

Write a program that stimulates working of stack using an array with the following

- a) push
- b) pop
- c)display

The program should print appropriate messages for stack overflow and stack underflow.

```
#include <stdio.h>

#define SIZE 10

int stack [SIZE];

int top=-1;

void push (int value){

    if(top==SIZE-1){

        printf("Stack is full \n");

    }

    else{

        top=top+1;

        stack[top]=value;

    }

}

void pop(){

    if(top==-1){

        printf("Stack is empty \n");

    }

    else{

        printf("Element removed is %d \n",stack[top]);

        top=top-1;

    }

}
```

```
    }

}

void display(){

    if(top==-1){

        printf("Stack is empty \n");

    }

    else{

        printf("The elements of stack are:\n");

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

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

        }

    }

}

int main(){

    int choice,value;

    while(1){

        printf("Choose among options\n");

        printf(" 1)Push \n 2)Pop \n 3)Display \n 4)Exit \n");

        scanf("%d",&choice);

        switch(choice){

            case 1:

                printf("Enter value to push: ");

                scanf("%d",&value);

                push(value);

        }

    }

}
```

```
break;

case 2:
pop();
break;

case 3:
display();
break;

case 4:
printf("Exiting program\n");
return 0;

default:
printf("Invalid choice \n");
}

}

}
```

Output:

```
PS C:\Users\n6787\OneDrive\Desktop>c> cd "c:\Users\n6787\OneDrive\Desktop\c\big.c\" ; if ($?) { gcc stack.c -o stack } ; if ($?) { .\stack }
Choose among options
1)Push
2)Pop
3)Display
4)Exit
1
Enter value to push: 2
Choose among options
1)Push
2)Pop
3)Display
4)Exit
1
Enter value to push: 5
Choose among options
1)Push
2)Pop
3)Display
4)Exit
3
The elements of stack are:
5
2
choose among options
1)Push
2)Pop
3)Display
4)Exit
2
Element removed is 5
Choose among options
1)Push
2)Pop
3)Display
4)Exit
4
○ Exiting program
PS C:\Users\n6787\OneDrive\Desktop\c\big.c> █
```