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// Make this Hash Table implementation to be thread-safe!
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#define SKIP_MAIN
#include "threads-list-simple.c"

#define HASH_BUCKETS (7)
typedef struct __hash_t {
    list_t hlists[HASH_BUCKETS];
    pthread_mutex_t m[HASH_BUCKETS];
} hash_t;

void Hash_Init(hash_t *H) {
    int i;
    for (i = 0; i < HASH_BUCKETS; i++) {
        List_Init(&H->hlists[i]);
    }
}

void Hash_Insert(hash_t *H, int key) {
    int b = key % HASH_BUCKETS;
    List_Insert(&H->hlists[b], key);
}

void Hash_Print(hash_t *H) {
    int i;
    for (i = 0; i < HASH_BUCKETS; i++) {
        printf("LIST %d: ", i);
        List_Print(&H->hlists[i]);
    }
}

int main(int argc, char *argv[]) {
    hash_t myhash;
    Hash_Init(&myhash);
    Hash_Insert(&myhash, 10);
    Hash_Insert(&myhash, 5);
    Hash_Insert(&myhash, 30);
    Hash_Print(&myhash);
    return 0;
}
```

```
// Make this Linked List implementation to be thread-safe!

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

typedef struct __node_t {
    int key;
    struct __node_t *next;
} node_t;

typedef struct __list_t {
    node_t *head;
} list_t;

void List_Init(list_t *L) { L->head = NULL; }

void List_Insert(list_t *L, int key) {
    node_t *new = malloc(sizeof(node_t));
    if (new == NULL) {
        perror("malloc");
        return;
    }
    new->key = key;
    new->next = L->head;
    L->head = new;
}

int List_Lookup(list_t *L, int key) {
    node_t *tmp = L->head;
    while (tmp) {
        if (tmp->key == key) return 1;
        tmp = tmp->next;
    }
    return 0;
}

void List_Print(list_t *L) {
    node_t *tmp = L->head;
    while (tmp) {
        printf("%d ", tmp->key);
        tmp = tmp->next;
    }
    printf("\n");
}

int main(int argc, char *argv[]) {
    list_t mylist;
    List_Init(&mylist);
    List_Insert(&mylist, 10);
    List_Insert(&mylist, 30);
    List_Insert(&mylist, 5);
    List_Print(&mylist);
    printf("In List: 10? %d 20? %d\n", List_Lookup(&mylist, 10),
        List_Lookup(&mylist, 20));
    return 0;
}
```