

```

3)//queue

#include<stdio.h>

void enqueue(int data);

int size=5,front=-1,rear=-1,data;

int queue[5];

int main(){

    int data[5];

    data[0]=9;

    data[1]=8;

    data[2]=7;

    data[3]=6;

    data[4]=5;

    for(int i=0;i<5;i++){

        enqueue(data[i]);

        printf("queue elements are%d\t",queue[i]);

    }

    return 0;
}

void enqueue(int data){

    if(rear==size-1){

        printf("queue is full\n");

    }

    else{

        front=0;

        rear=rear+1;

```

```

queue[rear]=data;

}

```

```

}

```

output:-

The screenshot shows the OnlineGDB online compiler interface. The code editor contains the following C program:

```

1 #include<stdio.h>
2 void enqueue(int data);
3 int size=5,front=-1,rear=-1,data;
4 int queue[5];
5 int main()
6 {
7     int data[5];
8     data[0]=9;
9     data[1]=8;
10    data[2]=7;
11    data[3]=6;
12    data[4]=5;
13    //data is initialized
14    enqueue(data[0]);
15    enqueue(data[1]);
16    enqueue(data[2]);
17    enqueue(data[3]);
18    enqueue(data[4]);
19    return 0;
20 }

```

The output console shows the following text:

```

queue elements are9    queue elements are8    queue elements are7    queue elements are6
queue elements are5

...Program finished with exit code 0
Press ENTER to exit console.

```

4)//linked stack push and print function

```

#include<stdio.h>

```

```

#include<stdlib.h>

```

```

void push ();

```

```

void print ();

struct node
{
    int data;

    struct node *link;
};

typedef struct node ls;

ls *first = NULL, *temp, *last = NULL;

int data, count;

int
main ()
{
    int choice;

    printf ("1.push()\t 2.print()\t 3.exit()");

    while (choice < 4)
    {
        printf ("enter the choice\n");

        scanf ("%d", &choice);

        switch (choice)
        {
            case 1:
                push ();

                break;

            case 2:
                print ();

                break;

            case 3:
                exit (0);

```

```
        break;

    default:

        printf ("invalid choice\n");

        break;

    }

}

return 0;

}
```

```
void

push ()

{

    if (first == NULL)

    {

        first = (ls *) malloc (sizeof (ls));

        printf ("enter the data to be inserted\n");

        scanf ("%d", &data);

        first->data = data;

        first->link = NULL;

        ++count;

    }

    else

    {

        temp = (ls *) malloc (sizeof (ls));

        temp = first;

        while (temp->link!=NULL)

        {

            temp = temp->link;
```

```

    }

    last = (ls*) malloc (sizeof (ls));

    printf ("enter the data to be inserted\n");

    scanf ("%d", &data);

    last->data = data;

    temp->link = last;

    last->link = NULL;

    ++count;
}
}

```

```

void print()
{
    if (first == NULL)
    {
        printf ("stack is empty\n");
    }
    else
    {
        temp = first;
        while (temp != NULL)
        {
            printf ("%d\t %u\n", temp->data, temp->link);

            temp = temp->link;
        }

        printf("number of elements in the stack is %d\n",count);
    }
}

```

```

}

}

```

output:-

The screenshot shows the OnlineGDB online compiler interface. The code editor contains a C program for a stack implemented using a linked list. The program includes functions for pushing, printing, and exiting the stack. The output window shows the program's execution, where the user enters choices to push elements onto the stack. The output indicates that the stack is empty initially, and after three pushes, it contains three elements. The program finishes with exit code 0.

```

main.c
76 printf("stack is empty\n");
77 }
78 else
79 {
80     temp = first;
81     while (temp != NULL)
82     {
83         printf("%d\t %d\n", temp->data, temp->link);

```

Input:

```

1.push()      2.print()      3.exit()enter the choice
2
stack is empty
enter the choice
1
enter the data to be inserted
23
enter the choice
1
enter the data to be inserted
45
enter the choice
1
enter the data to be inserted
78
enter the choice
2
23      6930512
45      6930576
78      0
number of elements in the stack is 3
enter the choice
3
...Program finished with exit code 0
Press ENTER to exit console.

