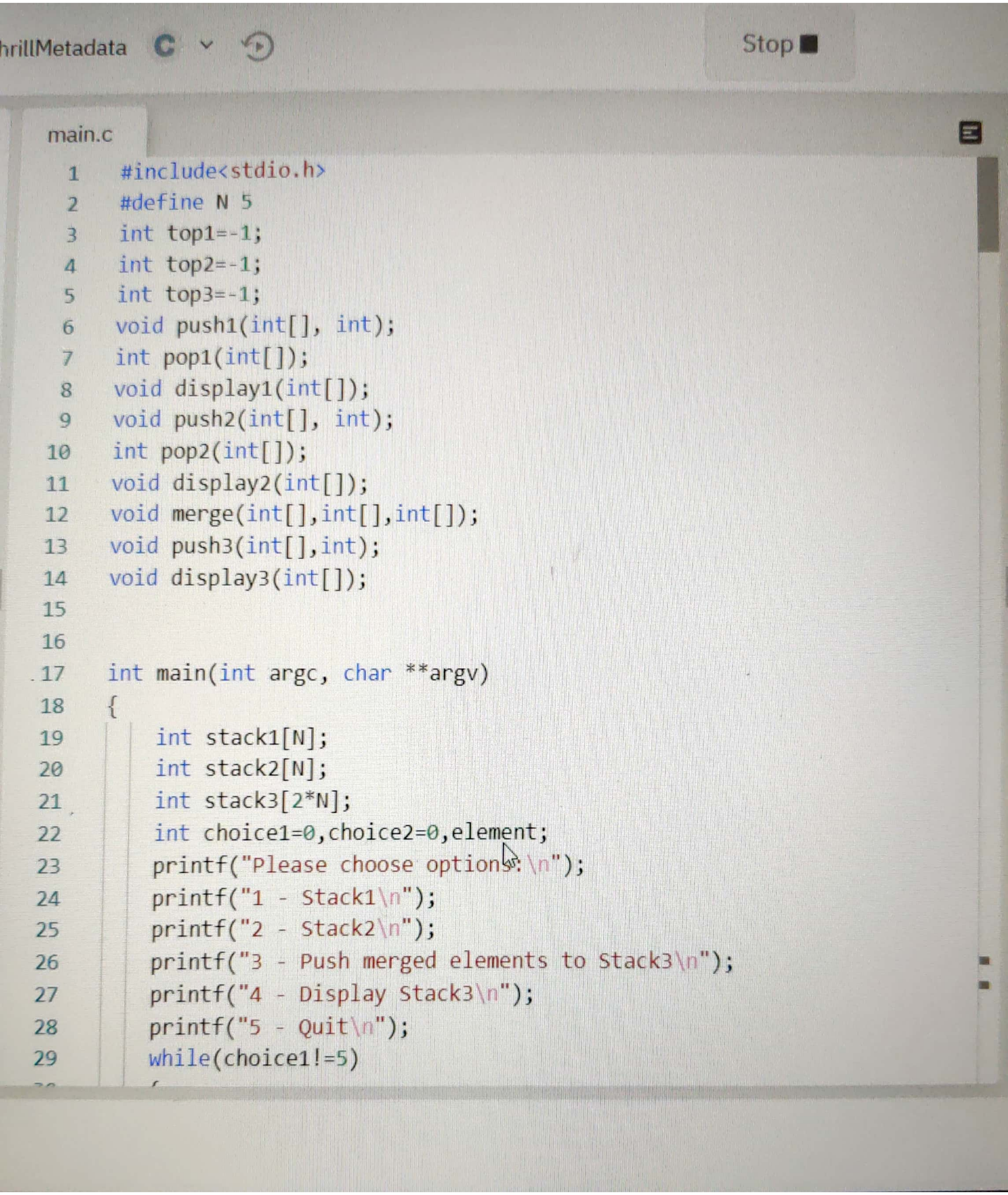
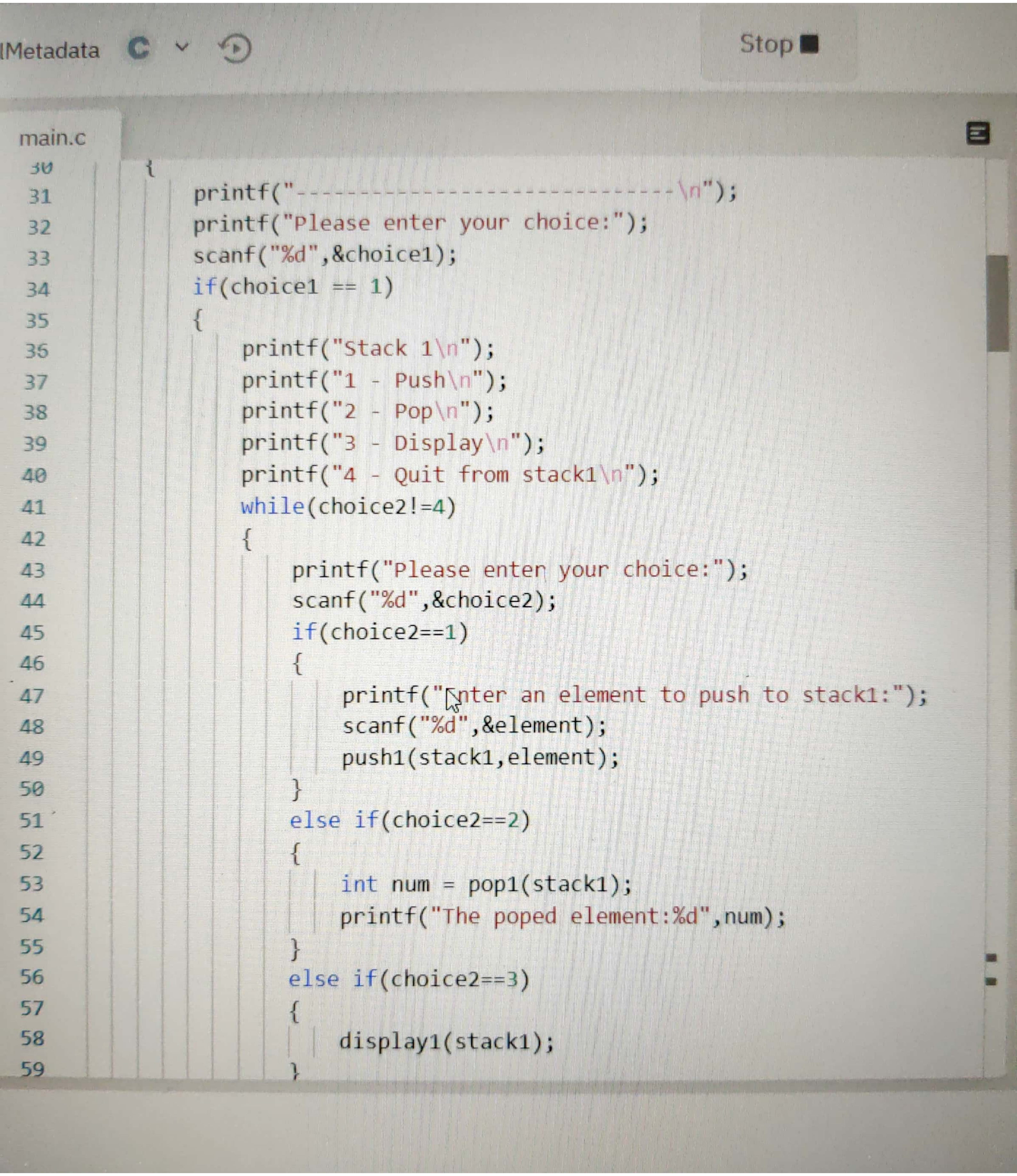
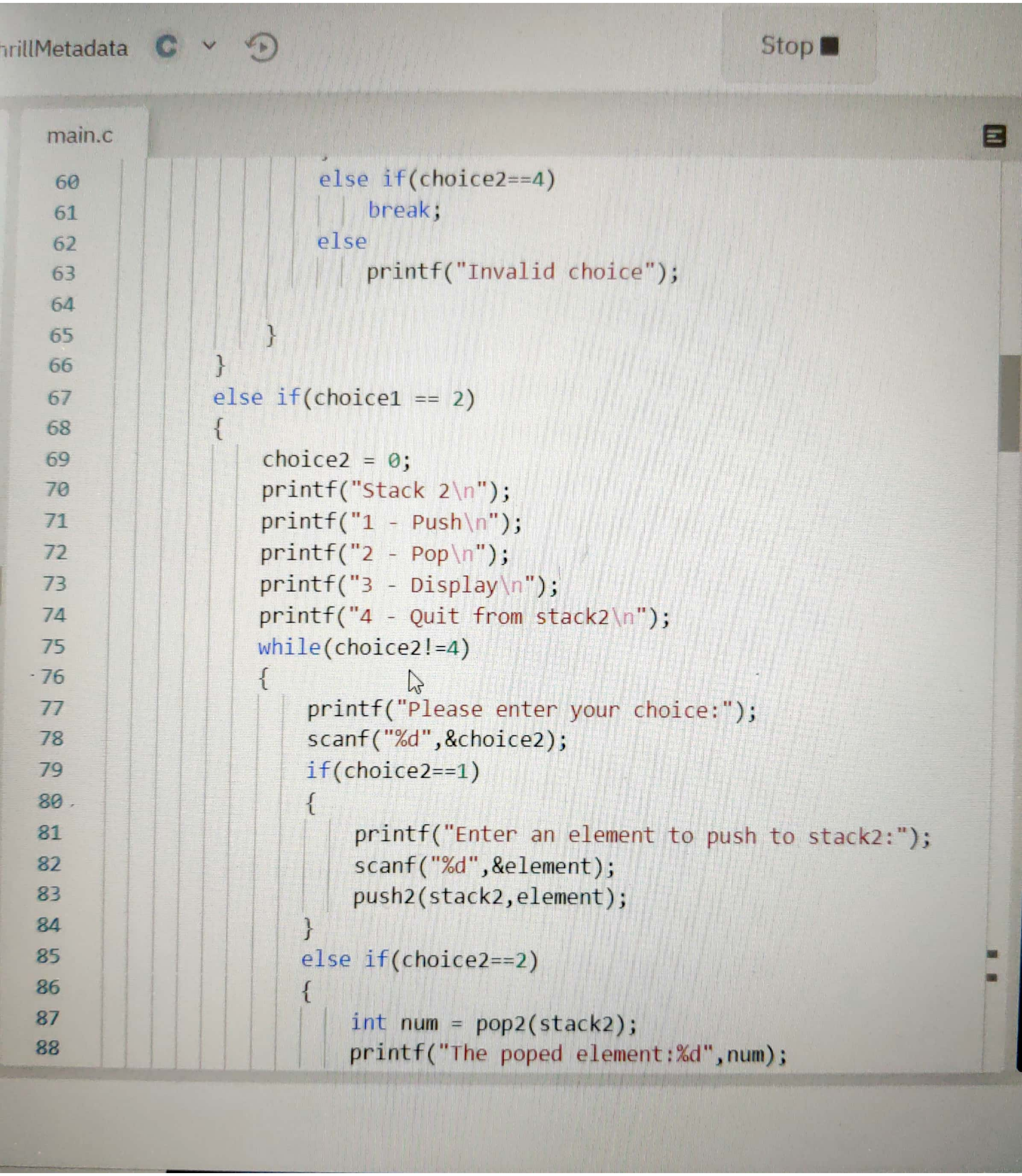


```c
#include<stdio.h>
#define N 5
int top1=-1;
int top2=-1;
int top3=-1;
void push1(int[], int);
int pop1(int[]);
void display1(int[]);
void push2(int[], int);
int pop2(int[]);
void display2(int[]);
void merge(int[],int[],int[]);
void push3(int[],int);
void display3(int[]);


int main(int argc, char **argv)
{
    int stack1[N];
    int stack2[N];
    int stack3[2*N];
    int choice1=0,choice2=0,element;
    printf("Please choose options: \n");
    printf("1 - Stack1\n");
    printf("2 - Stack2\n");
    printf("3 - Push merged elements to Stack3\n");
    printf("4 - Display Stack3\n");
