TITLE 41

Write a C program to create a single linked list with 5 nodes.

OBJECTIVE:

To create a single linked list with 5 nodes.

PROBLEM STATEMENT:

In this program we create a singly linked list of five nodes

ALGORITHM:

START

INPUT: input from the user

COMPUTATION: Computing the singly linked list

DISPLAY: Displaying the singly linked list

STOP

PROGRAM:

#include <stdio.h>

#include <stdlib.h>

struct node

{

int num;

struct node \*nextptr;

}\*stnode;

void createNodeList(int n); t

void displayList();

int main()

{

int n;

printf("\n\n Linked List : To create and display Singly Linked List :\n");

printf("-------------------------------------------------------------\n");

printf(" Input the number of nodes : ");

scanf("%d", &n);

createNodeList(n);

printf("\n Data entered in the list : \n");

displayList();

return 0;

}

void createNodeList(int n)

{

struct node \*fnNode, \*tmp;

int num, i;

stnode = (struct node \*)malloc(sizeof(struct node));

if(stnode == NULL) //check whether the fnnode is NULL and if so no memory allocation

{

printf(" Memory can not be allocated.");

}

else

{

printf(" Input data for node 1 : ");

scanf("%d", &num);

stnode->num = num;

stnode->nextptr = NULL; // links the address field to NULL

tmp = stnode;

for(i=2; i<=n; i++)

{

fnNode = (struct node \*)malloc(sizeof(struct node));

if(fnNode == NULL)

{

printf(" Memory can not be allocated.");

break;

}

else

{

printf(" Input data for node %d : ", i);

scanf(" %d", &num);

fnNode->num = num; // links the num field of fnNode with num

fnNode->nextptr = NULL; // links the address field of fnNode with NULL

tmp->nextptr = fnNode; // links previous node i.e. tmp to the fnNode

tmp = tmp->nextptr;

}

}

}

}

void displayList()

{

struct node \*tmp;

if(stnode == NULL)

{

printf(" List is empty.");

}

else

{

tmp = stnode;

while(tmp != NULL)

{

printf(" Data = %d\n", tmp->num);

tmp = tmp->nextptr;

}

}

}

CONCLUSION:

This program helps us to understand how a doubly linked list can be created.

OUTPUT:

Linked List : To create and display Singly Linked List :

-------------------------------------------------------------

Input the number of nodes : 5

Input data from node 1 : 1

Input data from node 2 : 2

Input data from node 3 : 3

Input data from node 4 : 4

Input data from node 5 : 5

Data entered in the list are :

Data = 1

Data = 2

Data = 3

Data = 4

Data = 5