

//Program in C to insert a node at any position in doubly linked list

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

```
typedef struct doubly_linkedlist
```

```
{
```

```
    int data;
```

```
    struct doubly_linkedlist *prev,*next;
```

```
}node;
```

```
node *temp,*ttemp,*first,*p,*q;
```

```
void createfirst()
```

```
{
```

```
    first=(node*)malloc(sizeof(node));
```

```
    printf("Enter the data of node 1: ");
```

```
    scanf("%d",&first->data);
```

```
    first->prev=first->next=NULL;
```

```
}
```

```
void addnode(int i)
```

```
{
```

```
    temp=first;
```

```
    while(temp->next!=NULL)
```

```
        temp=temp->next;
```

```
    ttemp=(node*)malloc(sizeof(node));
```

```
    printf("Enter the data of node %d: ",i);
```

```
    scanf("%d",&ttemp->data);
```

```
    temp->next=ttemp;
```

```
    ttemp->next=NULL;
```

```
    ttemp->prev=temp;
```

```
}
```

```
void display()
```

```
{
```

```
    p=first;
```

```
    printf("Values of node of linked list are: ");
```

```
    while(p!=NULL)
```

```
    {
```

```
        printf("%d\t",p->data);
```

```
        p=p->next;
```

```
    }
```

```
}
```

```
void insert_at_n(int pos)
```

```
{
```

```
    int val,i;
```

```

temp=first;
for(i=1;i<pos;i++)
temp=temp->next;
ttemp=(node*)malloc(sizeof(node));
printf("Enter value of new node: ");
scanf("%d",&val);
ttemp->data=val;
q=temp->prev;
q->next=ttemp;
ttemp->next=temp;
}
void main()
{
int pos1,n,i;
clrscr();
printf("Enter the total number of nodes: ");
scanf("%d",&n);
createfirst();
for(i=2;i<=n;i++)
addnode(i);
display();
printf("\nEnter the position at which node is to be inserted: ");
scanf("%d",&pos1);
insert_at_n(pos1);
display();
getch();
}

```

OUTPUT 10B:

```

DOSBox 0.74, Cpu speed: max 100% cycles, Frameskip 0, Program: TC
Enter the total number of nodes: 4
Enter the data of node 1: 10
Enter the data of node 2: 20
Enter the data of node 3: 30
Enter the data of node 4: 40
Values of node of linked list are: 10 20 30 40
Enter the position at which node is to be inserted: 3
Enter value of new node: 100
Values of node of linked list are: 10 20 100 30 40

```