Palindrome mu Değil mi ?

Yasin KARAÇAM Veri Yapıları - I Ödev 1

Singly Linked List :

#include <stdio.h>

#include <stdlib.h>

#include <stdbool.h>

#include <string.h>

struct Node {

char data;

struct Node\* next;

};

bool isPalindrome(struct Node\* head) {

struct Node\* temp1 = head;

struct Node\* temp2 = NULL;

struct Node\* reverse = NULL;

while (temp1 != NULL) {

struct Node\* new\_node = (struct Node\*)malloc(sizeof(struct Node));

new\_node->data = temp1->data;

new\_node->next = reverse;

reverse = new\_node;

temp1 = temp1->next;

}

temp1 = head;

temp2 = reverse;

while (temp1 != NULL && temp2 != NULL) {

if (temp1->data != temp2->data) {

return false;

}

temp1 = temp1->next;

temp2 = temp2->next;

}

return true;

}

void push(struct Node\*\* head, char new\_data) {

struct Node\* new\_node = (struct Node\*)malloc(sizeof(struct Node));

new\_node->data = new\_data;

new\_node->next = \*head;

\*head = new\_node;

}

void printList(struct Node\* head) {

struct Node\* temp = head;

while (temp != NULL) {

printf("%c", temp->data);

if (temp->next != NULL) {

printf(" -> ");

}

temp = temp->next;

}

}

int main() {

struct Node\* head = NULL;

char input[100];

printf("Bir kelime girin: ");

fgets(input, sizeof(input), stdin);

input[strcspn(input, "\n")] = 0;

for (int i = strlen(input) - 1; i >= 0; i--) {

push(&head, input[i]);

}

printf("Tek Bağlı Liste: ");

printList(head);

if (isPalindrome(head))

printf("\nListe bir palindromdur.\n");

else

printf("\nListe bir palindrom değildir.\n");

return 0;

}

Doubly Linked List :

#include <stdio.h>

#include <stdlib.h>

#include <stdbool.h>

#include <string.h>

struct Node {

char data;

struct Node\* next;

};

bool isPalindrome(struct Node\* head) {

struct Node\* temp1 = head;

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struct Node\* reverse = NULL;

while (temp1 != NULL) {

struct Node\* new\_node = (struct Node\*)malloc(sizeof(struct Node));

new\_node->data = temp1->data;

new\_node->next = reverse;

reverse = new\_node;

temp1 = temp1->next;

}

temp1 = head;

temp2 = reverse;

while (temp1 != NULL && temp2 != NULL) {

if (temp1->data != temp2->data) {

return false;

}

temp1 = temp1->next;

temp2 = temp2->next;

}

return true;

}

void push(struct Node\*\* head, char new\_data) {

struct Node\* new\_node = (struct Node\*)malloc(sizeof(struct Node));

new\_node->data = new\_data;

new\_node->next = \*head;

\*head = new\_node;

}

void printList(struct Node\* head) {

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int main() {

struct Node\* head = NULL;

char input[100];

printf("Bir kelime girin: ");

fgets(input, sizeof(input), stdin);

input[strcspn(input, "\n")] = 0;

for (int i = strlen(input) - 1; i >= 0; i--) {

push(&head, input[i]);

}

printf("Tek Bağlı Liste: ");

printList(head);

if (isPalindrome(head))

printf("\nListe bir palindromdur.\n");

else

printf("\nListe bir palindrom değildir.\n");

return 0;

}