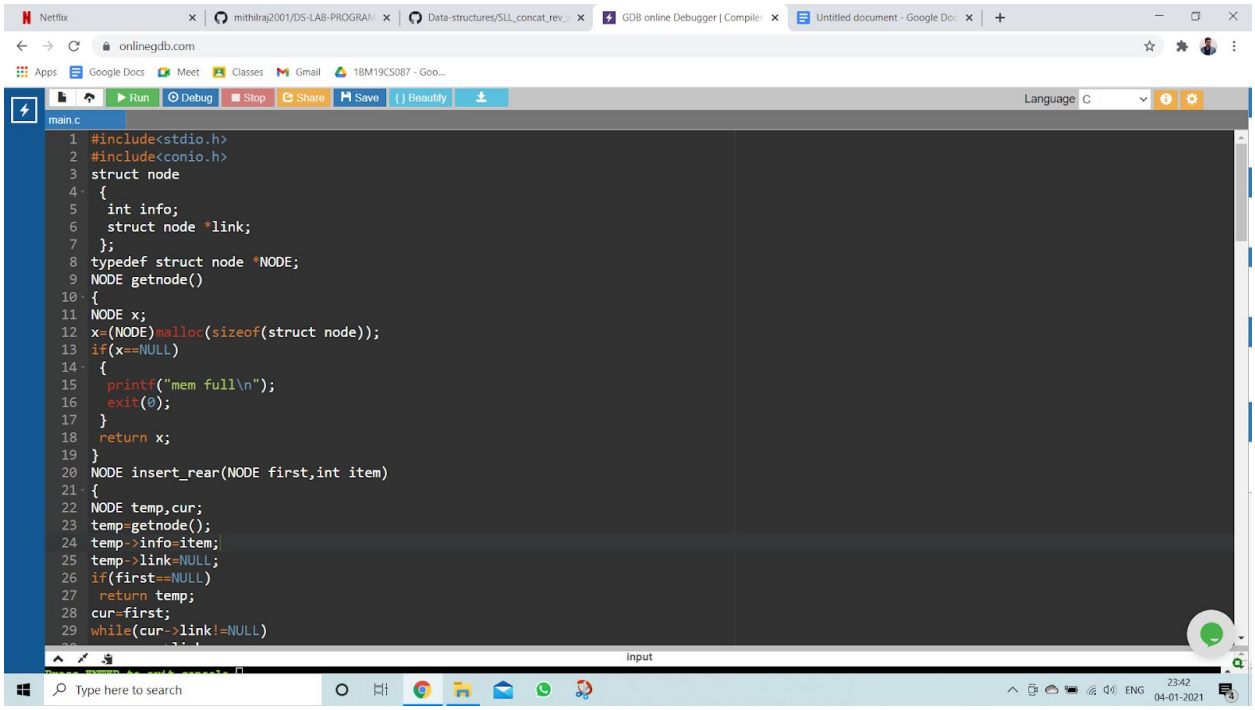
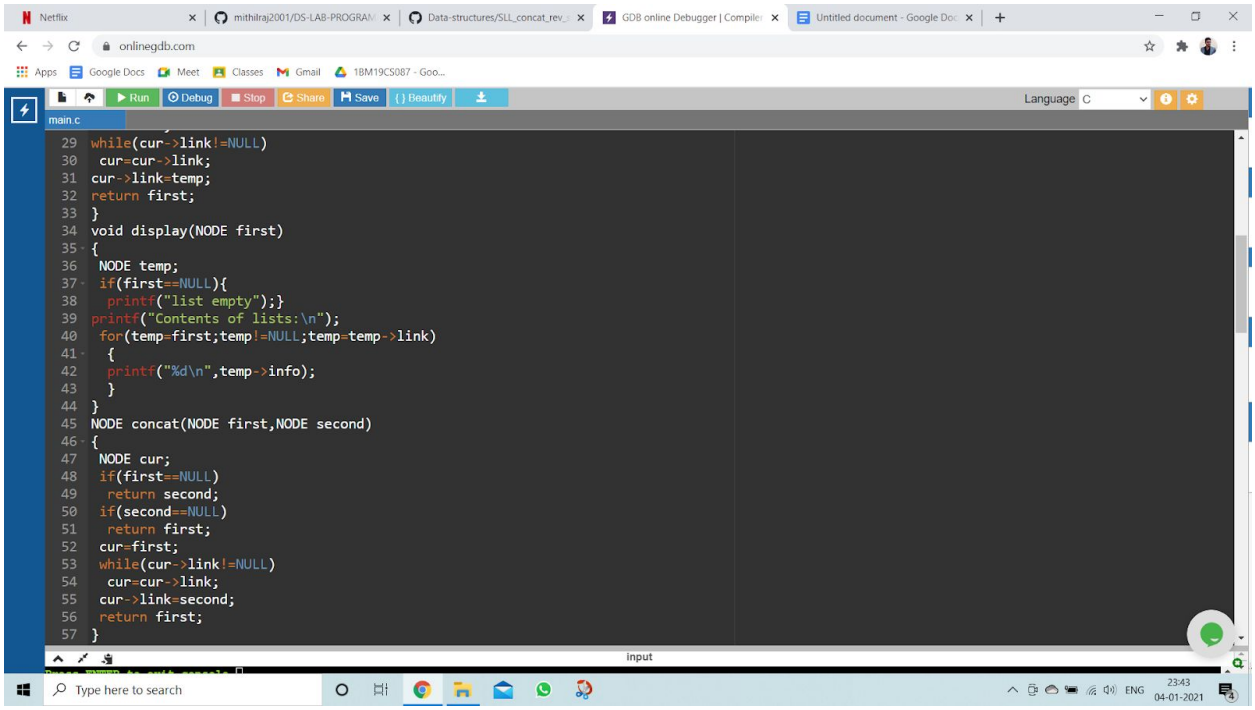
DS LAB PROGRAM 7

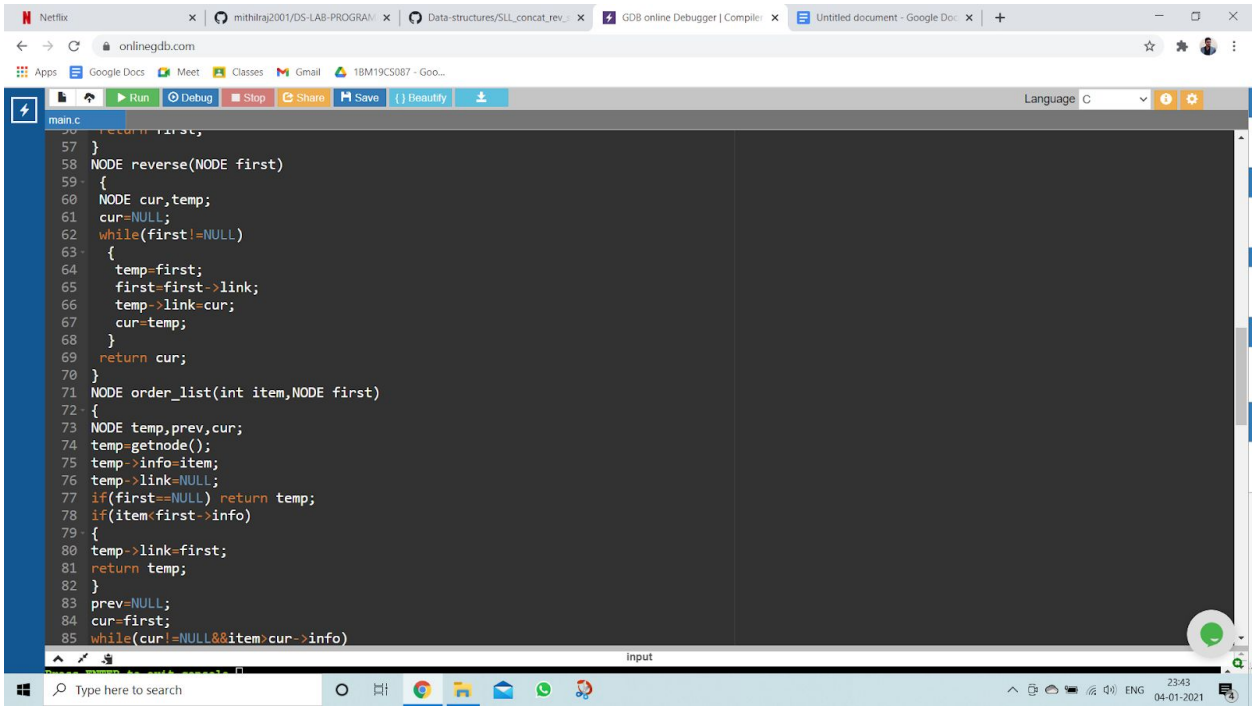
EXECUTION:-



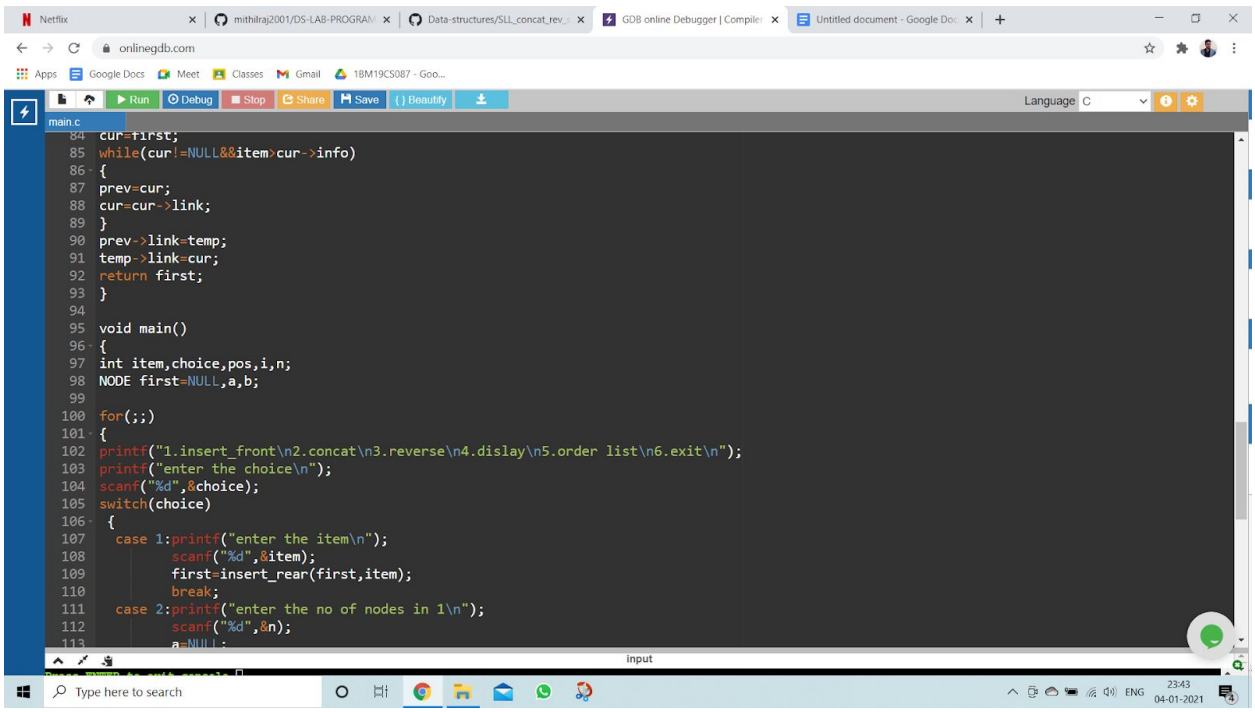
```c
#include<stdio.h>
#include<conio.h>
struct node
 {
  int info;
  struct node *link;
 };
typedef struct node *NODE;
NODE getnode()
{
NODE x;
x=(NODE)malloc(sizeof(struct node));
if(x==NULL)
 {
  printf("mem full\n");
  exit(0);
 }
 return x;
}
NODE insert_rear(NODE first,int item)
{
NODE temp,cur;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



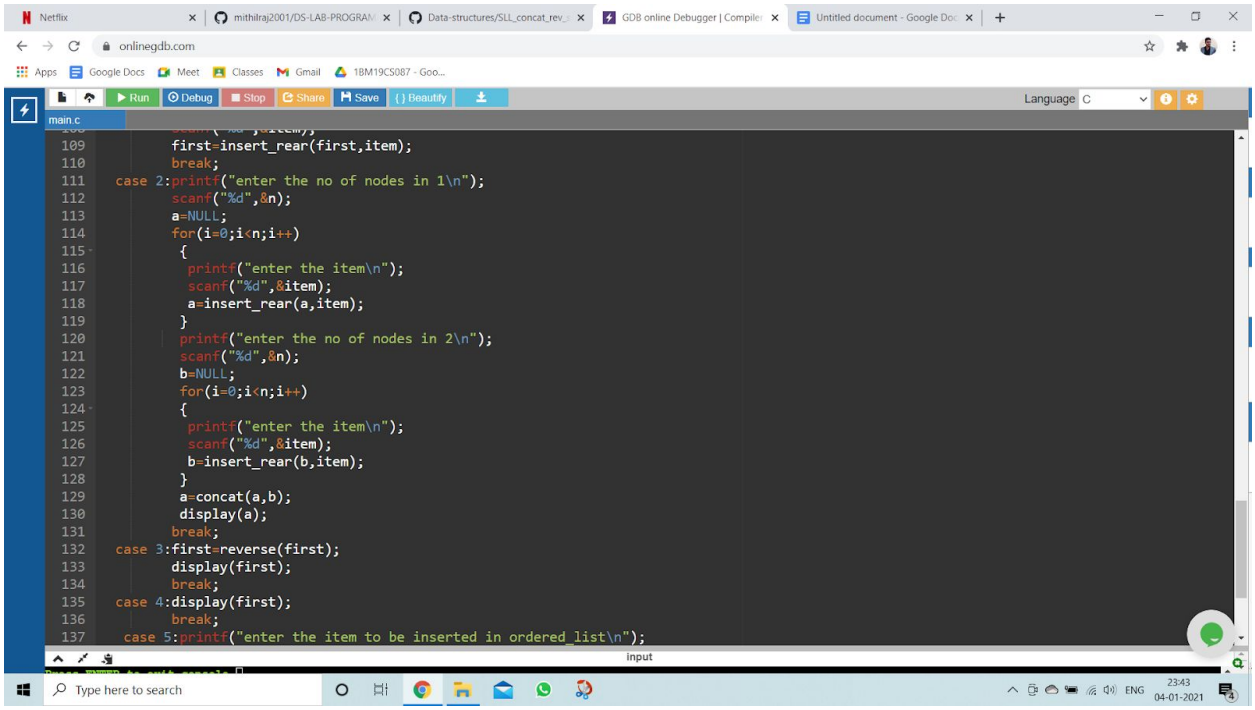
```c
while(cur->link!=NULL)
 cur=cur->link;
cur->link=temp;
return first;
}
void display(NODE first)
{
