Question 1

#include <stdio.h>

#include <stdlib.h>

struct node

{

int data;

struct node \* next;

};

struct node \* head=NULL;

void create()

{

int d;

printf("enter the data : ");

scanf("%d",&d);

struct node \* n= (void \*) malloc(sizeof(struct node));

n->next=NULL;

n->data=d;

if(head==NULL)

{

head=n;

return;

}

else

{

struct node \* temp=head;

while(temp->next!=NULL)

{

temp=temp->next;

}

temp->next=n;

}

}

void print()

{

struct node \* temp=head;

while(temp!=NULL)

{

printf("%d->",temp->data);

temp=temp->next;

}

printf("NULL\n");

}

int main()

{

int n;

printf("enter the size of link list : ");

scanf("%d",&n);

for(int i=0;i<n;i++)

{

create();

}

print();

return 0;

}

Question 2

#include <stdio.h>

#include <stdlib.h>

struct node

{

int data;

struct node \* next;

};

struct node \* head=NULL;

void create()

{

int d;

printf("enter the data : ");

scanf("%d",&d);

struct node \* n=(struct node \*)malloc(sizeof(struct node));

n->next=NULL;

n->data=d;

if(head==NULL)

{

head=n;

return;

}

else

{

struct node \* temp=head;

while(temp->next!=NULL)

{

temp=temp->next;

}

temp->next=n;

}

}

struct node\* reverse(struct node \* head)

{

if(head==NULL || head-> next ==NULL)

{

return head;

}

struct node\* ch=reverse(head->next);

head->next->next=head;

head->next=NULL;

return ch;

}

void print()

{

struct node \* temp=head;

while(temp!=NULL)

{

printf("%d->",temp->data);

temp=temp->next;

}

printf("NULL\n");

}

int main()

{

int n;

printf("enter the size of link list : ");

scanf("%d",&n);

for(int i=0;i<n;i++)

{

create();

}

print();

head=reverse(head);

print();

return 0;

}

Question 3

#include <stdio.h>

#include <stdlib.h>

struct node

{

int data;

struct node \* next;

};

struct node \* head=NULL;

void create()

{

int d;

printf("enter the data : ");

scanf("%d",&d);

struct node \* n=(struct node \*)malloc(sizeof(struct node));

n->next=NULL;

n->data=d;

if(head==NULL)

{

head=n;

return;

}

else

{

struct node \* temp=head;

while(temp->next!=NULL)

{

temp=temp->next;

}

temp->next=n;

}

}

int count()

{

struct node \* temp=head;

int c=0;

while(temp!=NULL)

{

c++;

temp=temp->next;

}

return c;

}

void print()

{

struct node \* temp=head;

while(temp!=NULL)

{

printf("%d->",temp->data);

temp=temp->next;

}

printf("NULL\n");

}

int main()

{

int n;

printf("enter the size of link list : ");

scanf("%d",&n);

for(int i=0;i<n;i++)

{

create();

}

printf("the number of node in the link list is : %d",count());

return 0;

}

Question 4

#include <stdio.h>

#include <stdlib.h>

struct node

{

int data;

struct node \* next;

};

struct node \* head=NULL;

void create()

{

int d;

printf("enter the data : ");

scanf("%d",&d);

struct node \* n=(struct node \*)malloc(sizeof(struct node));

n->next=NULL;

n->data=d;

if(head==NULL)

{

head=n;

return;

}

else

{

struct node \* temp=head;

while(temp->next!=NULL)

{

temp=temp->next;

}

temp->next=n;

}

}

void insert\_at\_any\_pos(int pos)

{

int d;

printf("enter the data : ");

scanf("%d",&d);

struct node \* n=(struct node \*)malloc(sizeof(struct node));

n->next=NULL;

n->data=d;

if(pos==1)

{

n->next=head;

head=n;

}

else{

int ct=1;

struct node \* temp=head;

while(ct<pos-1)

{

temp=temp->next;

ct++;

}

n->next=temp->next;

temp->next=n;

}

}

void insert\_at\_middle()