    printf("5 - Quit\n");
    while(choice1!=5)
```

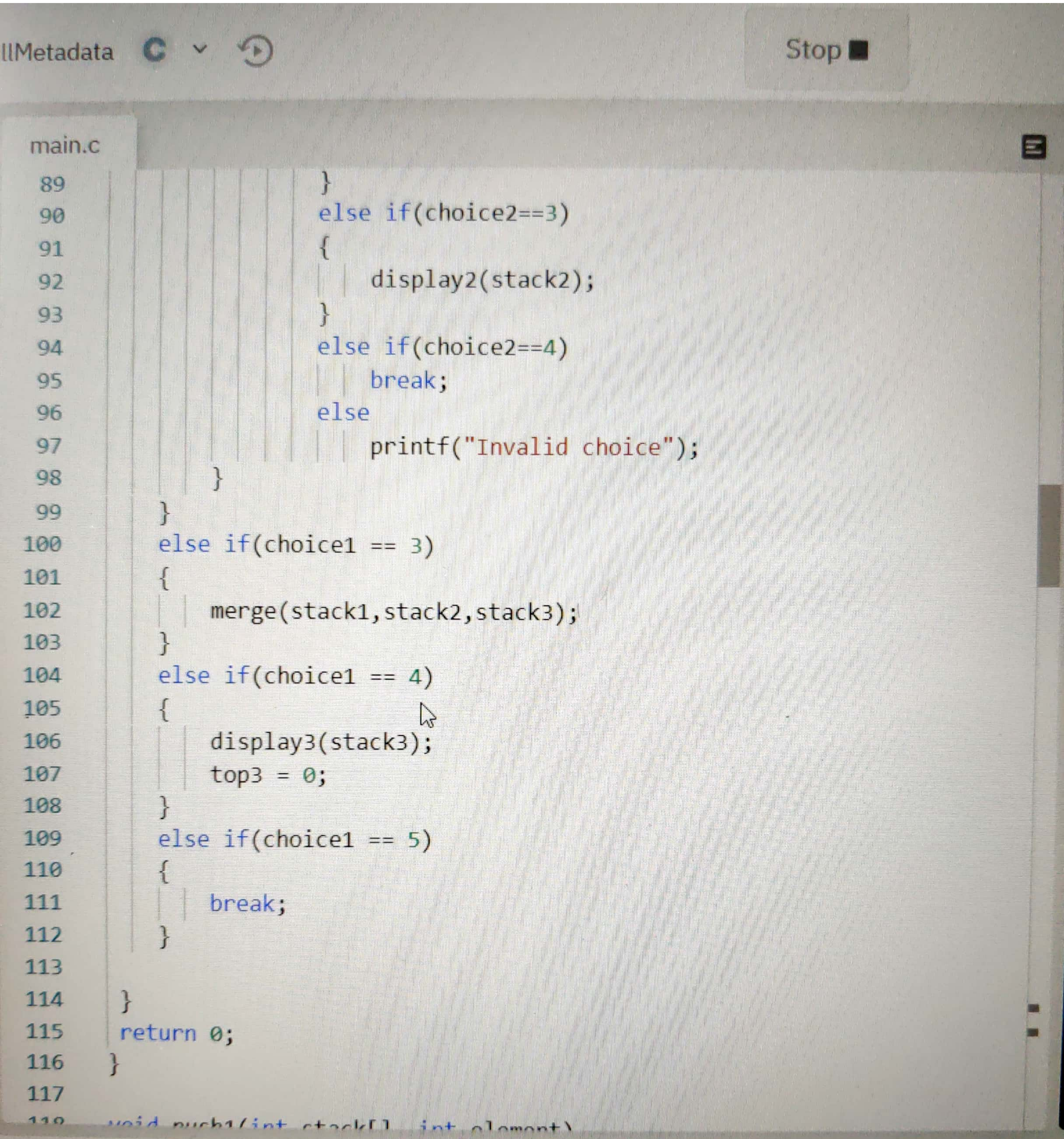


```
{
    printf("-----------------------------\n");
    printf("Please enter your choice:");
    scanf("%d",&choice1);
    if(choice1 == 1)
    {
        printf("Stack 1\n");
        printf("1 - Push\n");
        printf("2 - Pop\n");
        printf("3 - Display\n");
        printf("4 - Quit from stack1\n");
        while(choice2!=4)
        {
            printf("Please enter your choice:");
            scanf("%d",&choice2);
            if(choice2==1)
            {
                printf("Enter an element to push to stack1:");
                scanf("%d",&element);
                push1(stack1,element);
            }
            else if(choice2==2)