 NODE temp;
 if(first==NULL){
  printf("list empty");}
printf("Contents of lists:\n");
 for(temp=first;temp!=NULL;temp=temp->link)
  {
  printf("%d\n",temp->info);
  }
}
NODE concat(NODE first,NODE 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;
}
```



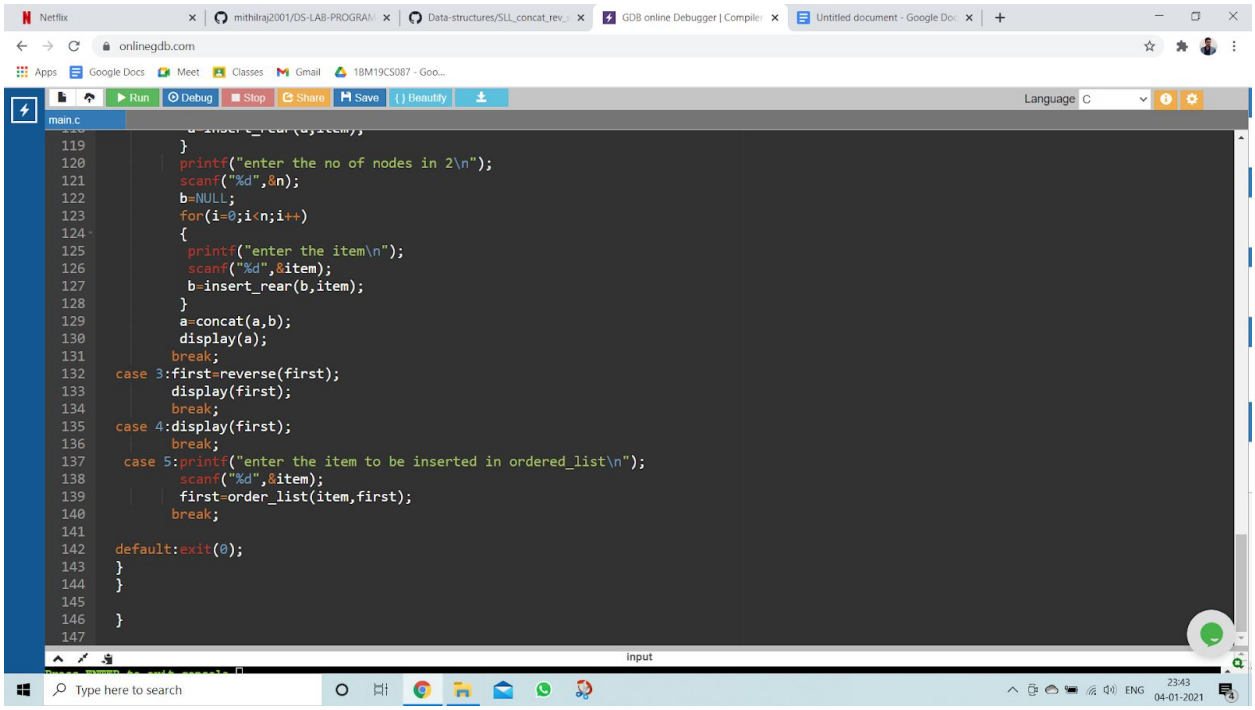
```
}
NODE reverse(NODE first)
{
NODE cur,temp;
cur=NULL;
while(first!=NULL)
 {
  temp=first;
  first=first->link;
  temp->link=cur;
  cur=temp;
 }
return cur;
}
NODE order_list(int item,NODE first)
{
NODE temp,prev,cur;
temp=getnode();
temp->info=item;
temp->link=NULL;
if(first==NULL) return temp;
if(item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



```
