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ADA LAB

HASHING: LINEAR PROBING, QUADRATIC PROBING AND DOUBLE HASHING

CODE

```
#include<stdio.h>
#include<conio.h>
void linearInsert(int h[10])
{
   int key,i,hkey,index,choice;
   while(1)
   {
      printf("Enter the number:");
      scanf("%d",&key);
       hkey=key%10;
       for(i=0;i<10;i++)
       {
          index=(hkey+i)%10;
          if(h[index]==-1)
          {
             h[index]=key;
             break;
          }
       }
       if(i==10)
       {
          printf("Element cannot be inserted\n");
       }
       printf("Do you want to insert another element yes=1,no=0:");
       scanf("%d",&choice);
```

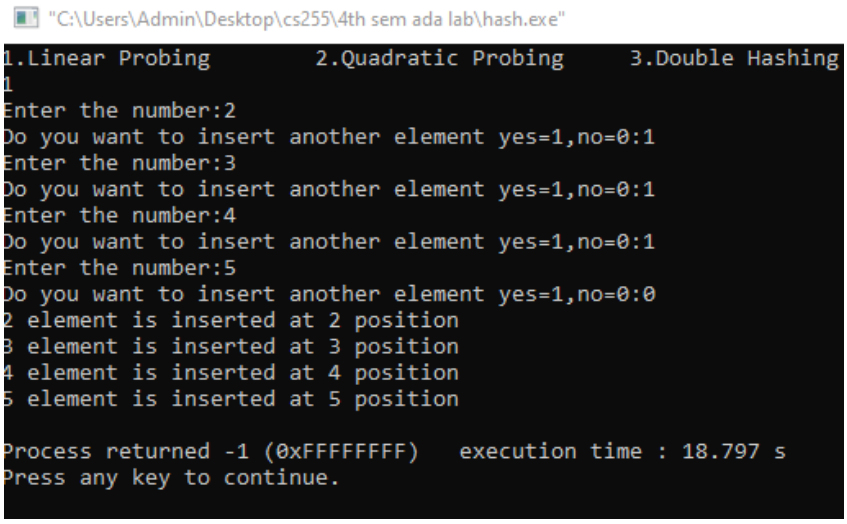
```
        if(choice==0)
            break;
    }
}
void quadraticInsert(int h[10])
{
    int key,i,hkey,index,choice;
    while(1)
    {
       printf("Enter the number:");
       scanf("%d",&key);
        hkey=key%10;
        for(i=0;i<10;i++)
        {
            index=(hkey+(i*i))%10;
            if(h[index]==-1)
            {
                h[index]=key;
                break;
            }
        }
        if(i==10)
        {
            printf("Element cannot be inserted\n");
        }
        printf("Do you want to insert another element yes=1,no=0:");
        scanf("%d",&choice);
        if(choice==0)
            break;
    }
}
```

```
void doubleHashInsert(int h[10])
{
   int key,i,hkey,index,choice,rehash;
   while(1)
   {
      printf("Enter the number:\t");
      scanf("%d",&key);
       hkey=key%10;
       rehash=7-key%7;
       for(i=0;i<10;i++)
       {
          index=(hkey+(i*rehash))%10;
          if(h[index]==-1)
          {
             h[index]=key;
             break;
          }
       }
       if(i==10)
       {
          printf("Element cannot be inserted\n");
       }
       printf("Do you want to insert another element yes=1,no=0:");
       scanf("%d",&choice);
       if(choice==0)
          break;
   }
}
void display(int h[10])
{
   for(int i=0;i<10;i++)
```

