menu:y/n ";
               cin>>ans;
        }while(ans=='y'||ans=='Y');
 }
```


DSA LAB ADT - [DSA LAB ADT.dev] - [Executing] - Dev-C++ 5.11
C:\Users\yashraj\OneDrive\Desktop\DSA LAB\DSA LAB ADT.exe
*** Telephone (ADT) *****
1. Insert
2. Display
3. Find
4. Delete
5. Exit
..... Enter Your Choice: 1
Enter a Telephone No: 9088
Enter a Client Name: A
..... Do You Want to Insert More Key: y/ny
Enter a Telephone No: 6777
Enter a Client Name: B
..... Do You Want to Insert More Key: y/nn
..... Do You Want to Continue in Main Menu:y/n y
*** Telephone (ADT) *****
1. Insert
2. Display
3. Find
4. Delete
5. Exit
..... Enter Your Choice: 3
- Compilation Time: 1.67s


DSA LAB ADT - [DSA LAB ADT.dev] - [Executing] - Dev-C++ 5.11
C:\Users\yashraj\OneDrive\Desktop\DSA LAB\DSA LAB ADT.exe
..... Enter Your Choice: 3
Enter a Key Which You Want to Search: 1
Key Not Found
..... Do You Want to Continue in Main Menu:y/n y
*** Telephone (ADT) *****
1. Insert
2. Display
3. Find
4. Delete
5. Exit
..... Enter Your Choice: 2
Key Name
h[0] -1 NULL
h[1] -1 NULL
h[2] -1 NULL
h[3] -1 NULL
h[4] -1 NULL
h[5] -1 NULL
h[6] -1 NULL
h[7] 6777 B
h[8] 9088 A
h[9] -1 NULL
..... Do You Want to Continue in Main Menu:y/n y
*** Telephone (ADT) *****
1. Insert
- Compilation Time: 1.67s


DSA LAB ADT - [DSA LAB ADT.dev] - [Executing] - Dev-C++ 5.11
File Edit Search View Project Execute Tools AStyle Window Help
TDM-GCC 4.9.2 32-bit Release
(globals)
Project Classes Debug
DSA LAB ADT.dev,.cpp
DSA LAB ADT
C:\Users\yashraj\OneDrive\Desktop\DSA LAB\DSA LAB ADT.exe
h[7] 6777 B
h[8] 9088 A
h[9] -1 NULL
..... Do You Want to Continue in Main Menu:y/n y
*** Telephone (ADT) *****
1. Insert
2. Display
3. Find
4. Delete
5. Exit
..... Enter Your Choice: 3
Enter a Key Which You Want to Search: 6777
6777 is Found at 7 Location With Name B
..... Do You Want to Continue in Main Menu:y/n
Compiler
Abort Compilation
Shorten compiler pa
- Output Size: 1.30459022521973 MiB
- Compilation Time: 1.67s
ENG
IN
20:12
21-05-2022