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.concat\n3.reverse\n4.dislay\n5.order list\n6.exit\n");
printf("enter the choice\n");
scanf("%d",&choice);
switch(choice)
 {
  case 1:printf("enter the item\n");
         scanf("%d",&item);
         first=insert_rear(first,item);
         break;
  case 2:printf("enter the no of nodes in 1\n");
         scanf("%d",&n);
         a=NULL;
```

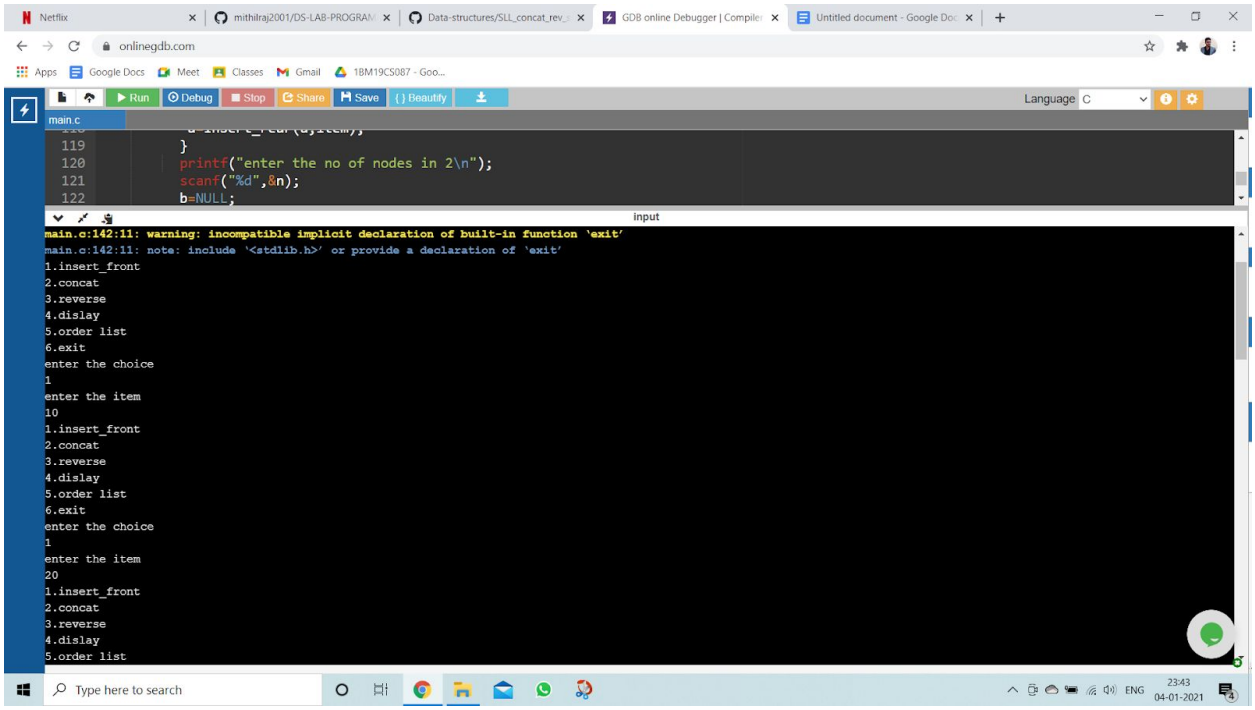


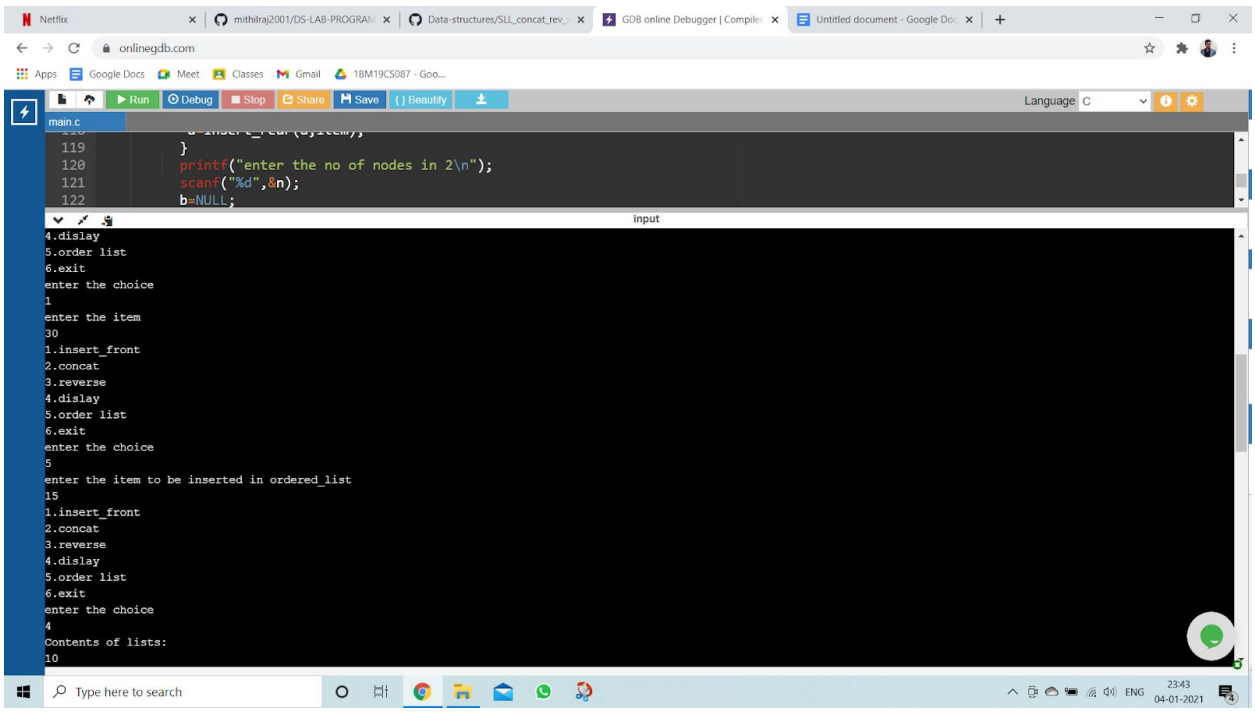
```
        first=insert_rear(first,item);
        break;
case 2:printf("enter the no of nodes in 1\n");
        scanf("%d",&n);
        a=NULL;
        for(i=0;i<n;i++)
         {
          printf("enter the item\n");
          scanf("%d",&item);
