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```
C double-linked-list.c U X
C double-linked-list.c > 分 main()
      #include <stdio.h>
      #include <stdlib.h>
      struct node {
           int info;
           struct node *prev, *next;
   6
      };
   8
      struct node* start = NULL;
  10
      void traverse()
  11
  12
           if (start == NULL) {
               printf("\nList is empty\n");
  13
  14
               return;
  15
  16
  17
           struct node* temp;
  18
           temp = start;
           while (temp != NULL) {
  19
  20
               printf("Data = %d\n", temp->info);
  21
               temp = temp->next;
  22
  23
  24
  25
      void insertAtFront()
  26
  27
           int data;
           struct node* temp;
  28
  29
           temp = (struct node*)malloc(sizeof(struct node));
           printf("\nEnter number to be inserted: ");
  30
```

```
C double-linked-list.c U X
C double-linked-list.c > ♥ insertAtEnd()
 31
           scanf("%d", &data);
 32
           temp->info = data;
 33
           temp->prev = NULL;
 34
           temp->next = start;
 35
           start = temp;
 36
 37
      void insertAtEnd()
 38
 39
 40
           int data;
 41
           struct node *temp, *trav;
 42
           temp = (struct node*)malloc(sizeof(struct node));
 43
           temp->prev = NULL;
 44
           temp->next = NULL;
 45
           printf("\nEnter number to be inserted: ");
 46
           scanf("%d", &data);
 47
           temp->info = data;
 48
           temp->next = NULL;
 49
           trav = start;
 50
           if (start == NULL) {
 51
 52
               start = temp;
 53
           else {
 54
 55
               while (trav->next != NULL)
 56
                   trav = trav->next;
 57
               temp->prev = trav;
 58
               trav->next = temp;
 59
```

```
C double-linked-list.c U X
C double-linked-list.c >  insertAtEnd()
      void insertAtPosition()
 62
 63
 64
           int data, pos, i = 1;
           struct node *temp, *newnode;
 65
           newnode = malloc(sizeof(struct node));
 66
 67
           newnode->next = NULL;
 68
           newnode->prev = NULL;
 69
           printf("\nEnter position : ");
 70
 71
           scanf("%d", &pos);
 72
           printf("\nEnter number to be inserted: ");
           scanf("%d", &data);
 73
           newnode->info = data;
 74
 75
           temp = start;
 76
 77
           if (start == NULL) {
               start = newnode;
 78
 79
               newnode->prev = NULL;
 80
               newnode->next = NULL;
 81
 82
           else if (pos == 1) {
 83
 84
               newnode->next = start;
 85
               newnode->next->prev = newnode;
 86
               newnode->prev = NULL;
               start = newnode;
 87
 88
 89
 90
           else {
            while (i / nos - 1) S
  91
```

```
C double-linked-list.c U X
C double-linked-list.c > 分 deletePosition()
               while (i < pos - 1) {
 91
 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
               if (pos == 1) {
113
114
                   position = start;
115
                   start = start->next;
116
                    if (start != NULL) {
117
                        start->prev = NULL;
118
119
                    free(position);
120
                   return;
          MA A 1
```

```
C double-linked-list.c U X
C double-linked-list.c > 分 main()
               while (i < pos - 1) {
123
124
                   temp = temp->next;
125
                   i++;
126
               position = temp->next;
127
               if (position->next != NULL)
128
                   position->next->prev = temp;
129
130
               temp->next = position->next;
131
               free(position);
132
133
134
       int main()
135
136
           int choice;
137
           while (1) {
138
139
               printf("\n\t1 To Display list\n");
               printf("\t2 For insertion at"
140
                    " begining\n");
141
               printf("\t3 For insertion at"
142
143
                     end\n");
               printf("\t4 For insertion at "
144
                    "any position\n");
145
               printf("\t5 For deletion of "
146
                    "element at any position\n");
147
               printf("\t6 To exit\n");
148
               printf("\nEnter Choice :\n");
149
150
               scanf("%d", &choice);
151
152
               switch (choice) {
```

```
C double-linked-list.c U X
```

```
C double-linked-list.c > 1 main()
               SCANT( AU , ACHOICE);
DOL
151
152
               switch (choice) {
153
               case 1:
154
                   traverse();
155
                   break;
156
               case 2:
157
                   insertAtFront();
158
                   break;
159
               case 3:
160
                   insertAtEnd();
161
                   break;
162
               case 4:
                   insertAtPosition();
163
164
                   break;
165
               case 5:
166
                   deletePosition();
167
                   break;
168
169
               case 6:
                   exit(1);
170
171
                   break;
               default:
172
173
                   printf("Incorrect Choice \n");
174
                   continue;
175
176
177
          return 0;
178
179
```

```
PROBLEMS 1 OUTPUT TERMINAL DEBUG CONSOLE
Enter Choice:
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:
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:
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:
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:
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:
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
```