//check stack implementaion & working

#include<iostream>

using namespace std;

const int MAX=4; //start from index=1 so total size = 3; //bottom end=0 & upper end =4 so stack size = 3

class stack

{

private:

int arr[MAX];int t; //stack pointer

public:

stack()

{

t=0,arr[0]=NULL; //prevent from garbge value.also set its bottom end

}

/////////////////////////////////////////////////////////

bool check\_full()

{

if(t==MAX) //if t==4 then show full (upper bound) 0==4

{

return 1;

}

else

return 0;

}

bool check\_empty()

{

if(t==0) //lower bound 0==0

return 1;

else

return 0;

}

////////////////////////////////////////////////////////////////////

int check\_status()

{

system("color d0");

int st;

st=MAX-t; //calculate availible size in stack.

return st-1;//return exact availible size(status i.e stack pointer head) in stack.

}

//////////////////////////////////////////////////////////////////////////////

void push()

{

system("color c0");

if(check\_full()) //execuete only one time

{

cout<<"\nstack is full (overflow) : \n";

return;

}

else

{

int r;

r=check\_status();

cout<<"availible size = "<<r<<endl;

if(r==0)

{

cout<<"\nstack full :\n";

return;

}

else

{

int p;

cout<<"\nEnter value : ";

cin>>p;

arr[++t]=p; //insert value

cout<<"\ninserted value is : "<<p<<endl;

cout<<"\nafter insert value availible size = "<<r-1<<endl;

return;

}

} //else body

}

////////////////////////////////////////////////////////////////////////////////////

void pop()

{

system("color a0");

if(check\_empty())

{

cout<<"\nstack is empty (underflow) : \n";

return;

}

else

{

int c;//char op;

c=check\_status();

cout<<"availible size = "<<c<<endl;

if(c==MAX)

{

cout<<"\nstack is empty :\n";

return;

}

else

{

cout<<"\nextracted value is : "<<arr[t--]<<endl;

cout<<"\nafter extract value availible size = "<<c+1<<endl;

return ;

}

}

}

//////////////////////////////////////////////////////////////////////////

void display()

{

system("color f0");

if(t==0) //if empty already then show nothing

{

cout<<"\nstack is empty\n";

}

else //if atleast one value exist in stack then show

{

for(int i=1;i<=t;i++)

{

cout<<"\nstack element at index : [ "<<i<<" ] is : "<<arr[i];

}

return;

}

}

};

////////////////////////////////////////////////////////////////

int main()

{

system("color b0");

stack s1;

int ch;

cout<<"\n\t\t\tstack implementation based on (LIFO) principle\n\n";

while(1)

{

cout<<"\n1-push \n2-pop \n3-display current stack \n4-exit\n\n";

cout<<"\nEnter ur choice : ";

cin>>ch;

switch(ch)

{

case 1:

s1.push();

break;

case 2:

s1.pop();

break;

case 3:

s1.display();

break;

case 4:

exit(1);

break;

}

}

system("pause");

return 0;

}