          a=insert_rear(a,item);
         }
         printf("enter the no of nodes in 2\n");
         scanf("%d",&n);
         b=NULL;
         for(i=0;i<n;i++)
         {
          printf("enter the item\n");
          scanf("%d",&item);
          b=insert_rear(b,item);
         }
         a=concat(a,b);
         display(a);
        break;
case 3:first=reverse(first);
        display(first);
        break;
case 4:display(first);
        break;
 case 5:printf("enter the item to be inserted in ordered_list\n");
```

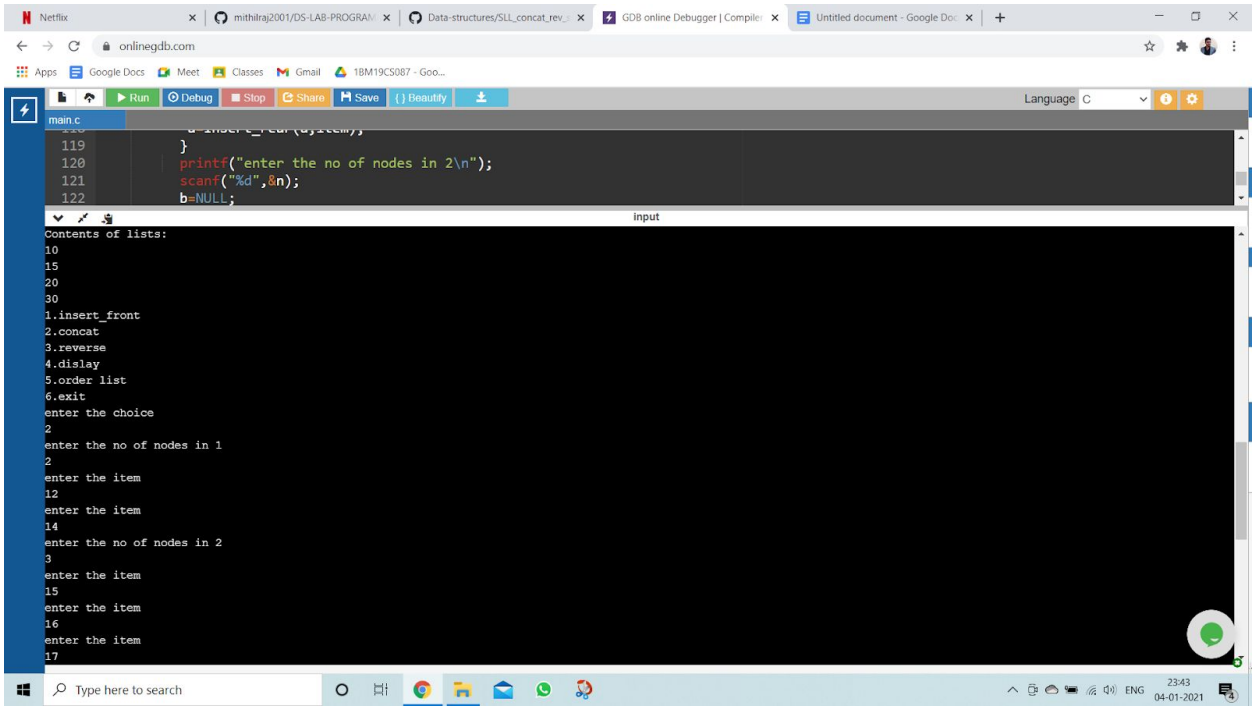


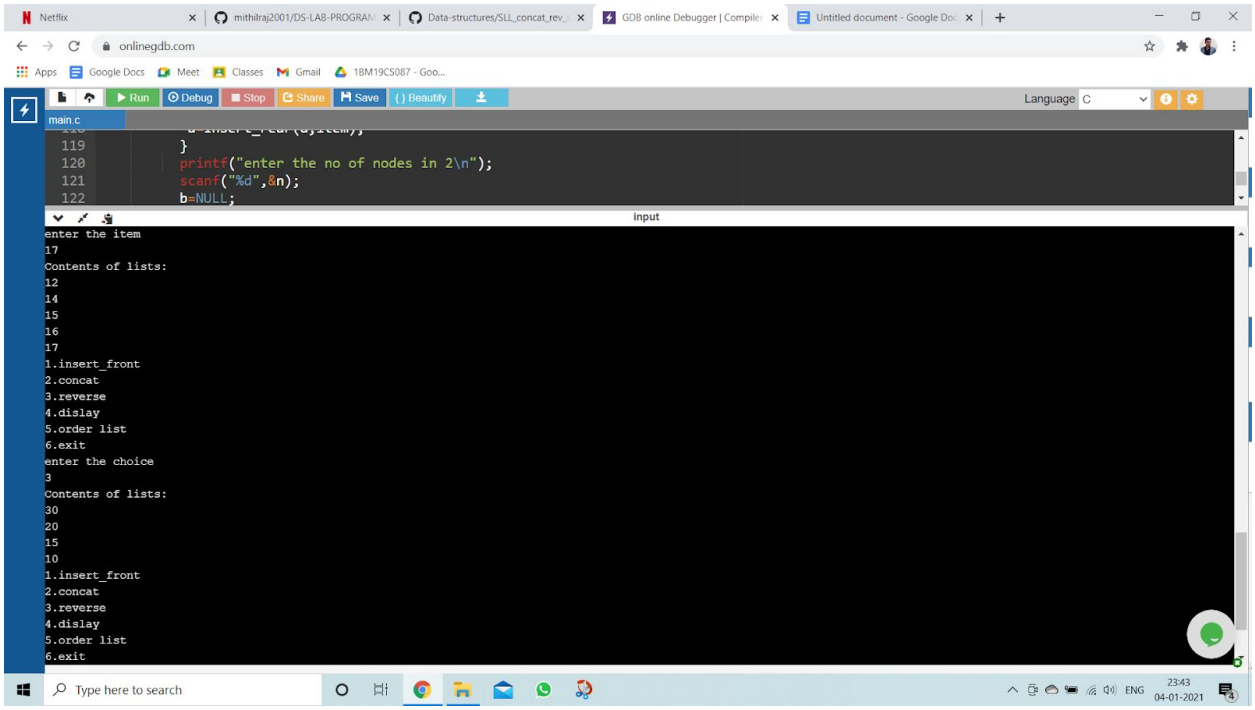
```
         }
         printf("enter the no of nodes in 2\n");
         scanf("%d",&n);
         b=NULL;
