String Palindrome Doubly Linked List

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**Algorithm**

Input: Read a string

Output: Palindrome or Not palindrome

Steps:

Define a structure palindrome

struct palindrome

{

char ele;

struct palindrome \*prev;

struct palindrome \*next;

}\*head,\*tail;

**check(int size)**

1. Start
2. Declare i
3. Declare structure pointers p and qstruct palindrome
4. p=tail and q=head
5. for(i=0;i<=size/2;i++)
6. if(q->ele!=p->ele)
7. return 0
8. q=q->next;
9. p=p->prev;
10. return 1;
11. Stop

**main( )**

1. Start
2. char str[20];
3. Declare variables i, l and structure pointer p
4. Print "Enter a string: "
5. scanf("%s",str)
6. for(l=0;str[i]!='\0';l++);
7. for(i=0;i<l;i++)
8. p->ele=str[i]
9. Create node p
10. if(head==NULL)
11. p->prev=NULL
12. p->next=NULL
13. head=p
14. else
15. tail->next=p
16. p->prev=tail
17. tail=p
18. p=p->next
19. if(check(l)==1)
20. Print "Palindrome
21. else
22. Print "Not Palindrome"
23. Stop

**Program**

#include<stdio.h>

#include<stdlib.h>

struct palindrome

{

char ele;

struct palindrome \*prev;

struct palindrome \*next;

}\*head,\*tail;

int check(int size)

{

int i;

struct palindrome \*p=tail,\*q=head;

for(i=0;i<=size/2;i++)

{

if(q->ele!=p->ele)

{

return 0;

}

q=q->next;

p=p->prev;

}

return 1;

}

void main()

{

char str[20];

int i,l;

struct palindrome \*p;

printf("Enter a string:\t");

scanf("%s",str);

for(l=0;str[i]!='\0';l++);

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

{

p->ele=str[i];

p=(struct palindrome \*)malloc(sizeof(struct palindrome));

if(head==NULL)

{

p->prev=NULL;

p->next=NULL;

head=p;

}

else

{

tail->next=p;

p->prev=tail;

tail=p;

}

p=p->next;

}

if(check(l)==1)

printf("Palindrome");

else

printf("Not Palindrome");

}