            {
                int num = pop1(stack1);
                printf("The poped element:%d",num);
            }
            else if(choice2==3)
            {
                display1(stack1);
            }
```

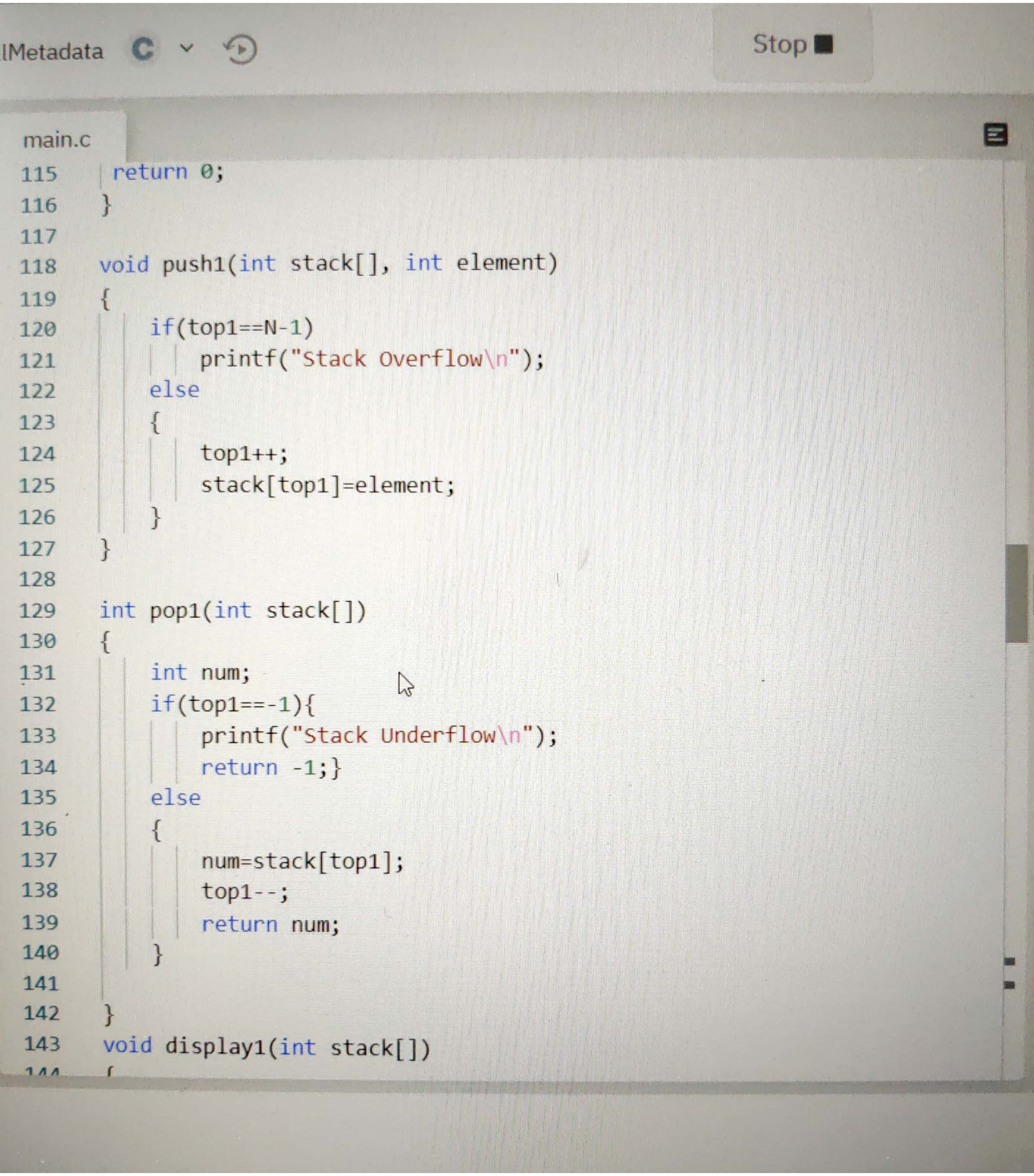


```
                else if(choice2==4)
                    break;
                else
                    printf("Invalid choice");

            }
        }
        else if(choice1 == 2)
        {
            choice2 = 0;
            printf("Stack 2\n");
            printf("1 - Push\n");
            printf("2 - Pop\n");
            printf("3 - Display\n");
            printf("4 - Quit from stack2\n");
            while(choice2!=4)
            {
