

# Rajalakshmi Engineering College

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## NeoColab\_REC\_CS23231\_DATA STRUCTURES

### REC\_DS using C\_Week 1\_COD\_Question 3

Attempt : 1  
Total Mark : 10  
Marks Obtained : 0

#### Section 1 : Coding

##### 1. Problem Statement

Imagine you are working on a text processing tool and need to implement a feature that allows users to insert characters at a specific position.

Implement a program that takes user inputs to create a singly linked list of characters and inserts a new character after a given index in the list.

##### ***Input Format***

The first line of input consists of an integer N, representing the number of characters in the linked list.

The second line consists of a sequence of N characters, representing the linked list.

The third line consists of an integer index, representing the index(0-based) after

which the new character node needs to be inserted.

The fourth line consists of a character value representing the character to be inserted after the given index.

### ***Output Format***

If the provided index is out of bounds (larger than the list size):

1. The first line of output prints "Invalid index".
2. The second line prints "Updated list: " followed by the unchanged linked list values.

Otherwise, the output prints "Updated list: " followed by the updated linked list after inserting the new character after the given index.

Refer to the sample output for formatting specifications.

### ***Sample Test Case***

Input: 5

a b c d e

2

X

Output: Updated list: a b c X d e

### ***Answer***

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

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

```
struct Node{  
    char data;  
    struct Node*next;  
};
```

```
int main(){  
    int n,index;  
    char ch;  
    struct Node*head=NULL,*temp=NULL,*newNode;
```

```

if (scanf("%d",&n)!=1)return 1;
for(int i=0;i<n;i++){
    if (scanf("%c",&ch)!=1)return 1;
    newNode=(struct Node*)malloc(sizeof(struct Node));
    newNode->data=ch;
    newNode->next=NULL;
    if(head==NULL){
        head=newNode;
    }else{
        temp->next=newNode;
    }
    temp=newNode;
}
if (scanf("%d",&index)!=1)return 1;
if (scanf("%c",&ch)!=1)return 1;

temp=head;
for(int i=0;i<index&&temp!=NULL;i++)
temp=temp->next;

if(temp==NULL){
    printf("Invalid index.Insertion not possible.\n");
    return 0;
}
newNode=(struct Node*)malloc(sizeof(struct Node));
newNode->data=ch;
newNode->next=temp->next;
temp->next=newNode;

temp=head;
while(temp!=NULL){
    printf("%c",temp->data);
    temp=temp->next;
}
return 0;
}

```

Status : Wrong

Marks : 0/10