WEEK8:MORE APPLICATIONS OF SINGLY LINKED LISTS

PROGRAM

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
struct node
 {
  int info;
  struct node *link;
 };
typedef struct node *NODE;
NODE getnode()
{
NODE x;
x=(NODE)malloc(sizeof(struct node));
if(x==NULL)
 {
  printf("Memory Full\n");
  exit(0);
 }
 return x;
}
NODE insert_rear(NODE first,int item)
{
NODE temp,cur;
temp=getnode();
temp->info=item;
temp->link=NULL;
if(first==NULL)
 return temp;
```

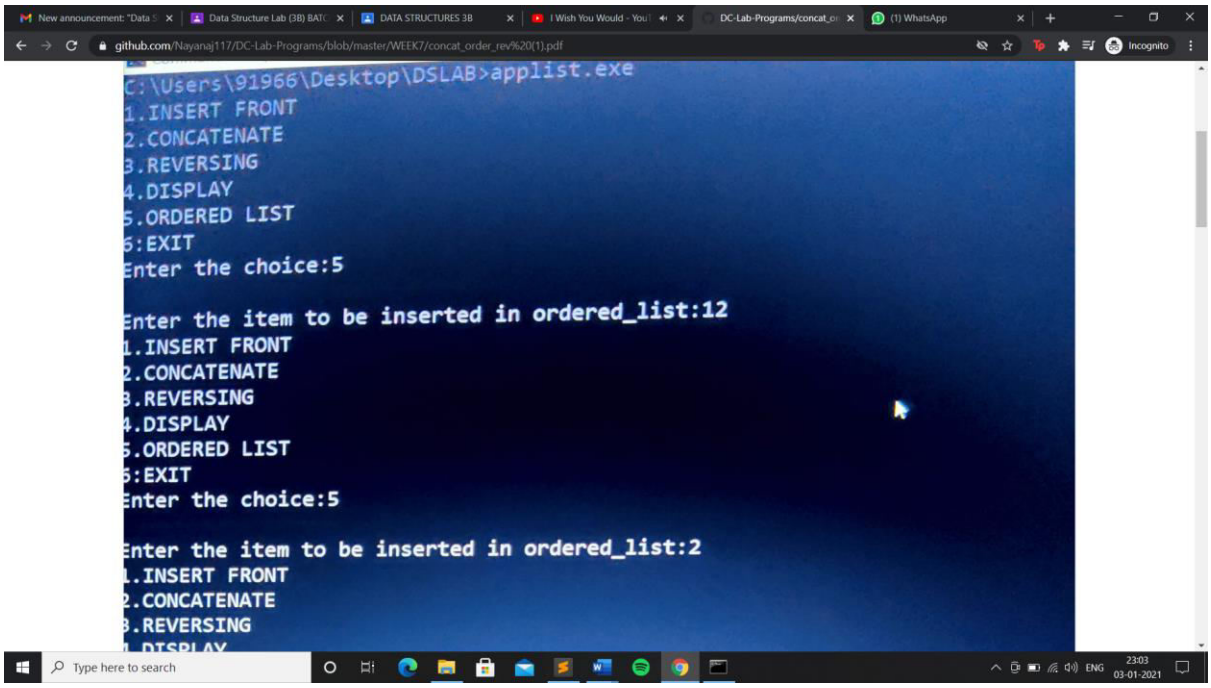
```
cur=first;
while(cur->link!=NULL)
 cur=cur->link;
cur->link=temp;
return first;
}
void display(NODE first)
{
 NODE temp;
 if(first==NULL)
  printf("LIST EMPTY");

 for(temp=first;temp!=NULL;temp=temp->link)
  {
  printf("%d\n",temp->info);
  }
}
NODE concat(NODE first,NODE second)
{
 NODE cur;
 if(first==NULL)
  return second;
 if(second==NULL)
  return first;
 cur=first;
 while(cur->link!=NULL)
  cur=cur->link;