                printf("Please enter your choice:");
                scanf("%d",&choice2);
                if(choice2==1)
                {
                    printf("Enter an element to push to stack2:");
                    scanf("%d",&element);
                    push2(stack2,element);
                }
                else if(choice2==2)
                {
                    int num = pop2(stack2);
                    printf("The poped element:%d",num);
```

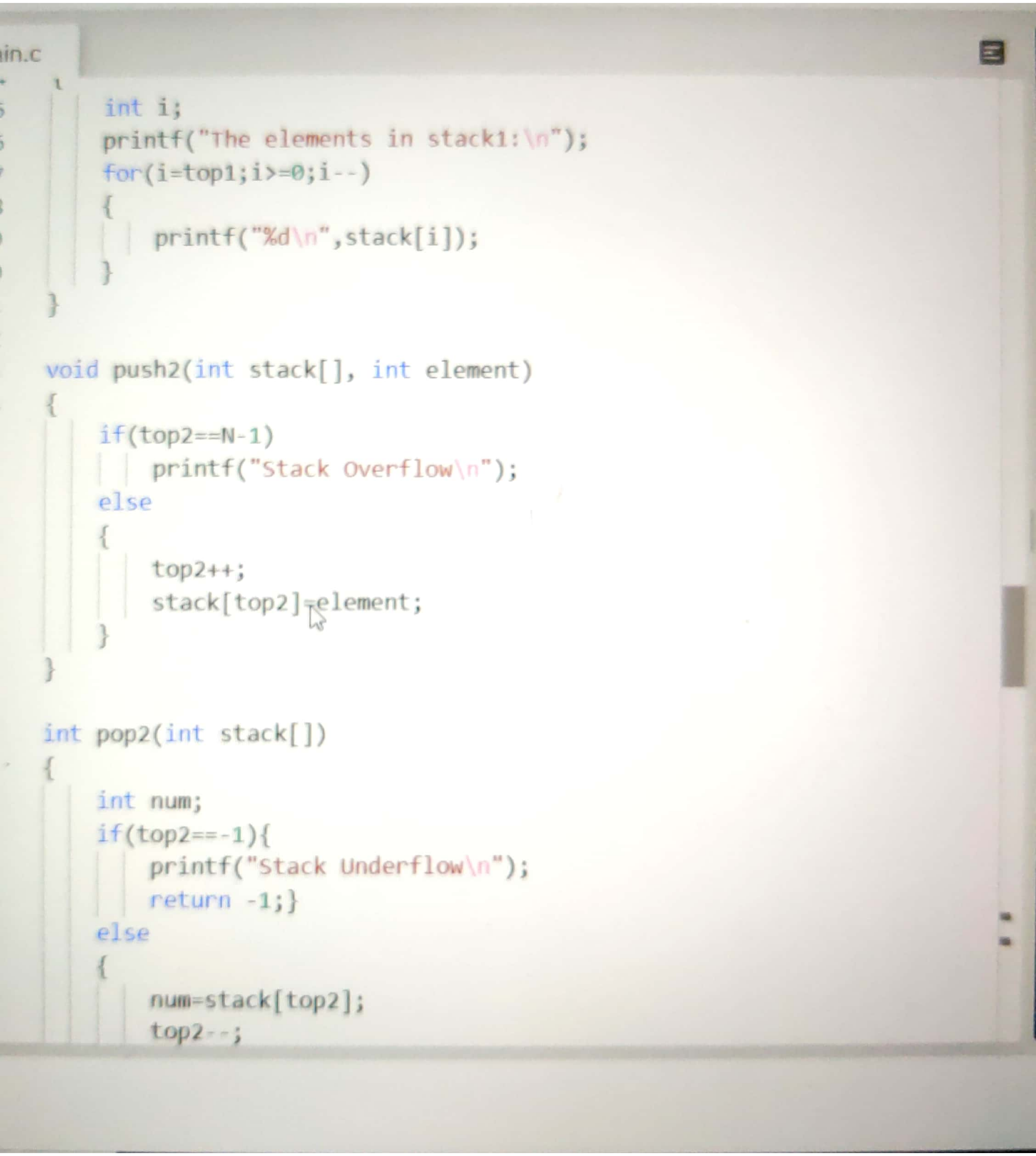
Scanned with CamScanner



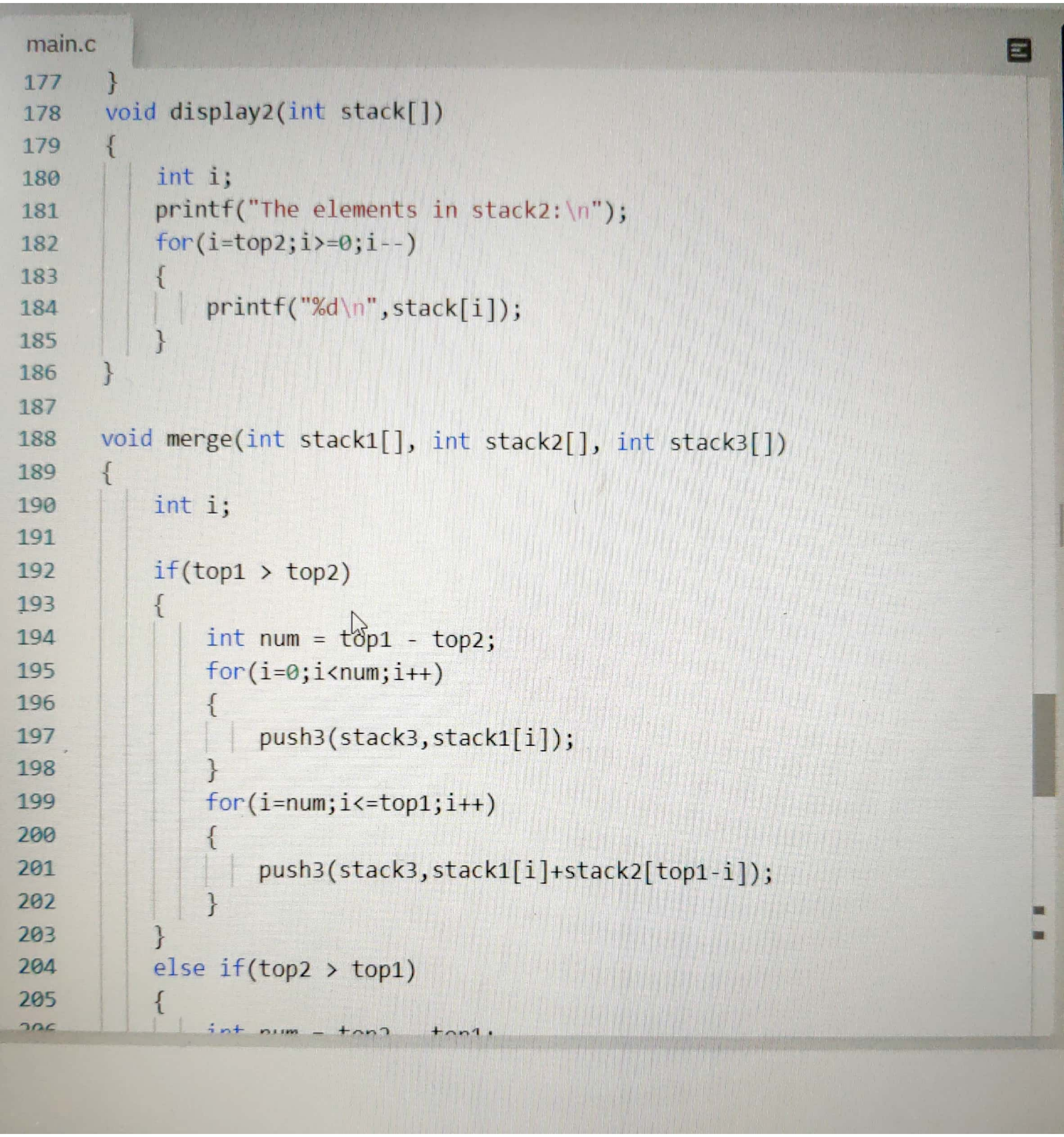
```c
                }
                else if(choice2==3)
                {
                    display2(stack2);
                }
                else if(choice2==4)