```

5)&6)//linked list insertend and insert at position functions

```
#include<stdio.h>
```

```
#include<stdlib.h>
```

```
void insertend();
```

```
void insertpos();
```

```
void print ();
```

```
struct node
```

```
{
```

```
int data;
```

```
struct node *link;
```

```
};
```

```

typedef struct node ll;

ll *first = NULL, *temp, *last = NULL;

int data,pos,size=0,i;

int

main ()

{

    int choice;

    printf ("1.insertend()\t 2.insertpos\t 3.print()\t 4.exit()");

    while (choice < 4)

    {

        printf ("enter the choice\n");

        scanf ("%d", &choice);

        switch (choice)

        {

            case 1:

                insertend ();

                break;

            case 2:

                insertpos ();

                break;

            case 3:

                print ();

                break;

            case 4:exit(0);

                break;

            default:

                printf ("invalid choice\n");

                break;

```

```

        }

    }

    return 0;
}

void insertbeg(){
    if(first==NULL){
        first=(ll*)malloc(sizeof(ll));

        printf("enter the data to be inserted\n");

        scanf("%d",&data);

        first->data=data;

        first->link=NULL;

        ++size;
    }

    else{
        temp=(ll*)malloc(sizeof(ll));

        printf("enter the data to be inserted\n");

        scanf("%d",&data);

        temp->data=data;

        temp->link=first;

        first=temp;

    }

}

void
insertend ()
{

```



```

if (first == NULL)
{
    first = (ll *) malloc (sizeof (ll));

    printf ("enter the data to be inserted\n");

    scanf ("%d", &data);

    first->data = data;

    first->link = NULL;

    ++size;
}
else
{
    temp = (ll *) malloc (sizeof (ll));

    temp = first;

    while (temp->link!=NULL)
    {
        temp = temp->link;
    }

    last = (ll*) malloc (sizeof (ll));

    printf ("enter the data to be inserted\n");

    scanf ("%d", &data);

    last->data = data;

    temp->link = last;

    last->link = NULL;

    ++size;
}
}

```

```

void insertpos(){

```

```

ll *temp1;

printf("enter the position to insert the data\n");

scanf("%d",&pos);

if(pos==0){

    insertbeg();

}

else{

    if(pos>size){

        printf("out of bound\n");

    }

    else{

        temp=first;

        for(i=1;i<pos;i++){

            temp=temp->link;

        }

        temp1=(ll*) malloc(sizeof(ll));

        printf("enter the data to be inserted");

        scanf("%d",&data);

        temp1->link=temp->link;

        temp->link=temp1;

        temp1->data=data;

        ++size;

    }

}

}

```

```
void print()
{
    if (first == NULL)
    {
        printf ("linked list is empty\n");
    }
    else
    {
        temp = first;
        while (temp != NULL)
        {
            printf ("%d\t %u\n", temp->data, temp->link);
            temp = temp->link;
        }
    }
}
```

output:-

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```
main.c
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    print("out of bound\n");
    }
    else{
        temp=first;
        for(i=1;i<pos;i++){
            temp=temp->link;
        }
    }
}
```

main.c:124:19: warning: format '%u' expects argument of type 'unsigned int', but argument 3 has type 'struct node *' [-Wformat=]
1.insertend() 2.insertpos 3.print() 4.exit()enter the choice
1
enter the data to be inserted
22
enter the choice
1
enter the data to be inserted
34
enter the choice
1
enter the data to be inserted
66
enter the choice
3
22 14118992
34 14119056
66 0
enter the choice
4
...Program finished with exit code 0
Press ENTER to exit console.

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main.c
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