 cur->link=second;
 return first;
}
NODE reverse(NODE first)
```

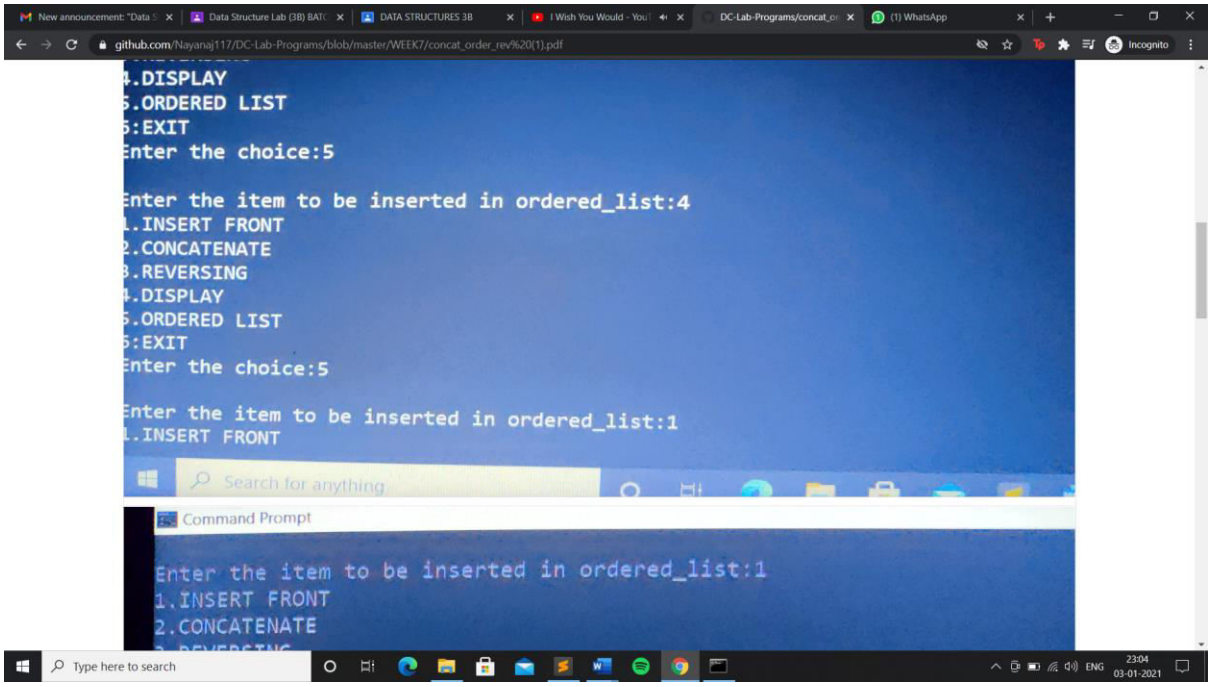
```
 {
 NODE cur,temp;
 cur=NULL;
 while(first!=NULL)
  {
   temp=first;
   first=first->link;
   temp->link=cur;
   cur=temp;
  }
 return cur;
}
NODE order_list(int item,NODE first)
{
NODE temp,prev,cur;
temp=getnode();
temp->info=item;
temp->link=NULL;
if(first==NULL) return temp;
if(item<first->info)
{
temp->link=first;
return temp;
}
prev=NULL;
cur=first;
while(cur!=NULL&&item>cur->info)
{
prev=cur;
cur=cur->link;
}
```

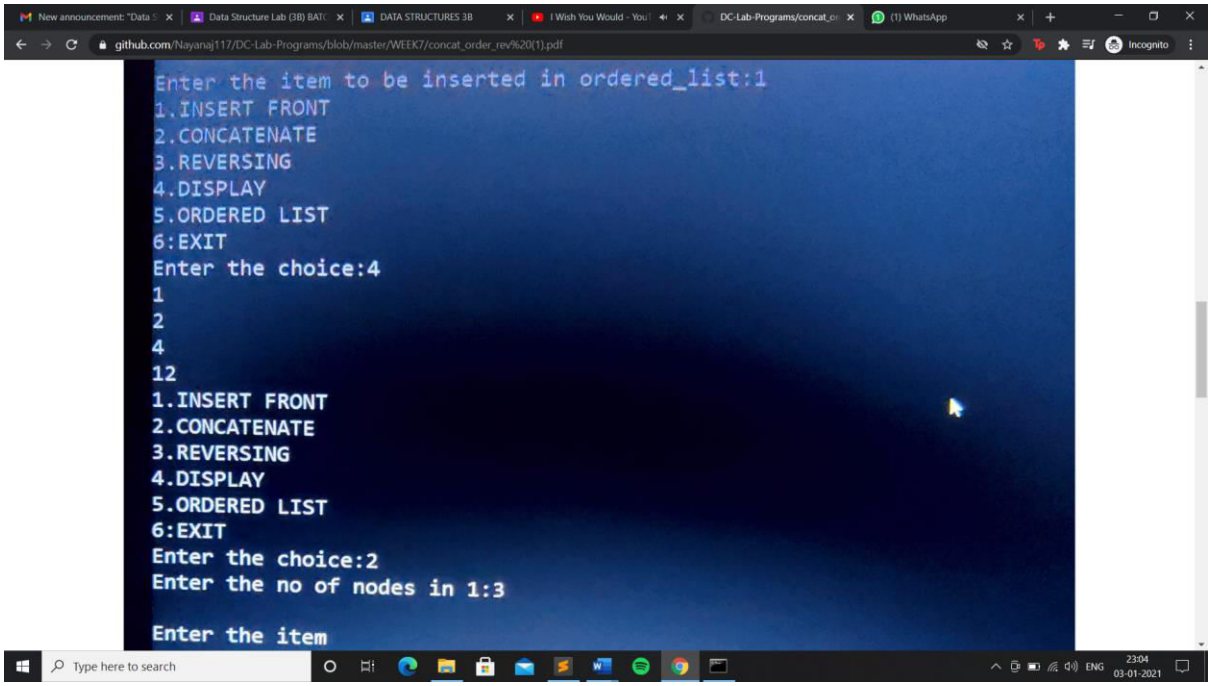
```
prev->link=temp;
temp->link=cur;
return first;
}


void main()
{
int item,choice,pos,i,n;
NODE first=NULL,a,b;
for(;;)
{
printf("1.INSERT FRONT\n2.CONCATENATE\n3.REVERSING\n4.DISPLAY\n5.ORDERED
LIST\n6:EXIT\n");
printf("Enter the choice:");
scanf("%d",&choice);
switch(choice)
 {
  case 1:printf("\nEnter the item\n");
                        scanf("%d",&item);
