#include <stdio.h>

#define MAX 100

int stack[MAX];

int top = -1;

// PUSH operation

void push(int value) {

if (top >= MAX - 1) {

printf("Stack Overflow! Cannot push %d\n", value);

} else {

stack[++top] = value;

printf("Pushed %d onto the stack.\n", value);

}

}

// POP operation

void pop() {

if (top == -1) {

printf("Stack Underflow! Nothing to pop.\n");

} else {

printf("Popped %d from the stack.\n", stack[top--]);

}

}

// PEEK operation

void peek() {

if (top == -1) {

printf("Stack is empty. Nothing to peek.\n");

} else {

printf("Top element is %d\n", stack[top]);

}

}

// DISPLAY operation

void display() {

if (top == -1) {

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

} else {

printf("Stack elements (top to bottom): ");

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

printf("%d ", stack[i]);

}

printf("\n");

}

}

int main() {

int choice, value;

while (1) {

printf("\n--- Stack Operations Menu ---\n");

printf("1. PUSH\n");

printf("2. POP\n");

printf("3. PEEK\n");

printf("4. DISPLAY\n");

printf("5. EXIT\n");

printf("Enter your choice: ");

scanf("%d", &choice);

switch (choice) {

case 1:

printf("Enter value to push: ");

scanf("%d", &value);

push(value);

break;

case 2:

pop();

break;

case 3:

peek();

break;

case 4:

display();

break;

case 5:

printf("Exiting program.\n");

return 0;

default:

printf("Invalid choice. Try again.\n");

}

}

}