**PROGRAM 12:**

Given a File of N employee records with a set K of Keys (4-digit) which uniquely determine the records in file F. Assume that file F is maintained in memory by a Hash Table (HT) of m memory locations with L as the set of memory addresses (2-digit) of locations in HT. Let the keys in K and addresses in L are Integers.

Develop a Program in C that uses Hash function H: K →L as H(K)=K mod m (remainder method), and implement hashing technique to map a given key K to the address space L. Resolve the collision (if any) using linear probing.

#include <stdio.h>

#include <stdlib.h>

#define MAX 5

#define mod(x) x%MAX

void linear\_prob(int a[],int num,int key)

{

if(a[key]==-1)

a[key]=num;

else

{

printf("\nCollision detected!!");

int i;

for(i=mod(key+1);i!=key;i=mod(++i))

if(a[i]==-1)

break;

if(i!=key)

{

printf("\nCollision avoided successfully\n");

a[i]=num;

}

else

printf("\nHash table is full\n");

}

}

void display(int a[])

{

short ch,i;

printf("\n1.Filtered display\n2.Display all\nEnter choice:");

scanf("%hd",&ch);

printf("\nHash table is :\n");

for(i=0;i<MAX;i++)

if(a[i]>0||ch-1)

printf("%d %d\n",i,a[i]);

}

int main()

{

int a[MAX],num,i;

printf("\nCollision handling by linear probing");

for(i=0;i<MAX;a[i++]=-1);

do

{

printf("\nEnter the data:");

scanf("%4d",&num);

linear\_prob(a,num,mod(num));

printf("Do u wish to continue(1/0):");

scanf("%d",&i);

}while(i);

display(a);

return 0;

}

**OUTPUT**

Collision handling by linear probing

Enter the data:5

Do u wish to continue(1/0):1

Enter the data:4

Do u wish to continue(1/0):1

Enter the data:3

Do u wish to continue(1/0):0

1.Filtered display

2.Display all

Enter choice:1

Hash table is :

0 5

3 3

4 4