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AI-generated content may be incorrect.

**LAB 10 - Stack with Linkedlist and Array**

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Subject: DSA LAB

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Tasks:

1. With Array; Push, Pop, Display

2. With Linkedlist; Push, Pop, Display

**ANSWER**

**CODE**

#include<iostream>

using namespace std;

class stackarr{

public:

int arr[100];

int tail;

stackarr(){

tail=-1;

}

void push(int d){

if(tail==99){

return;

}

tail++;

arr[tail]=d;

}

void pop(){

if(tail==-1){

return;

}

arr[tail]=0;

tail--;

}

void display(){

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

cout<<arr[i]<<" -> ";

}

cout<<"NULL\n\n";

}

};

class Node{

public:

int data;

Node\* next;

Node(int d){

data=d;

next=NULL;

}

};

class stacklink{

Node\* head;

public:

stacklink(){

head=NULL;

}

void push(int d){

Node\* newNode=new Node(d);

if(head==NULL){

head=newNode;

return;

}

newNode->next=head;

head=newNode;

}

void pop(){

if(head==NULL){

return;

}

Node\* temp=head;

head=head->next;

delete temp;

}

void display(){

Node\* temp=head;

while(temp!=NULL){

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

temp=temp->next;

}

cout<<"NULL\n\n";

}

};

int main(){

cout<<"stack with linklist:\n";

stacklink l1;

l1.push(1);

l1.push(2);

l1.push(3);

l1.push(4);

l1.push(5);

l1.display();

l1.pop();

l1.display();

cout<<"stack with array:\n";

stackarr l;

l.push(1);

l.push(2);

l.push(3);

l.push(4);

l.push(5);

l.display();

l.pop();

l.display();

}

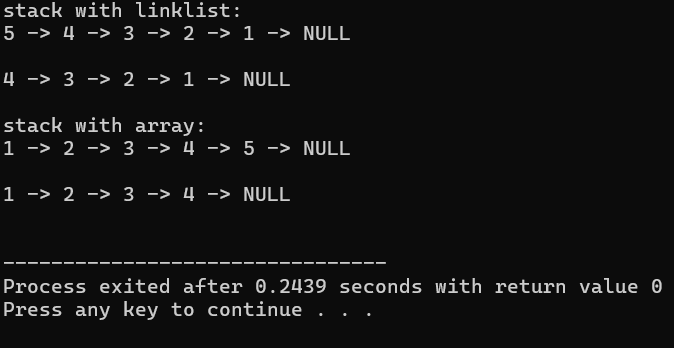
**How it works:**

1. **Array stack: Uses array with position marker**
2. **Push: Adds element at top position**
3. **Pop: Removes top element**
4. **Linked stack: Uses connected nodes**
5. **Push: Adds new node at head**
6. **Pop: Removes head node**

**Why it works:**

1. **Array: Fast direct access, simple**
2. **Linked list: Dynamic size, no overflow**
3. **Both follow LIFO principle**

**OUTPUT**

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