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ADA LAB

HASHING: LINEAR PROBING, QUADRATIC PROBING AND DOUBLE HASHING

CODE

```
#include <stdio.h>
#include<stdlib.h>
int i,j,tsize,n,j,arr[20],hasht[20],ch,key,key1,t;
int hashh(int a){
   int i;
   i=a%20;
   return(i);
}

int probel(int a){
   int i;
   i=(a+1)%20;
   return(i);
}
int probeq(int a,int j){
   int i;
   i=(a+(j*j))%20;
   return(i);
}
int probed(int key,int val,int j){
   int i;
   i=key+j*((13-(val%13))%20);
   return(i);
```

```
}

int main()
{
   printf("Enter no of table ele \n");
   scanf("%d",&n);
   printf("Enter the ele \n");
   for(i=0;i<n;i++) {
     printf("Enter the %d th ele \n",i);
     scanf("%d",&arr[i]);
   }
   for(i=0;i<20;i++){
       hasht[i]=-1;
   }

   printf(" \n 1. Linear Probing \n 2. Quad Probing \n 3. Double hashing \n 4. Exit \n");
  printf("Enter your choice \n");
  scanf("%d",&ch);
  switch(ch) {
      case 1:
      for(i=0;i<n;i++){
       key=hashh(arr[i]);
       while(hasht[key]!=-1){
           key=probel(key);
       }
       hasht[key]=arr[i];
       printf(" \n Ele %d inserted at %d \t",arr[i],key);
      }
      break;
```

```
 case 2:
for(i=0;i<n;i++){
 key=hashh(arr[i]);
 j=1;
 key1=key;
 while(hasht[key1]!=-1){
    key1=probeq(key,j);
    j++;
 }
 hasht[key1]=arr[i];
  printf("\n Ele %d inserted at %d \t",arr[i],key1);
}
break;

case 3:
 for(t=0;t<n;t++){
 key=hashh(arr[t]);
 j=1;
 key1=key;
 while(hasht[key1]!=-1){
    key1=probed(key,arr[t],j);
    j++;
 }
 hasht[key1]=arr[t];
  printf("\n Ele %d inserted at %d %d %d \t",arr[t],key1,t,n);
}
break;
```

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        case 4:
        exit(0);
        break;

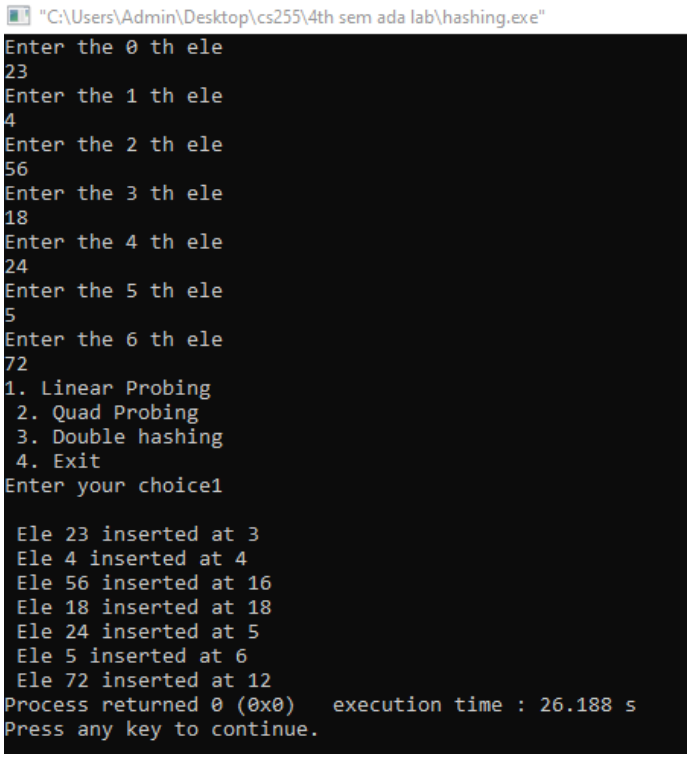
        default:
        printf("Wrong choice \n");
        break;