{

int d=0;

struct node \* temp=head;

while(temp!=NULL)

{

d++;

temp=temp->next;

}

insert\_at\_any\_pos(d/2 + 1);

}

void print()

{

struct node \* temp=head;

while(temp!=NULL)

{

printf("%d->",temp->data);

temp=temp->next;

}

printf("NULL\n");

}

int main()

{

int n;

printf("enter the size of link list : ");

scanf("%d",&n);

for(int i=0;i<n;i++)

{

create();

}

print();

insert\_at\_middle();

print();

return 0;

}

Question 5

#include <iostream>

using namespace std;

class node

{

public:

int data;

node \*next;

node(int d)

{

this->data = d;

this->next = NULL;

}

void create(node \*&head)

{

int d;

cout << "enter the data : ";

cin >> d;

node \*n = new node(d);

if (head == NULL)

{

head = n;

return;

}

node \*temp = head;

while (temp->next != NULL)

{

temp = temp->next;

}

temp->next = n;

}

void print(node \*head)

{

node \*temp = head;

while (temp != NULL)

{

cout << temp->data << "->";

temp = temp->next;

}

cout << "NULL\n";

}

};

int main()

{

node \*head1 = NULL;

node \*head2 = NULL;

int n;

int m;

cout << "enter the length of link list 1 : ";

cin >> n;

for (int i = 0; i < n; i++)

{

head1->create(head1);

}

cout << "enter the length of link list 2 : ";

cin >> m;

for (int i = 0; i < m; i++)

{

head2->create(head2);

}

head1->print(head1);

head2->print(head2);

node \*head3 = NULL;

if (head1->data < head2->data)

{

head3 = head1;

head1 = head1->next;

}

else

{

head3 = head2;

head2 = head2->next;

}

node \*temp = head3;

while (head1 != NULL && head2 != NULL)

{

if (head1->data < head2->data)

{

temp->next = head1;

head1 = head1->next;

temp=temp->next;

}

else

{

temp->next = head2;

head2 = head2->next;

temp=temp->next;

}

}

if(head1!=NULL && head2==NULL)

{

while(head1!=NULL)

{

temp->next = head1;

head1 = head1->next;

temp=temp->next;

}

}

else if(head2!=NULL && head1==NULL)

{

while(head2!=NULL)

{

temp->next = head2;

head2 = head2->next;

temp=temp->next;

}

}

head3->print(head3);

}

Question 6

#include <stdio.h>

#include <stdlib.h>

struct node

{

int data;

struct node \* next;

};

struct node \* head=NULL;

void create()

{

int d;

printf("enter the data : ");

scanf("%d",&d);

struct node \* n=(struct node \*)malloc(sizeof(struct node));

n->next=NULL;

n->data=d;

if(head==NULL)

{

head=n;

return;

}

else

{

struct node \* temp=head;

while(temp->next!=NULL)

{

temp=temp->next;

}

temp->next=n;

}

}

void insert\_at\_any\_pos(int pos)

{

int d;

printf("enter the data : ");

scanf("%d",&d);

struct node \* n=(struct node \*)malloc(sizeof(struct node));

n->next=NULL;

n->data=d;

if(pos==1)

{

n->next=head;

head=n;

}

else{

int ct=1;

struct node \* temp=head;

int l=0;

while(temp!=NULL)

{

l++;

temp=temp->next;

}

if(pos>l)

{

pos=l+1;

}

temp=head;

while(ct<pos-1 )

{

temp=temp->next;

ct++;

}

n->next=temp->next;

temp->next=n;

}

}

void print()

{

struct node \* temp=head;

while(temp!=NULL)

{

printf("%d->",temp->data);

temp=temp->next;

}

printf("NULL\n");

}

int main()

{

int n;

printf("enter the size of link list : ");

scanf("%d",&n);

for(int i=0;i<n;i++)

{

create();

}

print();

int pos;

printf("enter the position : ");

scanf("%d",&pos);

insert\_at\_any\_pos(pos);

print();

return 0;

}

Question 7 inserting a node at the end

Question 8 find and returning the given element in list