                    break;
                else
                    printf("Invalid choice");
        }
    }
    else if(choice1 == 3)
    {
        merge(stack1,stack2,stack3);
    }
    else if(choice1 == 4)
    {
        display3(stack3);
        top3 = 0;
    }
    else if(choice1 == 5)
    {
        break;
    }

  }
  return 0;
}

void push1(int stack[], int element)
```



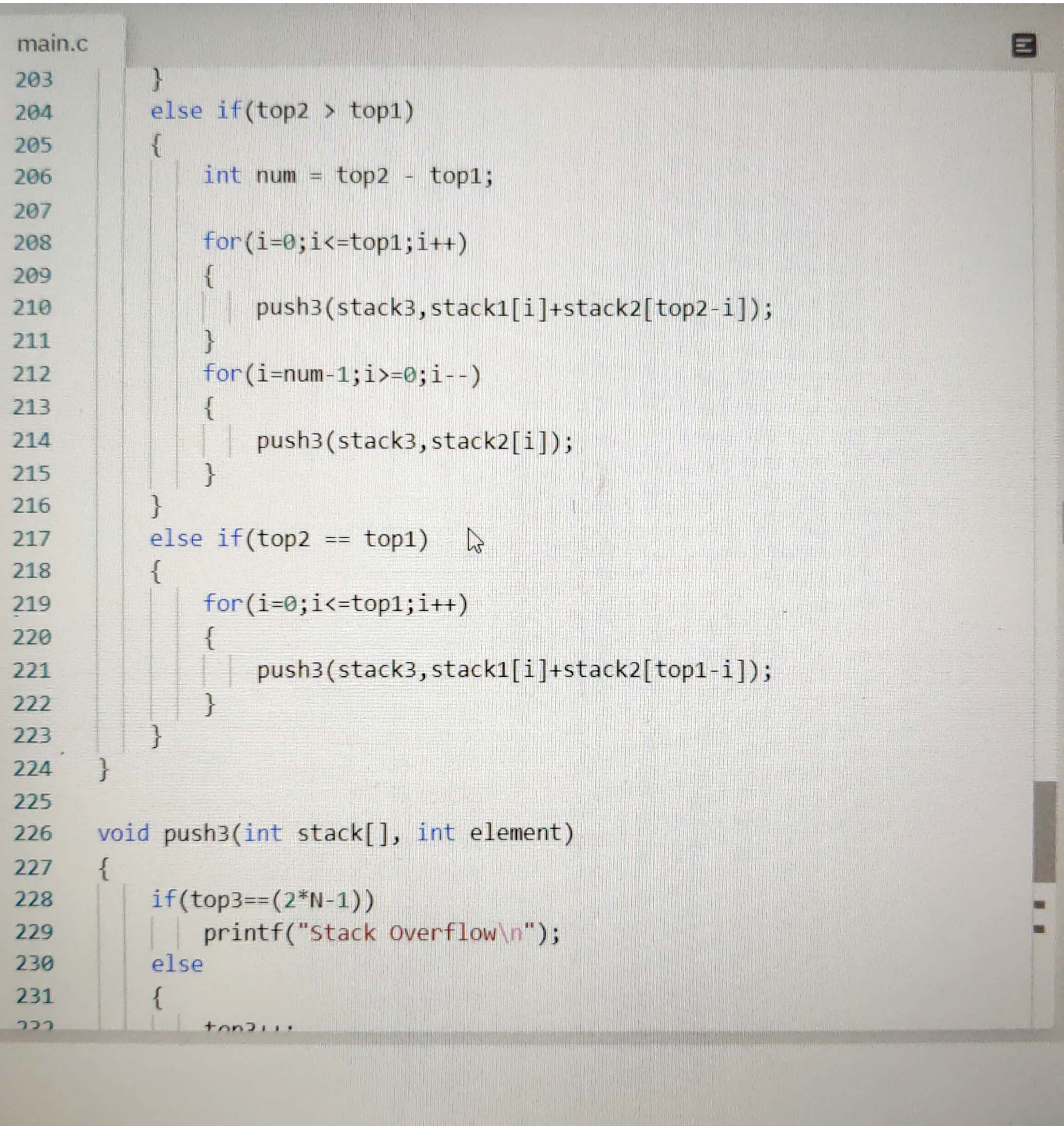
```c
    return 0;
}

void push1(int stack[], int element)
{
    if(top1==N-1)
        printf("Stack Overflow\n");
    else
    {
        top1++;
        stack[top1]=element;
    }
}

int pop1(int stack[])
{
    int num;
    if(top1==-1){
        printf("Stack Underflow\n");
        return -1;}
