//Program to implement two stack from a single array in c:

#include <stdio.h>

#include<stdlib.h>

#include<limits.h>

struct Stack{

int top1;

int top2;

int capacity;

int \* arr;

};

struct Stack \*createStack(unsigned n){

struct Stack \*stack=(struct Stack \*)malloc(sizeof(struct Stack));

stack->capacity=n;

stack->top1=-1;

stack->top2=stack->capacity;

stack->arr = (int \*)malloc(stack->capacity \* sizeof(int));

return stack;

}

void push1(struct Stack\*stack,int x){

if(stack->top1 < stack->top2-1)

{

stack->top1++;

stack->arr[stack->top1]=x;

}else{

printf("\nstack overflow\n");

}

}

void push2(struct Stack\*stack,int x){

if(stack->top1 < stack->top2-1)

{

stack->top2--;

stack->arr[stack->top2]=x;

}else{

printf("\nstack overflow\n");

}

}

int pop1(struct Stack \*stack){

if(stack->top1>=0){

int x =stack->arr[stack->top1];

stack->top1--;

return x;

}

}

int pop2(struct Stack \*stack){

if(stack->top2 < stack->capacity){

int x =stack->arr[stack->top2];

stack->top2++;

return x;

}

}

int main(void) {

struct Stack \*stack=createStack(5);

push1(stack,5);

push2(stack,10);

push2(stack,15);

push1(stack,11);

push2(stack,7);

push1(stack,8);

printf("popped element from stack1 is : %d", pop1(stack));

return 0;

}