**Q. Write a menu driven program to create singly linked list and perform operations like insertion, deletion and display.**

#include <stdio.h>

#include <stdlib.h>

struct stud // creating structure

{

int roll,age ; char name[30];

struct stud \*next;

};

typedef struct stud node; // user-defined data type called "node"

node \*create\_list() // creating linked list

{

int k,n;

node \*p,\*head;

printf("\n How many elements are there in your list? : ");

scanf("%d",&n);

for (k=0;k<n;k++)

{

if (k==0)

{

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

p=head;

}

else

{

p->next=(node\*) malloc(sizeof(node));

p=p->next;

}

printf("\n Enter details of student in the format [(Roll no.) (Name) (Age)] : ");

scanf("%d%s%d",&p->roll,p->name,&p->age);

}

p->next=NULL;

return (head);

}

void display (node\* head)

{

int count=1;

node \*p;

p=head;

while(p!=NULL)

{

printf("\nNode %d - Roll no. : %d, Name : %s, Age : %d",count,p->roll,p->name,p->age);

count++;

p=p->next;

}

}

void insert(node \*\*head)

{

int k,rno;

node \*p, \*q,\*ne;

ne=(node\*) malloc(sizeof(node));

printf("Enter data of next student in the format [(Roll no.) (Name) (Age)] : ");

scanf("%d%s%d",&ne->roll,ne->name,&ne->age);

printf("\nInsert this data before roll (enter '-' for inserting at the end) : ");

scanf("%d",&rno);

p=\*head;

If (p->roll==rno) // At the beginning

{

ne->next=p;

\*head=ne;

}

else

{

while((p!=NULL)&&(p->roll != rno))

{

q=p;

p=p->next;

}

if (p==NULL) // At the end

{

q->next=ne;

ne->next=NULL;

}

else if(p->roll==rno) // In the middle

{

q->next=ne;

ne->next=p;

}

}

}

void del(node \*\*head)

{

int rno;

node \*p,\*q;

printf("Delete for roll no. : ");

scanf("%d",&rno);

p=\*head;

if (p->roll == rno) // Delete the first element

{

\*head = p->next;

free (p);

}

else

{

while((p!=NULL)&&(p->roll !=rno))

{

q=p;

p=p->next;

}

if (p==NULL) // Element not found

{

printf("\nNo match : : deletion failed");

}

else if(p-> roll==rno) // Delete any other element

{

q->next=p->next;

free(p);

}

}

}

void main()

{

node \*head;

head=create\_list();

display(head);

int choice;

while(1)

{

printf("\n\nMENU : 1-Insert, 2-Delete, 3-Exit\n");

printf("Enter your choice : ");

scanf("%d",&choice);

switch(choice)

{

case 1 : insert(&head); display(head);

break;

case 2 : del(&head); display(head);

break;

case 3 : exit(1);

break;

getch();

}

}

}

**Output :**