S.No: 8	Exp. Name: ***Write a C program to perform operations in Single Linked List 1.Insertion 2.Deletion 3.Display***	Date: 2022-08-01

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Aim:

Write a C program to perform operations in Single Linked List
1.Insertion
2.Deletion
3.Display

Source Code:

singlelinkedlist.c

```
#include<stdio.h>
#include<stdlib.h>
typedef struct list
{
   int no;
   char name[50];
   struct list *next;
}node;
node *head=NULL;
void insert()
{
   node *temp,*ptr,*p;
   p=(node *)malloc(sizeof(node));
   printf("Enter roll no and name of the student:");
   scanf("%d%s",&p->no,p->name);
   if(head==NULL)
   {
      head=p;
      p->next=NULL;
      printf("Number Inserted\n");
      return;
   }
   if(p->no<=head->no)
   {
      p->next=head;
      head=p;
      printf("Number Inserted\n");
      return;
   }
   temp=head;
   ptr=head->next;
   while(ptr!=NULL&&ptr->no<p->no)
   {
      temp=ptr;
      ptr=ptr->next;
   }
   p->next=ptr;
   temp->next=p;
   printf("Number Inserted\n");
}
void delet()
{
```

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```
   node *temp,*ptr;
   int rno;
   if(head==NULL)
   {
      printf("List is empty,Nothing to delete\n");
      return;
   }
   printf("Enter roll no to be deleted");
   scanf("%d",&rno);
   if(rno<head->no)
   {
      printf("Student with rollno %d not found in the list\n",rno);
      return;
   }
   if(rno==head->no)
   {
      head=head->next;
      printf("Number deleted\n");
      return;
   }
   temp=head;
   ptr=head->next;
   while(ptr!=NULL&&ptr->no<rno)
   {
      temp=ptr;
      ptr=ptr->next;
   }
   if(ptr==NULL&&ptr->no>rno)
   {
      printf("Number not found\n");
      return;
   }
   temp->next=ptr->next;
   free(ptr);
   printf("Number deleted\n");
}
void display()
{
   node *ptr;
   ptr=head;
   if(head==NULL)
   {
      printf("List is empty\n");
      return;
   }
   while(ptr!=NULL)
   {
      printf("%d %s\n",ptr->no,ptr->name);
      ptr=ptr->next;
   }
}
void main()
{
   int ch;
   do
   {
```

```
      printf("1.Insert 2.Delete 3.Display 4.Exit\nEnter your choice: ");
      scanf("%d",&ch);
      switch(ch)
      {
         case 1:insert();
                break;
         case 2:delet();
                break;
         case 3:display();
                break;
      }
   }while(ch>=1&&ch<=3);
}
```


Execution Results - All test cases have succeeded!

Test Case - 1
User Output
1.Insert 2.Delete 3.Display 4.Exit 1
Enter your choice: 1
Enter roll no and name of the student: 01 codetantra
Number Inserted 1
1.Insert 2.Delete 3.Display 4.Exit 1
Enter your choice: 1
Enter roll no and name of the student: 02 gprec
Number Inserted 3
1.Insert 2.Delete 3.Display 4.Exit 3
Enter your choice: 3
1 codetantra 2
2 gprec 2
1.Insert 2.Delete 3.Display 4.Exit 2
Enter your choice: 2
Enter roll no to be deleted 2
Number deleted 3
1.Insert 2.Delete 3.Display 4.Exit 3
Enter your choice: 3
1 codetantra 4
1.Insert 2.Delete 3.Display 4.Exit 4
Enter your choice: 4