#include<stdio.h>

#include<stdlib.h>

#define MAX 3

int s[MAX];

int top = -1;

void push(int item);

int pop();

void palindrome();

void display();

void main()

{

int choice, item;

while (1)

{

printf("\n\n\n\n-----------Menu----------- : ");

printf("\n=>1.Push an Element to Stack and Overflow demo ");

printf("\n=>2.Pop an Element from Stack and Underflow demo");

printf("\n=>3.Palindrome demo ");

printf("\n=>4.Display ");

printf("\n=>5.Exit");

printf("\nEnter your choice: ");

scanf("%d", & choice);

switch (choice)

{

case 1:

printf("\nEnter an element to be pushed: ");

scanf("%d", & item);

push(item);

break;

case 2:

item = pop();

if (item != -1)

printf("\nElement popped is: %d", item);

break;

case 3:

palindrome();

break;

case 4:

display();

break;

case 5:

exit(1);

default:

printf("\nPlease enter valid choice ");

break;

}

}

}

void push(int item)

{

if (top == MAX - 1)

{

printf("\n-----------Stack overflow-----------");

return;

}

top = top + 1;

s[top] = item;

}

int pop()

{

int item;

if (top == -1)

{

printf("\n-----------Stack underflow-----------");

return -1;

}

item = s[top];

top = top - 1;

return item;

}

void display()

{

int i;

if (top == -1)

{

printf("\n-----------Stack is empty-----------");

return;

}

printf("\nStack elements are:\n ");

for (i = top; i >= 0; i--)

printf("| %d |\n", s[i]);

}

void palindrome()

{

int flag = 1, i;

printf("\nStack content are:\n");

for (i = top; i >= 0; i--)

printf("| %d |\n", s[i]);

printf("\nReverse of stack content are:\n");

for (i = 0; i <= top; i++)

printf("| %d |\n", s[i]);

for (i = 0; i <= top / 2; i++)

{

if (s[i] != s[top - i])

{

flag = 0;

break;

}

}

if (flag == 1)

{

printf("\nIt is palindrome number");

}

else

{

printf("\nIt is not a palindrome number");

}

}