```
Lab 7:--
Program:-
#include<stdio.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("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)
 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 asc(NODE first)
{
    NODE prev=first;
    NODE cur=NULL;
                 int temp;
if(first== NULL) {
           return 0;
           }
else {
          while(prev!= NULL) {
           cur = prev->link;
           while(cur!= NULL) {
         if(prev->info > cur->info) {
           temp = prev->info;
           prev->info = cur->info;
           cur->info = temp;
            }
            cur = cur->link;
           }
           prev= prev->link;
                      }
```

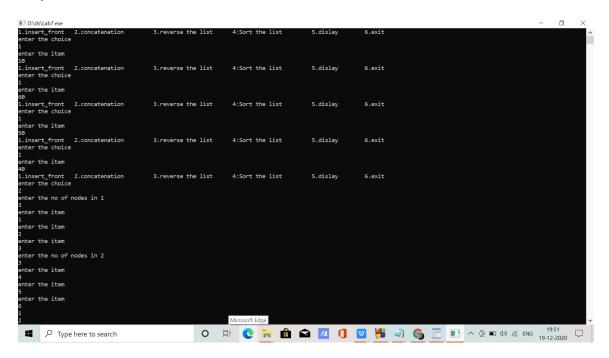
```
}
                  return first;
            }
NODE des(NODE first)
{
    NODE prev=first;
     NODE cur=NULL;
                 int temp;
if(first==NULL) {
        return 0;
         }
        else {
          while(prev!= NULL) {
          cur = prev->link;
           while(cur!= NULL) {
         if(prev->info < cur->info) {
           temp = prev->info;
           prev->info = cur->info;
           cur->info = temp;
```

```
}
                 cur = cur->link;
                 }
                 prev= prev->link;
                  }
                  return first;
             }
void main()
{
int item, choice, pos, i, n, option;
NODE first=NULL,a,b;
for(;;)
{
printf("1.insert_front\t 2.concatenation\t 3.reverse the list\t 4:Sort the list\t 5.dislay\t 6.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;
                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:printf("Press 1 for ascending sort and 2 for descending sort:\n");
        scanf("%d",&option);
```

```
if(option==1)
    first=asc(first);
    if(option==2)
    first=des(first);
    break;
case 5:display(first);
    break;
default:exit(0);
}
```

Output screenshot:-



Written Picture:-

D:\ds\Lab7.exe							5 X
insert_front nter the choice a a	2.concatenation	3.reverse the list	4:Sort the list	5.dislay	6.exit		
9	2.concatenation	3.reverse the list	4:Sort the list	5.dislay	6.exit		
ress 1 for asce	ending sort and 2 for	descending sort:					
nter the choice 0 0 0	2.concatenation	3.reverse the list	4:Sort the list	5.dislay	6.exit		
9	2.concatenation	3.reverse the list	4:Sort the list	5.dislay	6.exit		
ress 1 for asce	ending sort and 2 for	descending sort:					
insert_front nter the choice 3	2.concatenation	3.reverse the list	4:Sort the list	5.dislay	6.exit		
9 9		3.reverse the list	4:Sort the list	5.dislay	6.exit		
Start any key to	continue.	CINC . / J. 455 5					

```
NODE
    Lab 7.
                                                 H (fin
    #include < stdio. h>
                                                  print
    #include estalib.n>
                                                  4001 (·
    Struct node &
                                                   5
    int into:
                                                   poli
   Struct node Klinki
                                                    7
   typedet struct node * NODE;
                                                    TOM
   Nobe getnode() f
    z = (NODE) malloc (size of (Anct node));
   if (x==NULL) 4
   print (" memory fue in");
   exit(o);
   outurn x;
  NODE insut_man (NODE just, int item)
  NODE temp, cus;
  temp=genode();
  temp > into = item;
  tenp -> link = NOLLi
 9+ (florst == NULL)
 setven temp;
 cur = jorst:
 while (we > link!=NULL)
  cur = um -> tanki
 wn + unk = temp;
  seturn firsts
void display (NODE finst)
```

```
NODE ase (NODE House)
     4 NODE pren=first;
     NODE CUM = NULL'
     int temp;
if (first == NULL) 4
    suturn 0;
    else 4
    while (prev 1 = NULL) }
    my = pour + link;
    while (wor! = NULL) }
    Et (prev >into > cur >into) 4
    temp = pruv > info;
   pour -> into = un -> into;
   cur > into = temps
   cur = cur > (mk)
   pow = pow-link; 7
   fitting firsts
 NODE dus (NODE finst) of
  NODE pren = first;
 NODE WIE NULL; growth was a soup
 int temp;
 9 + (first == NULL) 1
  survin 0;
else & while ( prev! = NULL) &
un = prun > (int;

(un) = Nul) }
```

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temp= prun >into3
    prus sinfo = un sinto;
    cur -> into = temp; 3
    un = un > link; 3
  prun = prun > linki }
   netrum jinst;
NODE first = NOLL, 9, b;
for (;;)
  void main 1) 1
  int item, unoice, pos, i, n, option;
 point ("1. input - front ) t 2. concoutenation 1 t 3
 surveyse the list It 4: sout the list It 5. display
 It 6. exit In 11);
 pointf ("enter the choice \n");
 scanf ("1.d", & choice);
 cwitch (choice)
case 4: point ("enter the item (n))3
    scount ("1.d", gitum);
   fiorst = innere _ mean (fiorst, item);
   briak;
case 2: print (" enew the no of now in 1 (n1);
 scount ("1.d", sn);
 a = NULL
 tou(i=0; icn; i++) }
printfl enter the item > n1)];
scount (1/2. d), & Etem);
a= Prisert _ suor (a, item);
```

printf ("enter the no of nodes in 2 m"); scant ("1.0", &n)5 b = NOLLS ton (i=0;i2n;1++)4 pounts ("enter the Hem \nil); Scanf (" 1. d", Bitum); b = Trust - sear (b, item) > } a = concat (a, b); display(a); break; case 3: fiorst = revenu (first); case 4: prit (" Press 1 for are and 2 for descini) st ("xd", goprion); If (option = = 1)

first = asc(first)s

it (option = = 2) first = des (first) ; case 5: display (first); break; dejault: exit(0); 19 4 1 (Towntha 19 x 11) 214052 Courting son & Tremes - private - tourse class to an ent some " some of some