12. Given a file of N employees with a set of K keys (4 digits) which uniquely determine the records in file F. Assume that file F is maintained in memory by Hash table (HT) of m memory locations with L on the set of memory address in L are integers
Develop a program in C that uses :

a . hash function H:K $\rightarrow$ L as H(K) = K mod m (remainder method)

b . Implement hashing technique to map a given key K to the address space L

c . Resolve the collision (if any) using linear probing

$\rightarrow$

```c
#include<stdio.h>
#include<stdlib.h>

int key[20],n,m,*ht,ind,i,count=0;

void insert(int key){
        ind=key%m;
        while(ht[ind]!=-1)
                ind=(ind+1)%m;
        ht[ind]=key;
        count++;
}

void display(){
        if(count==0){
                printf("\nHash Table is empty !\n");
                exit(0);
        }

        printf("\nHash Table contents are :\n");
        for(i=0;i<m;i++)
                printf("\n T[%d] --> %d ",i,ht[i]);
        printf("\n");
        printf("Total records Inserted : %d\n",count);
}

void main(){
        printf("\nEnter the number of employee records (N) : ");
        scanf("%d",&n);

        printf("\nEnter the two digit memory locations (m) for hash table : ");
        scanf("%d",&m);
        ht=(int *)malloc(m*sizeof(int));

        for(i=0;i<m;i++)
        ht[i]=-1;

        printf("\nEnter the four digit key values (K) for N Employee Records :\n");
        for(i=0;i<n;i++)
                scanf("%d",&key[i]);

        for(i=0;i<n;i++){
                if(count==m){
                        printf("\nHash table is full ! Cannot insert the record %d key",i+1);
                        break;
                }
                insert(key[i]);
        }
        display();
}
```