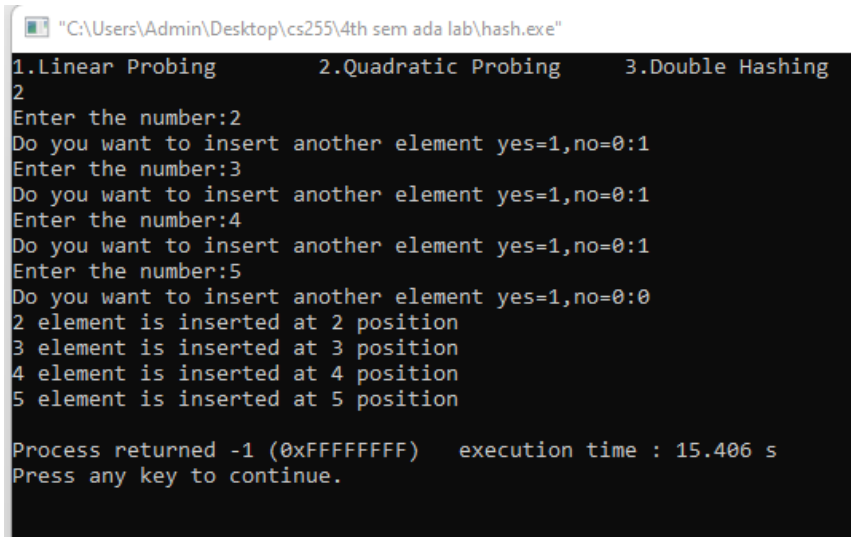
```
    {
        if(h[i]!=-1)
        {
            printf("%d element is inserted at %d position\n",h[i],i);
        }

    }
}

void main()
{
   int ch,h[10];
   for(int i=0;i<10;i++)
    {
        h[i]=-1;
    }
    printf("1.Linear Probing\t2.Quadratic Probing\t3.Double Hashing\n");
    scanf("%d",&ch);
    switch(ch)
    {
        case 1:linearInsert(h);
                break;
        case 2:quadraticInsert(h);
                break;
        case 3:doubleHashInsert(h);
                break;
        default:printf("wrong choice");
    }
 display(h);
}
```

OUTPUT

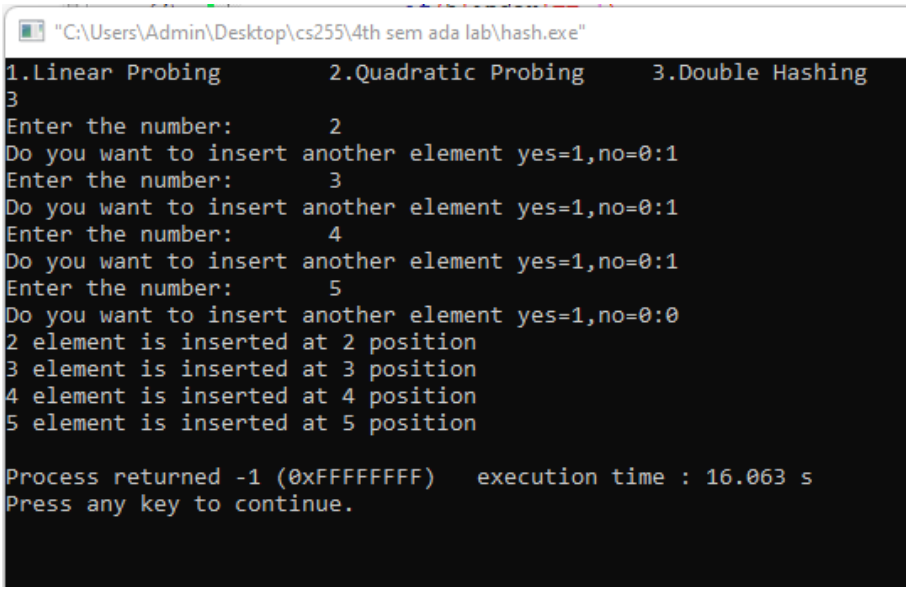
Linear probing



Quadratic probing



Double Hashing


"C:\Users\Admin\Desktop\cs255\4th sem ada lab\hash.exe"
1.Linear Probing 2.Quadratic Probing 3.Double Hashing
3
Enter the number: 2
Do you want to insert another element yes=1,no=0:1
Enter the number: 3
Do you want to insert another element yes=1,no=0:1
Enter the number: 4
Do you want to insert another element yes=1,no=0:1
Enter the number: 5
Do you want to insert another element yes=1,no=0:0
2 element is inserted at 2 position
3 element is inserted at 3 position
4 element is inserted at 4 position
5 element is inserted at 5 position
Process returned -1 (0xFFFFFFFF) execution time : 16.063 s
Press any key to continue.