                        first=insert_rear(first,item);
                        break;
  case 2:printf("Enter the no of nodes in 1:");
                        scanf("%d",&n);
                        a=NULL;
                        for(i=0;i<n;i++)
                         {
                          printf("\nEnter the item\n");
                          scanf("%d",&item);
                          a=insert_rear(a,item);
                         }
```

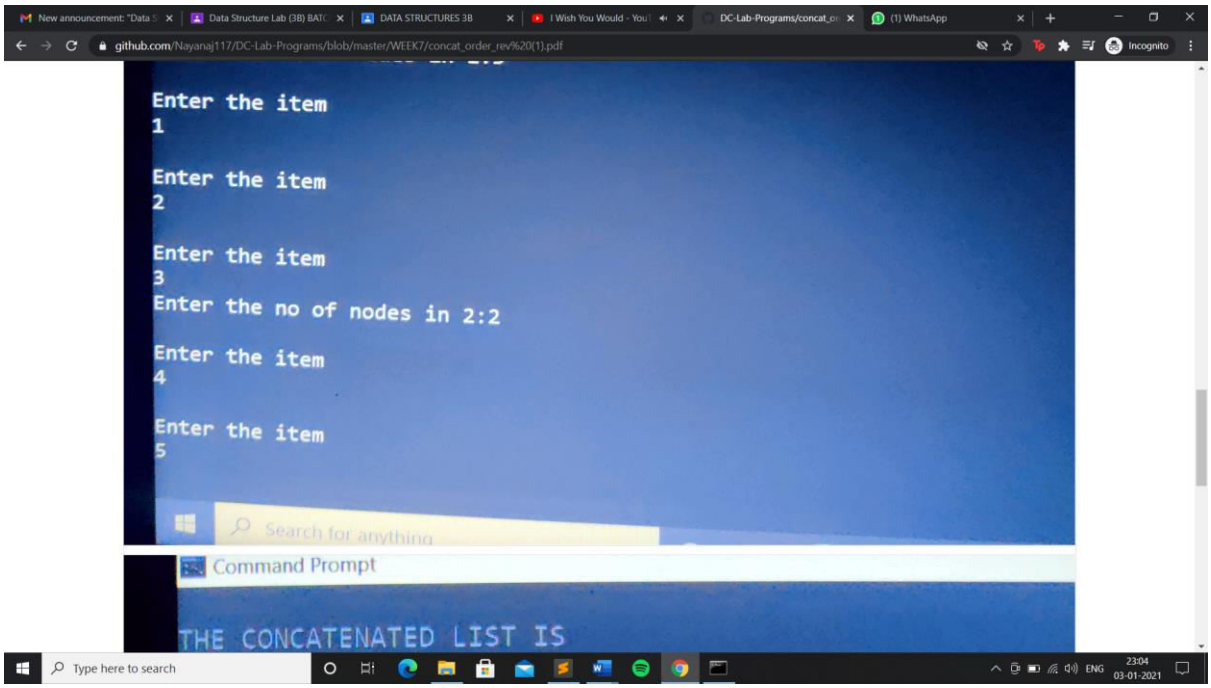
```
                    printf("Enter the no of nodes in 2:");
                    scanf("%d",&n);
                    b=NULL;
                    for(i=0;i<n;i++)
                    {
                     printf("\nEnter the item\n");
                     scanf("%d",&item);
                     b=insert_rear(b,item);
                    }
                    a=concat(a,b);
