#include <stdio.h>

int MAXSIZE = 8;

int stack[8];

int top = -1;

int isempty() {

if(top == -1)

return 1;

else

return 0;

}

int isfull() {

if(top == MAXSIZE)

return 1;

else

return 0;

}

int peek() {

return stack[top];

}

int pop() {

int data;

if(!isempty()) {

data = stack[top];

top = top - 1;

return data;

} else {

printf("Could not retrieve data, Stack is empty.\n");

}

}

int push(int data) {

if(!isfull()) {

top = top + 1;

stack[top] = data;

} else {

printf("Could not insert data, Stack is full.\n");

}

}

int main() {

// push items on to the stack

push(3);

push(5);

push(9);

push(1);

push(12);

push(15);

printf("Element at top of the stack: %d\n" ,peek());

printf("Elements: \n");

// print stack data

while(!isempty()) {

int data = pop();

printf("%d\n",data);

}

printf("Stack full: %s\n" , isfull()?"true":"false");

printf("Stack empty: %s\n" , isempty()?"true":"false");

return 0;

}