LAB Program-5

```
#include<alloc.h>
#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("Memory is full\n");
              exit(0);
           }
        else
           {
           return x;
           }
     }
```

```
NODE insertfront (NODE first, int item)
{
        NODE temp;
        temp= getnode;
        temp->inf = item;
        temp->link= NULL;
        if (first== NULL)
         {
            return temp;
         }
        temp -> link = first;
           first=temp;
        return first;
     }

NODE insertrear(NODE first, int item)
 {
         NODE temp;
      temp= getnode();
      temp->inf=item;
       temp -> link = NULL;
      if (first==NULL)
         {
           return temp;
         }
        cur = first;
      while (cur->link != NULL)
          {
```

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

NODE insertpos (int item, int pos, NODE first)
  {
        NODE  temp, cur, prev;
        int count;
      temp = getnode();
       temp->info = item;
       temp->link = NULL;
        if (first==NULL && pos==1)
              {
                 return temp;
               }
           if (first==NULL)
              {                          pos
                 printf ("Invalid ~~[illegible]~~");
                      return first;
               }
           if (pos==1)
          {
             temp->link = first;
                first = temp;
           } return first;
```

```
count = 1;
prev = NULL;
cur = first;
while (cur != NULL && count != pos)
    {
        prev = cur;
        cur = cur -> link;
        count++;
    }
    if (count == pos)
    {
        prev -> link = temp
        temp -> link = cur;
        return first
    }
    printf ("Invalid pos\n");
        return first;
    }

void display (NODE first)
{
    NODE temp;
    if (first == NULL)
        {
         printf ("list empty\n");
        }
```

```
printf ("The elements are=");
for (temp=first; temp!=NULL; temp=
                                  temp->link)
      {
            printf ("%d\t", temp->info);
       }
       printf ("\n");
    }

int  main ()
  {
      int c, item, pos;
     NODE first = NULL;
      for (;;)
  {
printf ("1-Insertfront\n 2-Insertrear \n 3-Insert at
  given pos \n 4-Display \n 5-Exit\n");
printf ("Enter choice\n");
    scanf ("%d", &c);
    switch (c)
    {
```

```
case1:
    printf("Enter item to be inserted
                         front\n");
     scanf("%d", &item);
    first=insertfront(first,item);
         break;
case2:
   printf("Enter the item\n");
     scanf("%d", &item);
     first- insertrear(first,item);
              break;
case3:
    printf("Enter the item and pos\n")
      scanf("%d", &item);
      scanf("%d", &pos)
     first=insertpos(item,pos,first);
           break;
case 4:
     display(first);
          break;
```

```
Case5:
    exit(0);
default:
    printf("Invalid choice");
  }
 }
}
```