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## Data structure Homework

### Experiment Part

#### Session3-Part1

Create a linked list. Enter the data from the keyboard.

```
1  #include <stdio.h>
2  #include <stdlib.h>
3
4  struct node
5  {
6      int num;                //Data of the node
7      struct node *nextptr;   //Address of the next node
8  }*stnode;
9
10 void createNodeList(int n); // function to create the list
11 void displayList();        // function to display the list
12
13 int main()
14 {
15     int n;
16     printf(" Input the number of nodes : ");
17     scanf("%d", &n);
18     createNodeList(n);
19     printf("\n Data entered in the list : \n");
20     displayList();
21     return 0;
22 }
23 void createNodeList(int n)
24 {
25     struct node *fnNode, *tmp;
26     int num, i;
27     stnode = (struct node *)malloc(sizeof(struct node));
28 }
```

```

29     if(stnode == NULL) //check whether the fnnode is NULL and if so no memory allocation
30     {
31         printf(" Memory can not be allocated.");
32     }
33     else
34     {
35         // reads data for the node through keyboard
36
37         printf(" Input data for node 1 : ");
38         scanf("%d", &num);
39         stnode->num = num;
40         stnode->nextptr = NULL; // links the address field to NULL
41         tmp = stnode;
42         // Creating n nodes and adding to linked list
43         for(i=2; i<=n; i++)
44         {
45             fnNode = (struct node *)malloc(sizeof(struct node));
46             if(fnNode == NULL)
47             {
48                 printf(" Memory can not be allocated.");
49                 break;
50             }
51             else
52             {
53                 printf(" Input data for node %d : ", i);
54                 scanf(" %d", &num);
55                 //scanf("%d", &num);
56                 fnNode->num = num; // links the num field of fnNode with num
57                 fnNode->nextptr = NULL; // links the address field of fnNode with NULL
58
59                 tmp->nextptr = fnNode; // links previous node tmp to the fnNode
60                 tmp = tmp->nextptr;
61             }
62         }
63     }
64 }
65 void displayList()
66 {
67     struct node *tmp;
68     if(stnode == NULL)
69     {
70         printf(" List is empty.");
71     }
72     else
73     {
74         tmp = stnode;
75         while(tmp != NULL)
76         {
77             printf(" Data = %d\n", tmp->num); // prints the data of current node
78             tmp = tmp->nextptr; // advances the position of current node
79         }
80     }
81 }

```

Result:

Output will be

```
"E:\Home Work\DS&A\linked_list_by_user_data\bin\Debug\linked_list_by_user_data.exe"
Input the number of nodes : 3
Input data for node 1 : 3
Input data for node 2 : 6
Input data for node 3 : 9

Data entered in the list :
Data = 3
Data = 6
Data = 9

Process returned 0 (0x0)   execution time : 15.268 s
Press any key to continue.
```