    }

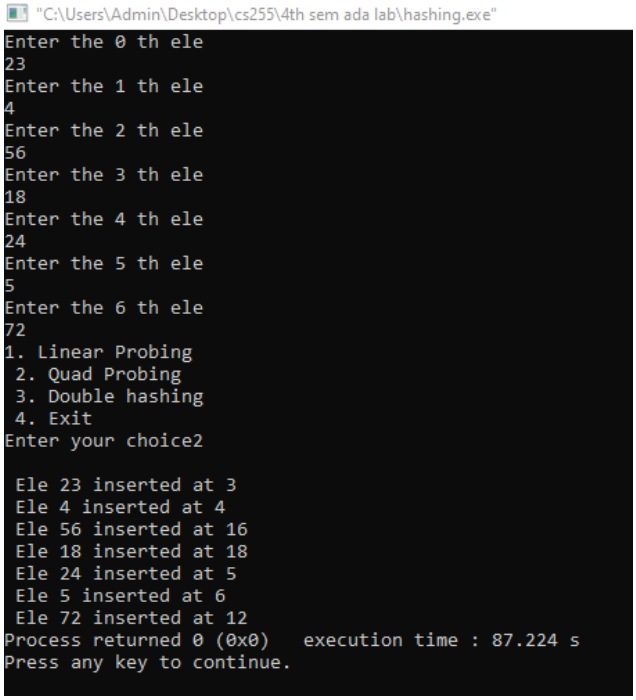
    return 0;
}
```

OUTPUT

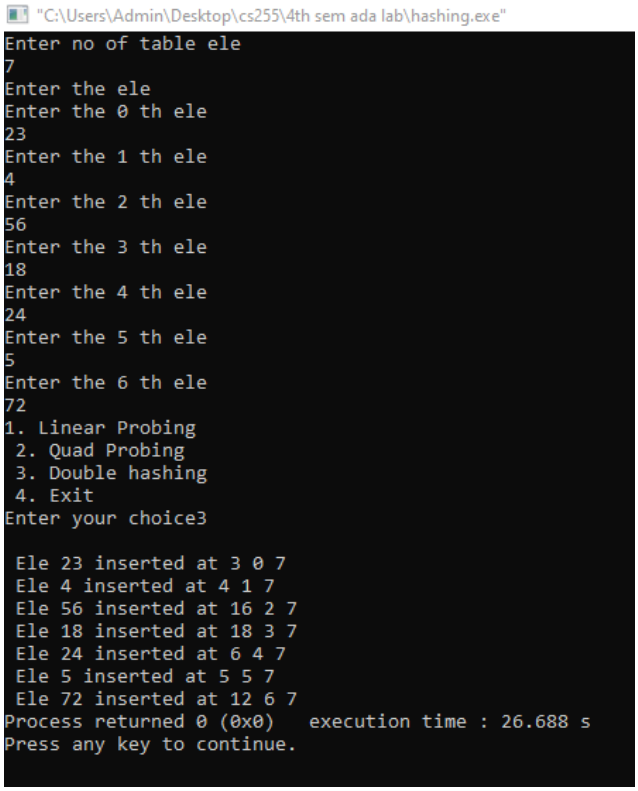
Linear probing



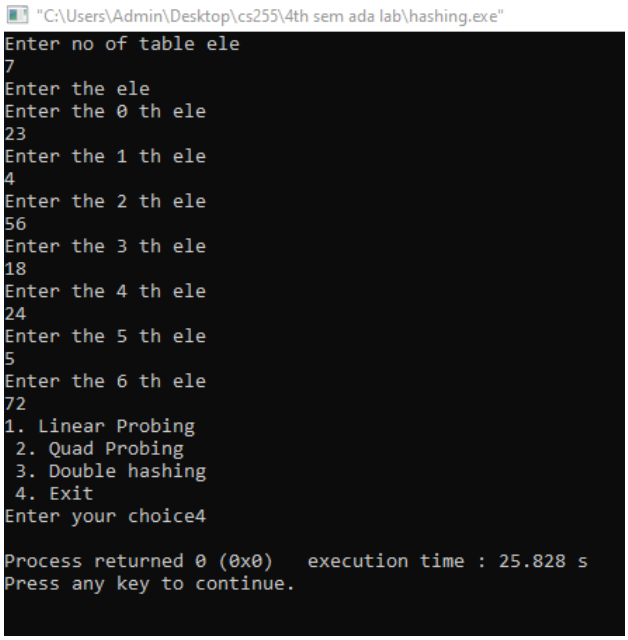
Quadratic probing



Double hashing



EXIT


"C:\Users\Admin\Desktop\cs255\4th sem ada lab\hashing.exe"
Enter no of table ele
7
Enter the ele
Enter the 0 th ele
23
Enter the 1 th ele
4
Enter the 2 th ele
56
Enter the 3 th ele
18
Enter the 4 th ele
24
Enter the 5 th ele
5
Enter the 6 th ele
72
1. Linear Probing
2. Quad Probing
3. Double hashing
4. Exit
Enter your choice4
Process returned 0 (0x0) execution time : 25.828 s
Press any key to continue.