         for(i=0;i<n;i++)
         {
          printf("enter the item\n");
          scanf("%d",&item);
          b=insert_rear(b,item);
         }
         a=concat(a,b);
         display(a);
 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

default:exit(0);
}
}

}
```

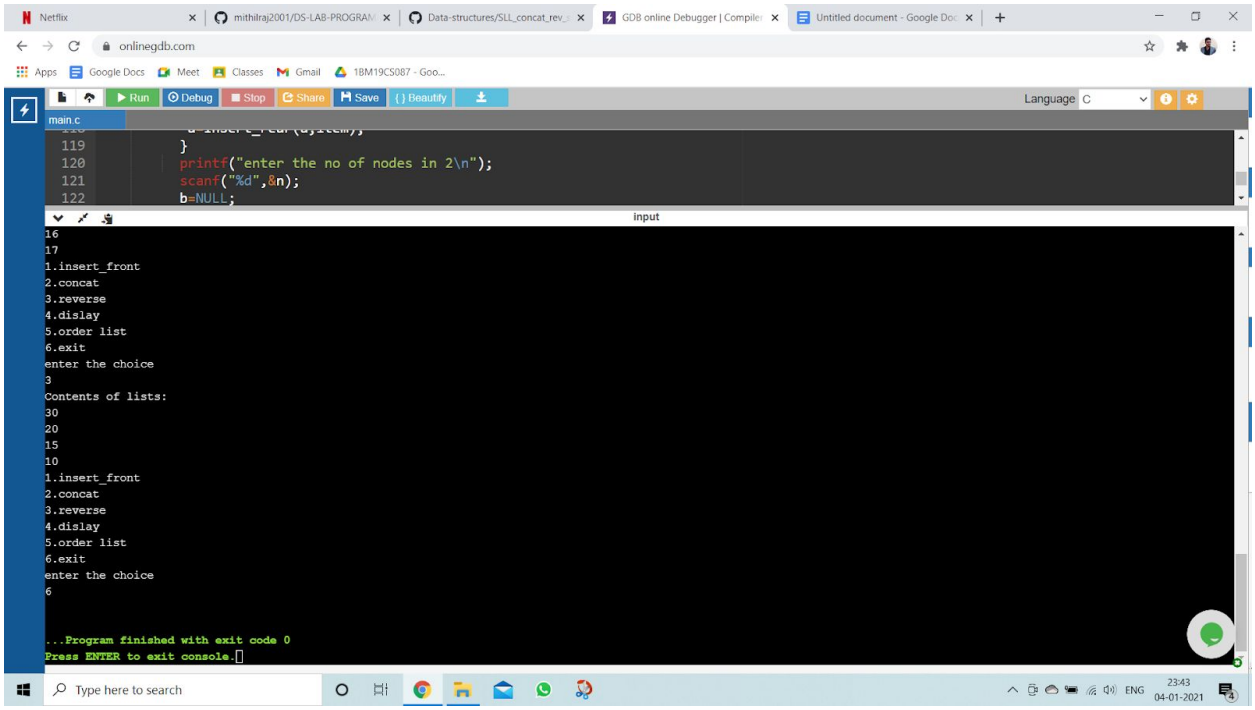
OUTPUT:-


onlinegdb.com
Run
Debug
Stop
Share
Save
{ } Beautify
Language C
main.c
119 }
120 printf("enter the no of nodes in 2\n");
121 scanf("%d",&n);
122 b=NULL;
input
main.c:142:11: warning: incompatible implicit declaration of built-in function 'exit'
main.c:142:11: note: include '<stdlib.h>' or provide a declaration of 'exit'
1.insert_front
2.concat
3.reverse
4.dislay
