```c
#include <stdio.h>
#include <stdlib.h>
int number_instantiated = 0;
struct Node {
int value;
struct Node* next;
};
struct LinkedList {
struct Node* head;
};
void insert(struct LinkedList* list, int new_item) {
struct Node* new_node = (struct Node*)malloc(sizeof(struct Node));
new_node->value = new_item;
new_node->next = list->head;
list->head = new_node;
printf("Creating Node, %d are in existence right now\n", ++number_instantiated);
}
int remove_item(struct LinkedList* list, int item_to_remove) {
struct Node* marker = list->head;
struct Node* temp = NULL; // temp points to one behind as we iterate
while (marker != NULL) {
if (marker->value == item_to_remove) {
if (temp == NULL) { // marker is the first element in the list
list->head = marker->next;
} else {
temp->next = marker->next;
}
free(marker);
printf("Destroying Node, %d are in existence right now\n", --
number_instantiated);
return 0;
}
temp = marker;
marker = marker->next;
}
return -1; // failure
}
void print(struct LinkedList* list) {
struct Node* marker = list->head;
while (marker != NULL) {
printf("%d\n", marker->value);
```

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marker = marker->next;
}
}
void delete_nodes(struct LinkedList* list) {
struct Node* marker = list->head;
while (marker != NULL) {
struct Node* temp = marker;
marker = marker->next;
free(temp);
}
list->head = NULL; // Set head_ to NULL after deleting all nodes
}
int main(int argc, char** argv) {
struct LinkedList list;
list.head = NULL;
insert(&list, 1);
insert(&list, 2);
insert(&list, 3);
insert(&list, 4);
printf("The fully created list is:\n");
print(&list);
printf("\nNow removing elements:\n");
remove_item(&list, 4);
print(&list);
printf("\n");
remove_item(&list, 1);
print(&list);
printf("\n");
remove_item(&list, 2);
print(&list);
printf("\n");
remove_item(&list, 3);
print(&list);
delete_nodes(&list);
return 0;
}
```

```
abdullah@lamp ~$ ./lab4
Creating Node, 1 are in existence right now
Creating Node, 2 are in existence right now
Creating Node, 3 are in existence right now
Creating Node, 4 are in existence right now
The fully created list is:
4
3
2
1

Now removing elements:
Destroying Node, 3 are in existence right now
3
2
1

Destroying Node, 2 are in existence right now
3
2

Destroying Node, 1 are in existence right now
3

Destroying Node, 0 are in existence right now
abdullah@lamp ~$
```