                    printf("\nTHE CONCATENATED LIST IS\n");
                    display(a);
                    break;
case 3:first=reverse(first);
                    display(first);
                    break;
case 4:display(first);
                    break;
case 5:printf("\nEnter the item to be inserted in ordered_list:");
          scanf("%d",&item);
          first=order_list(item,first);
          break;

default:exit(0);
}
}
getch();
}
```

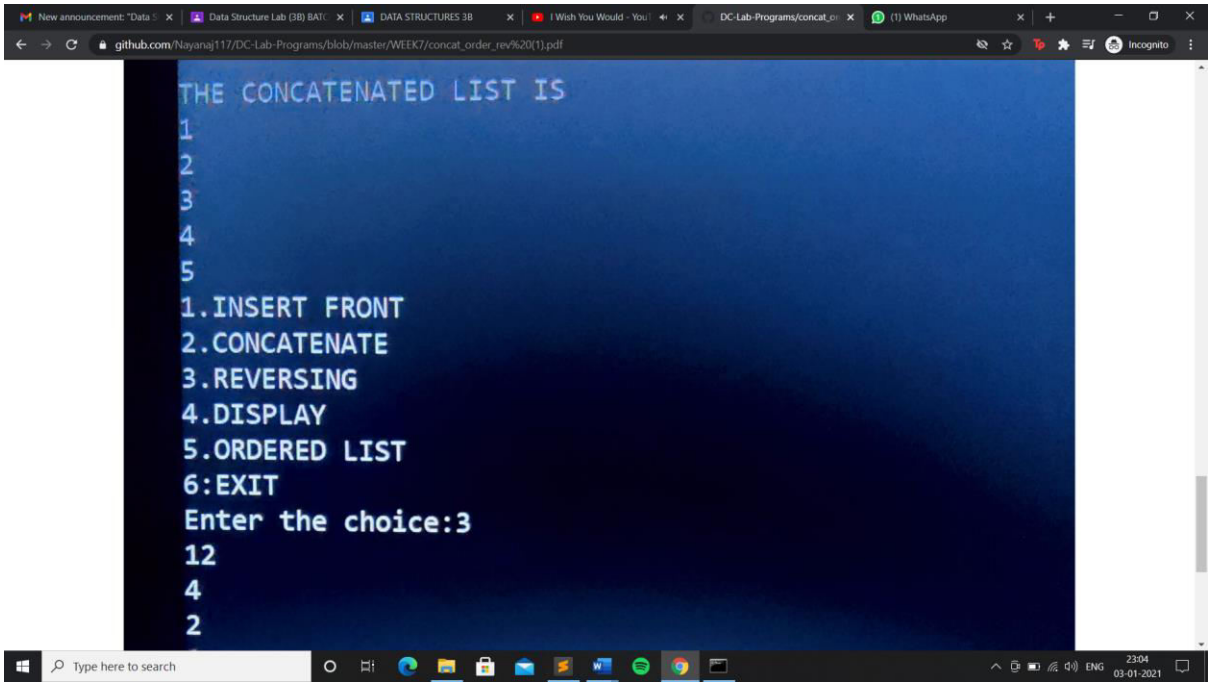
OUTPUT:

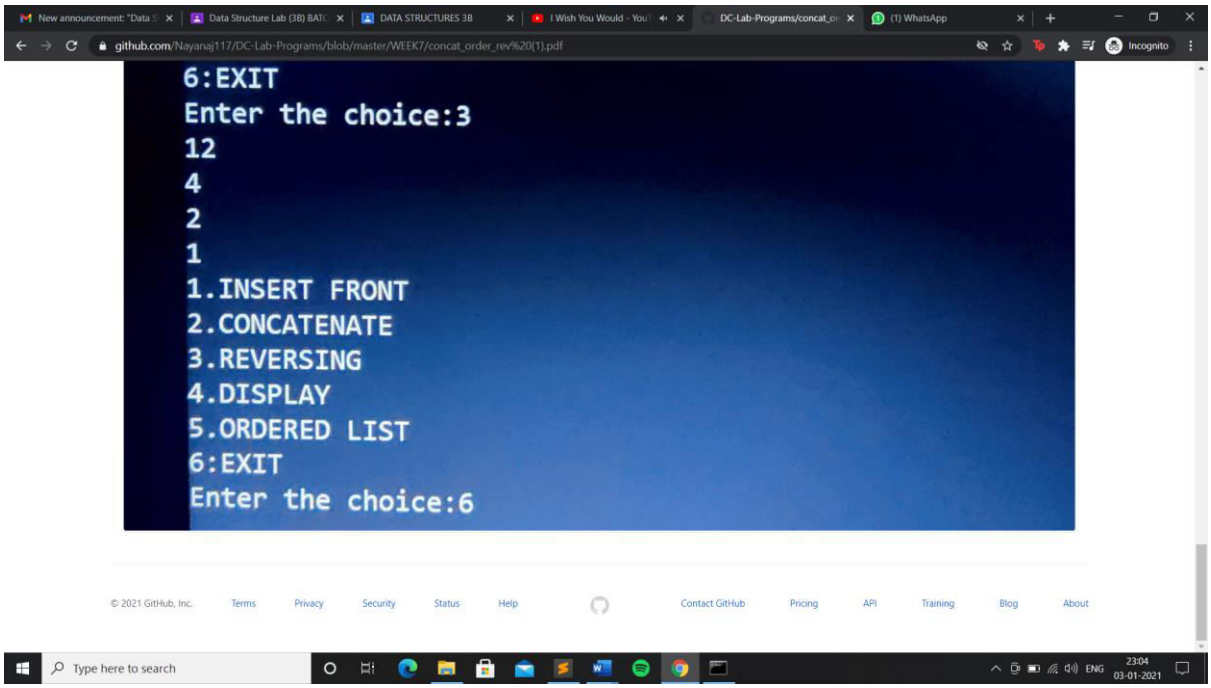

github.com/Nayanaj117/DC-Lab-Programs/blob/master/WEEK7/concat_order_rev%20(1).pdf
C:\Users\91966\Desktop\DSLAB>applist.exe
1.INSERT FRONT
2.CONCATENATE
3.REVERSING
4.DISPLAY
5.ORDERED LIST
6:EXIT
Enter the choice:5
Enter the item to be inserted in ordered_list:12
1.INSERT FRONT
2.CONCATENATE
3.REVERSING
4.DISPLAY
5.ORDERED LIST
6:EXIT
Enter the choice:5
Enter the item to be inserted in ordered_list:2