5.order list
6.exit
enter the choice
1
enter the item
10
1.insert_front
2.concat
3.reverse
4.dislay
5.order list
6.exit
enter the choice
1
enter the item
20
1.insert_front
2.concat
3.reverse
4.dislay
5.order list
Type here to search
ENG
23:43
04-01-2021


onlinegdb.com
Run
Debug
Stop
Share
Save
{ } Beautify
Language C
main.c
119 }
120 printf("enter the no of nodes in 2\n");
121 scanf("%d",&n);
122 b=NULL;
input
4.dislay
5.order list
6.exit
enter the choice
1
enter the item
30
1.insert_front
2.concat
3.reverse
4.dislay
5.order list
6.exit
enter the choice
5
enter the item to be inserted in ordered_list
15
1.insert_front
2.concat
3.reverse
4.dislay
5.order list
6.exit
enter the choice
4
Contents of lists:
10
Type here to search
ENG
23:43
04-01-2021


onlinegdb.com
Run
Debug
Stop
Share
Save
{ } Beautify
Language C
main.c
}
printf("enter the no of nodes in 2\n");
scanf("%d",&n);
b=NULL;
input
Contents of lists:
10
15
20
30
1.insert_front
2.concat
3.reverse
4.dislay
5.order list
6.exit
enter the choice
2
enter the no of nodes in 1
2
enter the item
12
enter the item
14
enter the no of nodes in 2
3
enter the item
15
enter the item
16
enter the item
17
Type here to search
ENG
23:43
04-01-2021


onlinegdb.com
Run
Debug
Stop
Share
Save
{ } Beautify
Language C
main.c
119 }
120 printf("enter the no of nodes in 2\n");
121 scanf("%d",&n);
122 b=NULL;
input
enter the item
17
Contents of lists:
12
14
15
16
17
1.insert_front
2.concat
3.reverse
4.dislay
5.order list
6.exit
enter the choice
3
Contents of lists:
30
20
15
10
1.insert_front
2.concat
3.reverse
4.dislay
5.order list
6.exit
Type here to search
ENG
23:43
04-01-2021


onlinegdb.com
Run
Debug
Stop
Share
Save
{ } Beautify
Language C
main.c
119 }
120 printf("enter the no of nodes in 2\n");
121 scanf("%d",&n);
122 b=NULL;
input
16
17
1.insert_front
2.concat
3.reverse
4.dislay
5.order list
6.exit
enter the choice
3
Contents of lists:
30
20
15
10
1.insert_front
2.concat
3.reverse
4.dislay
5.order list
6.exit
enter the choice
6
...Program finished with exit code 0
Press ENTER to exit console.
Type here to search
ENG
23:43
04-01-2021