    else
    {
        num=stack[top1];
        top1--;
        return num;
    }

}
void display1(int stack[])
{
```



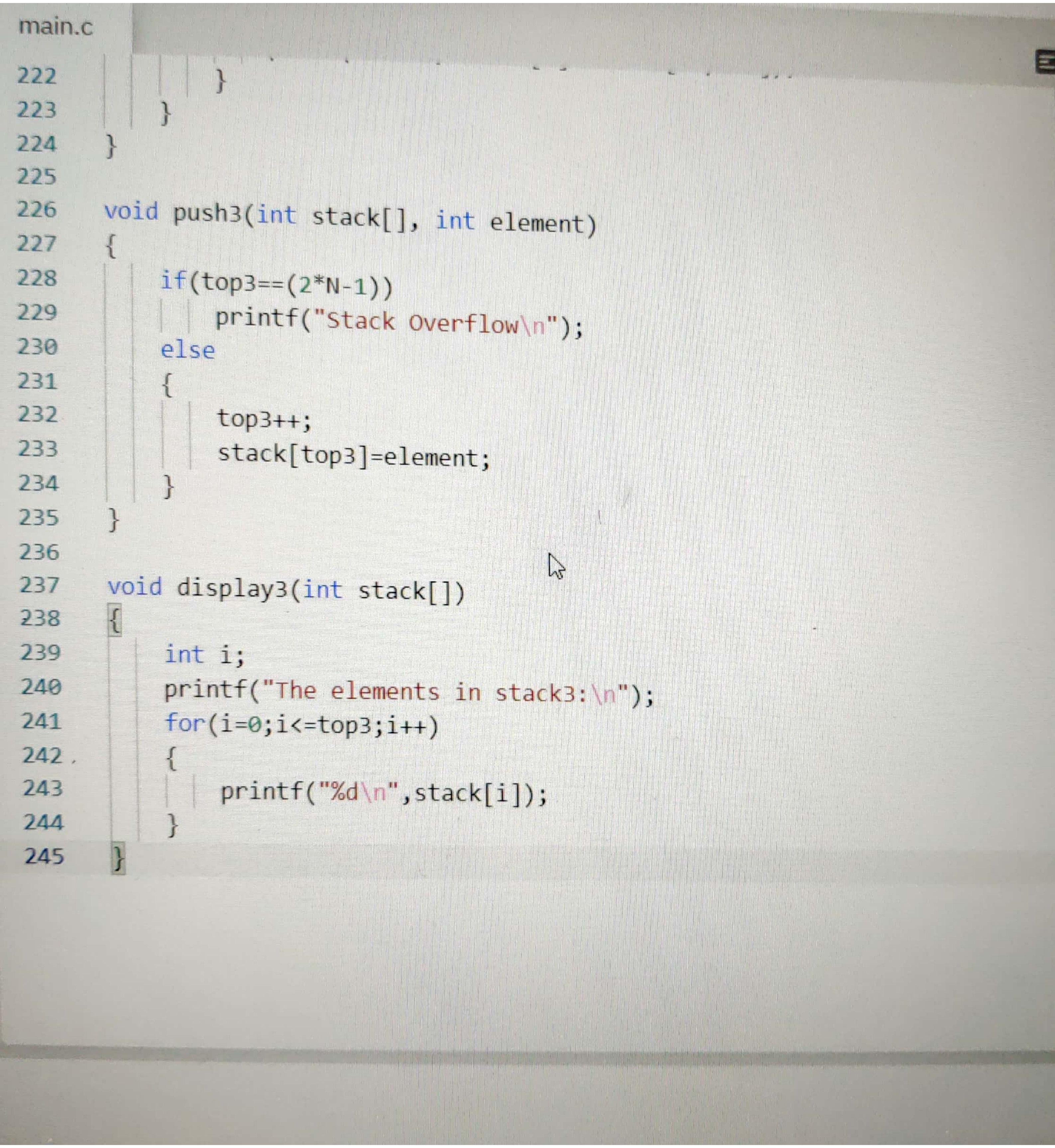
```
    int i;
    printf("The elements in stack1:\n");
    for(i=top1;i>=0;i--)
    {
        printf("%d\n",stack[i]);
    }
}

void push2(int stack[], int element)
{
    if(top2==N-1)
        printf("Stack Overflow\n");
    else
    {
        top2++;
        stack[top2]=element;
    }
}

int pop2(int stack[])
{
    int num;
    if(top2==-1){
        printf("Stack Underflow\n");
        return -1;}
    else
    {
        num=stack[top2];
        top2--;
```



```c
}
void display2(int stack[])
{
    int i;
    printf("The elements in stack2:\n");
