Mid-square Hashing

```
#include<iostream>
#include<stdio.h>
using namespace std;
class A
        {
        public:
        int a[100],size,i,j,k,temp,temp2;
        void choice()
        {
      cout<<"Enter size of an Array "<<endl;
            cin>>size;      a[size];
      int ch;
      for(i=0;i<size;i++)
      {
        a[i]=0;
      }         do
      {
      cout<<"Enter your choice. 1.insertion 2.search 3.display 4.exit"<<endl;
      cin>>ch;
        switch(ch)
        {
           case 1:                  insert();
      break;
           case 2:
              search();
      break;
```

```
                                case 3:
      display();
                                break;
                           }
                  }while(ch!=4);



          }
    void insert()
    {
       /*cout<<"how many value you want to enter in and given array"<<endl;
       cin>>j;*/
       int p=0,z=0,temp2,temp3,count=0;
cout<<"Enter your data "<<endl;
          cin>>temp;

          temp2=temp*temp;            temp3=temp2;
           cout<<temp2<<endl;
while(temp3>0)
          {
             temp3=temp3/10;              count++;
          }
          cout<<"count "<<count<<endl;
                           if(count%2!=0)
      {
                                while(temp2>size)
                                {
```

```
temp2=temp2/10;
cout<<temp2<<endl;
      if(temp2<10)
      {
            cout<<temp2;
            break;
         }
         else
         {

            while(temp2>0)
            {
               z=temp2%10;                    p=p*10+z;
               temp2=temp2/10;
            }
            temp2=p;
            cout<<temp2<<endl;
         }
      }

      if(temp2<size)
      {
         while(a[temp2]!=0)
   {
      temp2++;
   if(temp2>size-1)
```

```
    {
      temp2=0;
    }
      }
    if(a[temp2]==0)
      {
        a[temp2]=temp;
        }
                }
      else if(temp2>=size)
      {
        temp2=temp2%10;                cout<<temp2<<endl;
      while(a[temp2]!=0)
           {
             temp2++;
             if(temp2>size-1)
             {
               temp2=0;
             }
           }

           if(a[temp2]==0)
           {
           a[temp2]=temp;
      }
}
```

```
            }
            else
            {
               int p=0,z=0;
            while(temp2>=100)
        {
                    temp2=temp2/10;
cout<<temp2<<endl;

            if(temp2>=100)
            {

               while(temp2>0)
               {
                  z=temp2%10;                    p=p*10+z;
                  temp2=temp2/10;
               }
               temp2=p;
               cout<<temp2<<endl;
            }
            else if(temp2<100)
            {
               int z=0,p=0;                    while(temp2>0)
               {

                        z=temp2%10;              p=p*10+z;
               temp2=temp2/10;
```

```
            }
                temp2=p;
              cout<<temp2;
                break;
            }
            }
if(temp2<size)
            {
              while(a[temp2]!=0)
              {
                temp2++;
                if(temp2>size-1)
                {
                   temp2=0;
                }
              }
              if(a[temp2]==0)
              {
                a[temp2]=temp;
              }
                      }
            else if(temp2>=size)
          {
                        temp2=temp2%10;
                cout<<temp2<<endl;            while(a[temp2]!=0)
                {
```

```
            temp2++;
               if(temp2>size-1)
            {
                  temp2=0;
               }
               }


               if(a[temp2]==0)
               {
                  a[temp2]=temp;
               }
         }
   }
}
void search()
{
   cout<<"Enter value you want to search in an given array"<<endl;
   cin>>k;
   for(i=0;i<size;i++)
   {
      if(a[i]==k)
      {
         cout<<"Value is found at "<<i<<"th Position"<<endl;
      break;
   }
```

```
                } if(a[i]!=k)
                {
      cout<<"Value is not found in an given array";
                }
   }
   void display()
   {
      cout<<"Given array is "<<endl;
for(i=0;i<size;i++)        cout<<a[i]<<endl;
   }
};
int main()
{
   A o;
   o.choice();     return
0;
}
```

Output :

```
Enter size of an Array
5
Enter your choice. 1.insertion 2.search 3.display 4.exit
1
Enter your data
10
100
count 3
10
1
Enter your choice. 1.insertion 2.search 3.display 4.exit
```

1

Enter your data

20

400

count 3

40

4

Enter your choice. 1.insertion 2.search 3.display 4.exit

1

Enter your data

30

900

count 3

90

9

0

0Enter your choice. 1.insertion 2.search 3.display 4.exit

3

Given array is

30

10

0

0

20

Enter your choice. 1.insertion 2.search 3.display 4.exit

1

Enter your data

50

2500

count 4

250

52

2

Enter your choice. 1.insertion 2.search 3.display 4.exit

3

Given array is

30

10

50

0

20

Enter your choice. 1.insertion 2.search 3.display 4.exit

2

Enter value you want to search in an given array

50

Value is found at 2th Position

Enter your choice. 1.insertion 2.search 3.display 4.exit