

**DATA STRUCTURES LAB**

**WEEK-1**

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**ROLL NO : 19R21A05C2**

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**PROBLEM STATEMENT:**

Write a C program that uses functions to perform the following:

(a)Create a singly linked list of integers.

(b)Insert a node before a given element

(c)Display the contents of above lists

**CODE:**

/\*Write a C program that uses functions to perform creation, insertion and display\*/

#include <stdio.h>

#include <stdlib.h>

struct node

{

int data;

struct node \*next;

}\*head=NULL,\*last,\*n,\*temp,\*prev;

void create();

void display();

void insertbefore();

int ch;

int main()

{

printf("\n1.Create\n2.Display\n3.Insert before\n ");

do

{

printf("\nEnter choice\n");

scanf("%d",&ch);

switch(ch)

{

case 1: create();break;

case 2: display();break;

case 3: insertbefore();break;

}

}while(ch<=3);

}

void create()

{

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

printf("Enter data\n");

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

n->next=NULL;

if(head==NULL)

{

head=n;

last=n;

}

else

{

last->next=n;

last=n;

}

}

void display()

{

temp=head;

while(temp!=NULL)

{

printf("%d->",temp->data);

temp=temp->next;

}

}

void insertbefore()

{

int key;

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

printf("Enter data\n");

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

n->next=NULL;

printf("Enter the value before which you want to insert\n");

scanf("%d",&key);

temp=head;

while(temp!=NULL)

{

if(temp->data==key)

break;

else

prev=temp;

temp=temp->next;

}

n->next=temp;

prev->next=n;

}

**OUTPUT:**

