Probing

```
#include <stdio.h>
#include<stdlib.h>
int i,j,size,n,j,arr[20],table[20],choice,key,key1,t;
int hash(int a){
   int i;
   i=a%20;
   return(i);
}

int linear(int a){
   int i;
   i=(a+1)%20;
   return(i);
}
int quadratic(int a,int j){
   int i;
   i=(a+(j*j))%20;
   return(i);
}
int main()
{
   printf("Enter no of table elements \n");
   scanf("%d",&n);
   printf("Enter the elements \n");
   for(i=0;i<n;i++) {
     printf("Enter the %d th element \n",i+1);
     scanf("%d",&arr[i]);
   }
   for(i=0;i<20;i++){
```

```
    table[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",&choice);
switch(choice) {
   case 1:
          for(i=0;i<n;i++){
           key=hash(arr[i]);
           while(table[key]!=-1){
              key=linear(key);
           }
           table[key]=arr[i];
           printf(" \n Element %d inserted at %d \t",arr[i],key);
          }
          break;

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

```
            break;



      case 3:exit(0);
          break;

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

   }

    return 0;
}
```

Output

```
Enter no of table elements
7
Enter the elements
Enter the 1 th element
20
Enter the 2 th element
40
Enter the 3 th element
60
Enter the 4 th element
65
Enter the 5 th element
87
Enter the 6 th element
90
Enter the 7 th element
45

 1. Linear Probing
 2. Quad Probing
 3. Double hashing
 4. Exit
Enter your choice
1

 Element 20 inserted at 0
 Element 40 inserted at 1
 Element 60 inserted at 2
 Element 65 inserted at 5
 Element 87 inserted at 7
 Element 90 inserted at 10
 Element 45 inserted at 6
```

```
Enter no of table elements
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 1. Linear Probing
 2. Quad Probing
 3. Double hashing
 4. Exit
Enter your choice
2

 Ele 20 inserted at 0
 Ele 40 inserted at 1
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```