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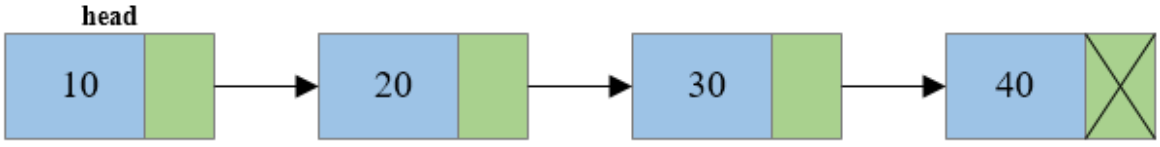
C program to insert node at the end of Singly Linked List

September 24, 2015 Pankaj Data Structures C, Data Structures, Linked List, Program, Singly Linked List

Write a C program to create a list of n nodes and insert a new node at the end of the Singly Linked List. How to insert a new node at the end of a Singly Linked List in C. Algorithm to insert node at the end of singly linked list. Steps to insert a new node at the end of singly linked list.



Required knowledge

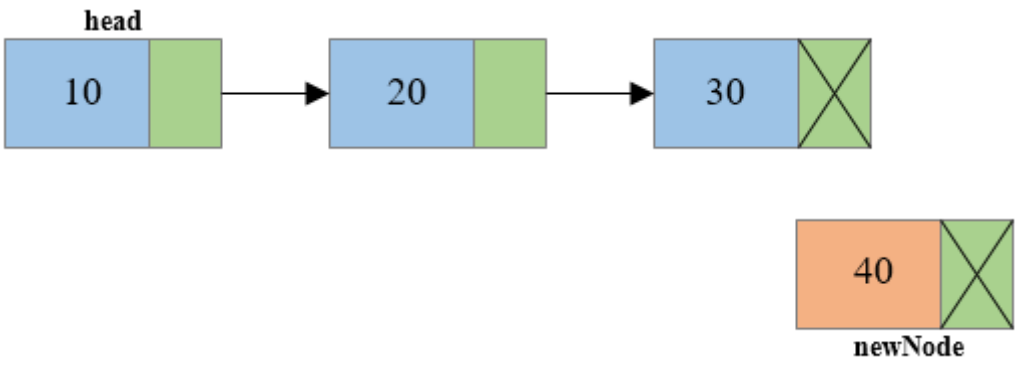
Basic C programming, Functions, Singly Linked List, Dynamic memory allocation

Algorithm to insert node at the end of Singly linked list

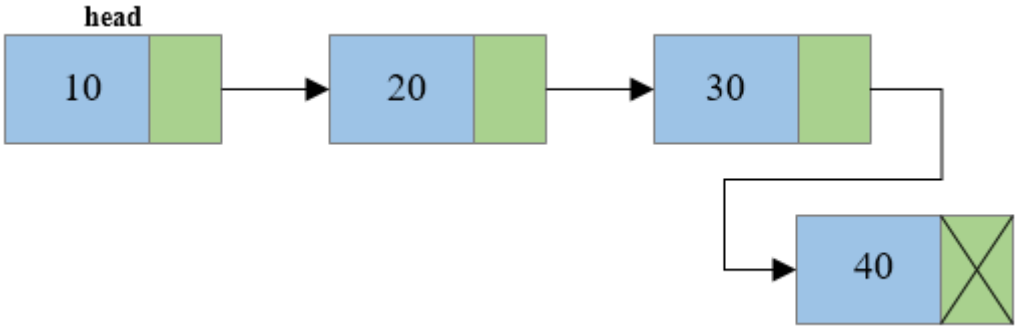
```
Algorithm to insert node at the end of a Singly Linked List
Begin:
    createSinglyLinkedList (head)
    alloc (newNode)
    If (newNode == NULL) then
        write ('Unable to allocate memory')
    End if
    Else then
        read (data)
        newNode.data ← data
        newNode.next ← NULL
        temp ← head
        While (temp.next != NULL) do
            temp ← temp.next
        End while
        temp.next ← newNode
    End else
End
```

Steps to insert node at the end of Singly linked list

1. Create a new node and make sure that the address part of the new node points to `NULL` i.e. `newNode->next=NULL`



2. Traverse to the last node of the linked list and connect the last node of the list with the new node, i.e. last node will now point to new node. (`lastNode->next = newNode`).



Program to insert node at the end of Singly linked list

```c
/**
 * C program to insert new node at the end of a Singly Linked List
 */

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


/* Structure of a node */
struct node {
    int data;          // Data
    struct node *next; // Address
}*head;


void createList(int n);
void insertNodeAtEnd(int data);
void displayList();


int main()
{
    int n, data;

    /*
     * Create a singly linked list of n nodes
     */
    printf("Enter the total number of nodes: ");
    scanf("%d", &n);
    createList(n);

    printf("\nData in the list \n");
    displayList();

    /*
     * Insert data at the end of the singly linked list
     */
    printf("\nEnter data to insert at end of the list: ");
    scanf("%d", &data);
```

```
    scanf("%d", &data);
    insertNodeAtEnd(data);

    printf("\nData in the list \n");
    displayList();

    return 0;
}


/*
 * Create a list of n nodes
 */
void createList(int n)
{
    struct node *newNode, *temp;
    int data, i;

    head = (struct node *)malloc(sizeof(struct node));

    /*
     * If unable to allocate memory for head node
     */
    if(head == NULL)
    {
        printf("Unable to allocate memory.");
    }
    else
    {
        /*
         * Reads data of node from the user
         */
        printf("Enter the data of node 1: ");
        scanf("%d", &data);

        head->data = data; // Link the data field with data
        head->next = NULL; // Link the address field to NULL

        temp = head;

        /*
         * Create n nodes and adds to linked list
         */
        for(i=2; i<=n; i++)
```

Output

```
Enter the total number of nodes: 3
Enter the data of node 1: 10
Enter the data of node 2: 20
Enter the data of node 3: 30
SINGLY LINKED LIST CREATED SUCCESSFULLY

Data in the list
Data = 10
```

```
Data = 10
Data = 20
Data = 30

Enter data to insert at end of the list: 40
DATA INSERTED SUCCESSFULLY

Data in the list
```

Happy coding 😉

Recommended posts

- C program to create and display a Singly Linked List.
- C program to insert a node at the beginning of a Singly Linked List.
- C program to insert a node at the middle of a Singly Linked List.
- C program to insert an element in an array.
- C program to delete a node from the end of a Singly Linked List.
- C program to delete an element from array.
- C program to reverse a Singly Linked List.

About Pankaj

Pankaj Prakash is the founder, editor and blogger at Codeforwin. He loves to learn new techs and write programming articles especially for beginners. He works at Vasudhaika Software Sols. as a Software Design Engineer and manages Codeforwin. In short Pankaj is Web developer, Blogger, Learner, Tech and Music lover.

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