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C double-linked-list.c U ×

C double-linked-list.c > main()

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

struct node {
    int info;
    struct node *prev, *next;
};
struct node* start = NULL;

void traverse()
{
    if (start == NULL) {
        printf("\nList is empty\n");
        return;
    }

    struct node* temp;
    temp = start;
    while (temp != NULL) {
        printf("Data = %d\n", temp->info);
        temp = temp->next;
    }
}

void insertAtFront()
{
    int data;
    struct node* temp;
    temp = (struct node*)malloc(sizeof(struct node));
    printf("\nEnter number to be inserted: ");
```

```c
    scanf("%d", &data);
    temp->info = data;
    temp->prev = NULL;
    temp->next = start;
    start = temp;
}

void insertAtEnd()
{
    int data;
    struct node *temp, *trav;
    temp = (struct node*)malloc(sizeof(struct node));
    temp->prev = NULL;
    temp->next = NULL;
    printf("\nEnter number to be inserted: ");
    scanf("%d", &data);
    temp->info = data;
    temp->next = NULL;
    trav = start;
    if (start == NULL) {

        start = temp;
    }
    else {
        while (trav->next != NULL)
            trav = trav->next;
        temp->prev = trav;
        trav->next = temp;
    }
}
```

```c
void insertAtPosition()
{
    int data, pos, i = 1;
    struct node *temp, *newnode;
    newnode = malloc(sizeof(struct node));
    newnode->next = NULL;
    newnode->prev = NULL;

    printf("\nEnter position : ");
    scanf("%d", &pos);
    printf("\nEnter number to be inserted: ");
    scanf("%d", &data);
    newnode->info = data;
    temp = start;

    if (start == NULL) {
        start = newnode;
        newnode->prev = NULL;
        newnode->next = NULL;
    }

    else if (pos == 1) {
        newnode->next = start;
        newnode->next->prev = newnode;
        newnode->prev = NULL;
        start = newnode;
    }

    else {
        while (i < pos - 1) {
```

```
91          while (i < pos - 1) {
92              temp = temp->next;
93              i++;
94          }
95          newnode->next = temp->next;
96          newnode->prev = temp;
97          temp->next = newnode;
98          temp->next->prev = newnode;
99      }
100 }
101 void deletePosition()
102 {
103     int pos, i = 1;
104     struct node *temp, *position;
105     temp = start;
106     if (start == NULL)
107         printf("\nList is empty\n");
108 
109     else {
110             printf("\nEnter position : ");
111         scanf("%d", &pos);
112 
113         if (pos == 1) {
114             position = start;
115             start = start->next;
116             if (start != NULL) {
117                 start->prev = NULL;
118             }
119             free(position);
120             return;
```

```c
        while (i < pos - 1) {
            temp = temp->next;
            i++;
        }
        position = temp->next;
        if (position->next != NULL)
            position->next->prev = temp;
        temp->next = position->next;
        free(position);
    }
}
int main()
{
    int choice;
    while (1) {

        printf("\n\t1 To Display list\n");
        printf("\t2 For insertion at"
            " begining\n");
        printf("\t3 For insertion at"
            " end\n");
        printf("\t4 For insertion at "
            "any position\n");
        printf("\t5 For deletion of "
            "element at any position\n");
        printf("\t6 To exit\n");
        printf("\nEnter Choice :\n");
        scanf("%d", &choice);

        switch (choice) {
```

```c
        scanf("%d", &choice);

        switch (choice) {
        case 1:
            traverse();
            break;
        case 2:
            insertAtFront();
            break;
        case 3:
            insertAtEnd();
            break;
        case 4:
            insertAtPosition();
            break;
        case 5:
            deletePosition();
            break;

        case 6:
            exit(1);
            break;
        default:
            printf("Incorrect Choice \n");
            continue;
        }
    }
    return 0;
}

```

PROBLEMS 1 OUTPUT TERMINAL DEBUG CONSOLE

```
Enter Choice :
2

Enter number to be inserted: 12

        1 To Display list
        2 For insertion at begining
        3 For insertion at end
        4 For insertion at any position
        5 For deletion of element at any position
        6 To exit

Enter Choice :
2

Enter number to be inserted: 34

        1 To Display list
        2 For insertion at begining
        3 For insertion at end
        4 For insertion at any position
        5 For deletion of element at any position
        6 To exit

Enter Choice :
2

Enter number to be inserted: 54

        1 To Display list
        2 For insertion at begining
        3 For insertion at end
        4 For insertion at any position
        5 For deletion of element at any position
        6 To exit

Enter Choice :
2

Enter number to be inserted: 67
```

PROBLEMS 1 OUTPUT TERMINAL DEBUG CONSOLE

```
        5 For deletion of element at any position
        6 To exit

Enter Choice :
1
Data = 67
Data = 54
Data = 34
Data = 12

        1 To Display list
        2 For insertion at begining
        3 For insertion at end
        4 For insertion at any position
        5 For deletion of element at any position
        6 To exit

Enter Choice :
5

Enter position : 2

        1 To Display list
        2 For insertion at begining
        3 For insertion at end
        4 For insertion at any position
        5 For deletion of element at any position
        6 To exit

Enter Choice :
1
Data = 67
Data = 34
Data = 12

        1 To Display list
        2 For insertion at begining
        3 For insertion at end
        4 For insertion at any position
        5 For deletion of element at any position
        6 To exit
```

```
Enter Choice :
4

Enter position : 4

Enter number to be inserted: 1212

        1 To Display list
        2 For insertion at begining
        3 For insertion at end
        4 For insertion at any position
        5 For deletion of element at any position
        6 To exit

Enter Choice :
1
Data = 67
Data = 34
Data = 12
Data = 1212

        1 To Display list
        2 For insertion at begining
        3 For insertion at end
        4 For insertion at any position
        5 For deletion of element at any position
        6 To exit
```

```
Enter Choice :
3

Enter number to be inserted: 432

        1 To Display list
        2 For insertion at begining
        3 For insertion at end
        4 For insertion at any position
        5 For deletion of element at any position
        6 To exit

Enter Choice :
1
Data = 67
Data = 34
Data = 12
Data = 1212
Data = 432

        1 To Display list
        2 For insertion at begining
        3 For insertion at end
        4 For insertion at any position
        5 For deletion of element at any position
        6 To exit
```