1.INSERT FRONT
2.CONCATENATE
3.REVERSING
Type here to search
23:03
03-01-2021


github.com/Nayanaj117/DC-Lab-Programs/blob/master/WEEK7/concat_order_rev%20(1).pdf
4.DISPLAY
5.ORDERED LIST
6:EXIT
Enter the choice:5
Enter the item to be inserted in ordered_list:4
1.INSERT FRONT
2.CONCATENATE
3.REVERSING
4.DISPLAY
5.ORDERED LIST
6:EXIT
Enter the choice:5
Enter the item to be inserted in ordered_list:1
1.INSERT FRONT
Search for anything
Command Prompt
Enter the item to be inserted in ordered_list:1
1.INSERT FRONT
2.CONCATENATE
Type here to search
23:04
03-01-2021


github.com/Nayanaj117/DC-Lab-Programs/blob/master/WEEK7/concat_order_rev%20(1).pdf
Enter the item to be inserted in ordered_list:1
1.INSERT FRONT
2.CONCATENATE
3.REVERSING
4.DISPLAY
5.ORDERED LIST
6:EXIT
Enter the choice:4
1
2
4
12
1.INSERT FRONT
2.CONCATENATE
3.REVERSING
4.DISPLAY
5.ORDERED LIST
6:EXIT
Enter the choice:2
Enter the no of nodes in 1:3
Enter the item
Type here to search


github.com/Nayanaj117/DC-Lab-Programs/blob/master/WEEK7/concat_order_rev%20(1).pdf
Enter the item
1
Enter the item
2
Enter the item
3
Enter the no of nodes in 2:2
Enter the item
4
Enter the item
5
Search for anything
Command Prompt
THE CONCATENATED LIST IS
Type here to search


github.com/Nayanaj117/DC-Lab-Programs/blob/master/WEEK7/concat_order_rev%20(1).pdf
THE CONCATENATED LIST IS
1
2
3
4
5
1.INSERT FRONT
2.CONCATENATE
3.REVERSING
4.DISPLAY
5.ORDERED LIST
6:EXIT
Enter the choice:3
12
4
2
Type here to search
ENG
23:04
03-01-2021


github.com/Nayanaj117/DC-Lab-Programs/blob/master/WEEK7/concat_order_rev%20(1).pdf
6:EXIT
Enter the choice:3
12
4
2
1
1.INSERT FRONT
2.CONCATENATE
3.REVERSING
4.DISPLAY
5.ORDERED LIST
6:EXIT
Enter the choice:6
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API
Training
Blog
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ENG
23:04
03-01-2021