(3) Stack Implementation using Arrays

```
#include <stdio.h>
#define SIZE 5
int stack[SIZE];
int top = -1;
void push (int element);
void pop();
void display ();
int main () {
    int choice, element;
    do {
        printf ("Stack Operations \n");
        printf ("1. Push \n");
        printf ("2. Pop \n");
        printf ("3. Display \n");
        printf ("4. Exit \n");
        printf ("Enter your choice");
        scanf ("%d", &choice);
        switch choice {
        case 1: printf ("Enter elements to push");
                scanf ("%d", &element);
                push (element);
                break;
```

```
        case 2 : pop()
                 break;

        case 3 :  display()
                  break;

        case 4: printf ("Exiting the program.\n");
                 break;

        default :
                 printf( "Invalid choice");

    }

} while (choice != 4);

return 0;
}

void push (int element) {
    if (top == SIZE - 1) {
            printf ("Stack overflow! Cannot push
                     element.\n");
    }
    else {
        top++;
        stack[top] = element;
        printf("%d pushed onto stack\n",
                                element);
    }
}
```

```
void pop() {
    if (top == -1)
    {
        printf("Stack Underflow! Cannot pop
                elements\n");
    }
    else
    {
        printf("%d popped from stack\n",
                stack[top]);
        top--;
    }
}

void display() {
    if (top == -1) {
        printf("Stack is empty");
    }
    else {
        printf("Elements in the stack");
        for (int i=0; i<=top; i++) {
            printf("%d", stack[i]);
        }
        printf("\n");
    }
}
```

→ output

→ Stack Operations

1. Push
2. Pop
3. Display
4. Exit

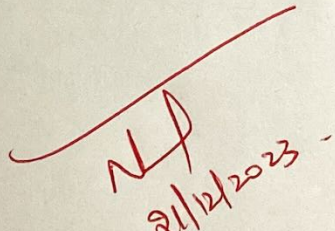
enter your choice : 1

enter element to push : 5

5 pushed onto the stack

→ Stack Operations

1 Push
2 Pop
3 Display
4 Exit



enter your choice : 1

enter the element to push : 9

9 pushed onto the stack

→ Stack Operations :

1 Push
2 Pop
3 Pull
4 Exit

Enter your choice : 2

9 popped from the stack

→ Stack Operations

1 Push

2 Pop

3 Display

4 Exit

Enter your choice: 3

Elements in stack : 5

→ Stack Operations

1 Push

2 Pop

3 Display

4 Exit

Enter your choice: 4

Exiting the program