    for(i=top2;i>=0;i--)
    {
        printf("%d\n",stack[i]);
    }
}

void merge(int stack1[], int stack2[], int stack3[])
{
    int i;

    if(top1 > top2)
    {
        int num = top1 - top2;
        for(i=0;i<num;i++)
        {
            push3(stack3,stack1[i]);
        }
        for(i=num;i<=top1;i++)
        {
            push3(stack3,stack1[i]+stack2[top1-i]);
        }
    }
    else if(top2 > top1)
    {
        int num = top2 - top1;
```



```
        }
        else if(top2 > top1)
        {
            int num = top2 - top1;

            for(i=0;i<=top1;i++)
            {
                push3(stack3,stack1[i]+stack2[top2-i]);
            }
            for(i=num-1;i>=0;i--)
            {
                push3(stack3,stack2[i]);
            }
        }
        else if(top2 == top1)
        {
            for(i=0;i<=top1;i++)
            {
                push3(stack3,stack1[i]+stack2[top1-i]);
            }
        }
    }

    void push3(int stack[], int element)
    {
        if(top3==(2*N-1))
            printf("Stack Overflow\n");
        else
        {
            top3++;
```



```c
        }
    }
}

void push3(int stack[], int element)
{
    if(top3==(2*N-1))
        printf("Stack Overflow\n");
    else
    {
        top3++;
        stack[top3]=element;
    }
}

void display3(int stack[])
{
    int i;
    printf("The elements in stack3:\n");
    for(i=0;i<=top3;i++)
    {
        printf("%d\n",stack[i]);
    }
}
```