3. Develop a menu driven Program in C for the following operations on STACK of Integers (Array Implementation of Stack with maximum size MAX)

   a. Push an Element on to Stack
   b. Pop an Element from Stack
   c. Demonstrate how Stack can be used to check Palindrome
   d. Demonstrate Overflow and Underflow situations on Stack
   e. Display the status of Stack
   f. Exit

   Support the program with appropriate functions for each of the above operations.

→
```c
#include<stdio.h>
#include<string.h>
#include<stdlib.h>

#define max_size 5

int stack[max_size],top=-1,i,item;

void push(){
        if(top==(max_size-1))
                printf("\nStack Overflow !");
        else{
                printf("Enter the element to be inserted : ");
                scanf("%d",&item);
                stack[++top]=item;
        }
}

void pop(){
        if(top==-1)
                printf("Stack Underflow !\n");
        else
                printf("\nThe poped element : %d\n",stack[top--]);
}

void pali(){
        if(top==-1)
                printf("Push some elements into the stack first !\n");
        else
                for(i=top;i>=0;i--)
                        if(stack[i]!=stack[top-i]){
                                printf("Not Palindrome\n");
                                return;
                        }

        printf("Palindrome !\n");
}

void display(){
        if(top==-1)
                printf("Stack is Empty !\n");
        else{
                printf("The stack elements are : ");
                for(i=top;i>=0;i--)
                        printf("%d ",stack[i]);
                printf("\n");
        }
}

int main(){
        int choice;
        printf("\n\n--------STACK OPERATIONS--------\n");
        printf("1.Push\n2.Pop\n3.Palindrome\n4.Display\n5.Exit\n");
        while(1){
                printf("> ");
                scanf("%d",&choice);
                switch(choice){
                        case 1:
                                push();
                                break;
                        case 2:
                                pop();
                                break;
                        case 3:
                                pali();
                                break;
                        case 4:
                                display();
                                break;
                        case 5:
                                exit(0);
                                break;

                        default:
                                printf("\nInvalid choice !");
                                break;
                }
        }
}
```