Implementation of STACK using Pointer.

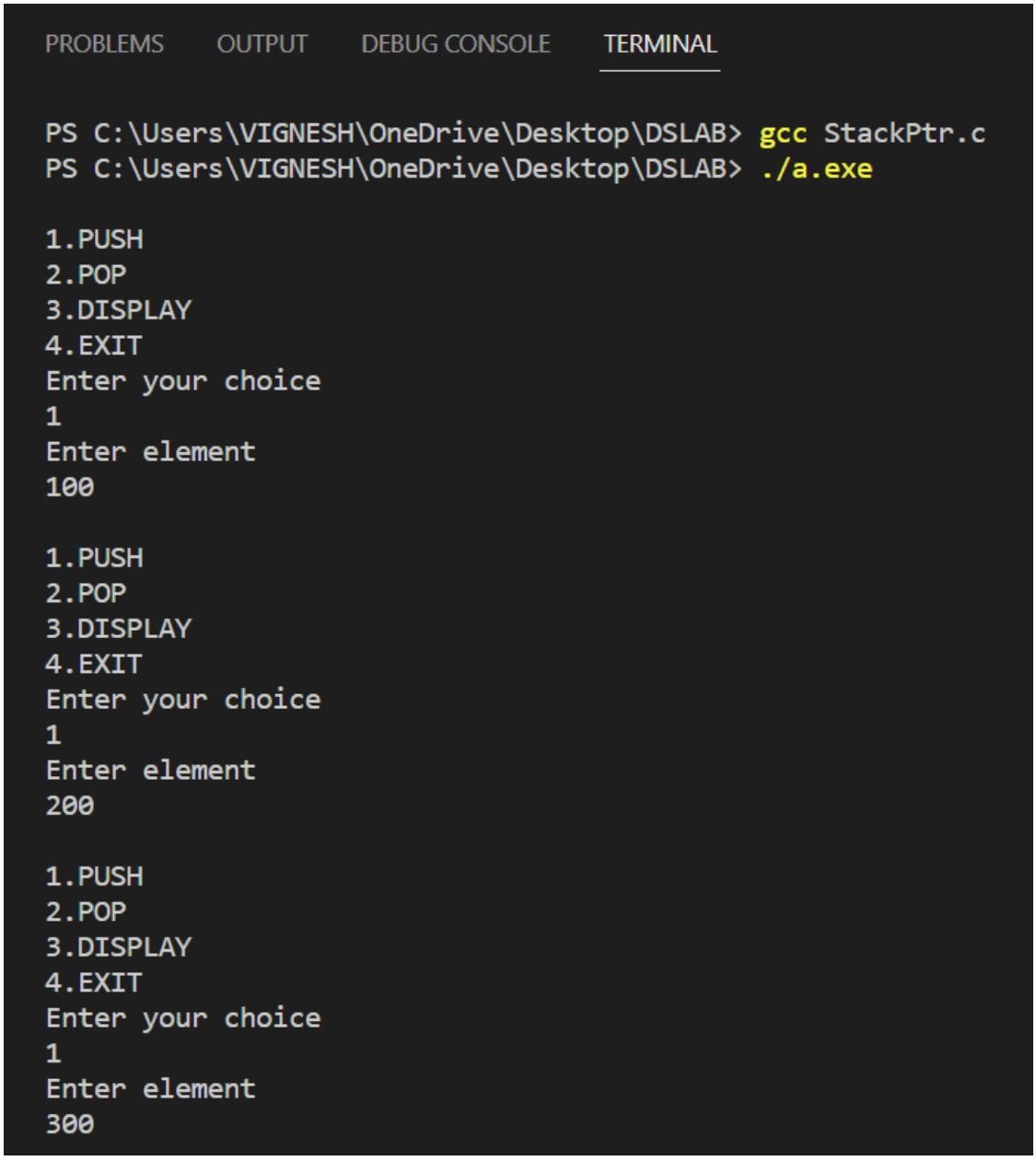
```
#include <stdio.h>
#include <stdlib.h>
#define size 3

struct stack
{
  int s[size];
  int Top;
};

void push(struct stack *);
int pop(struct stack *);
void display(struct stack *);

void main()
{
  struct stack st;
  int choice, del;
  st.Top = -1;

  while (1)
  {
    printf("\n1.PUSH\n2.POP\n3.DISPLAY\n4.EXIT\n");
    printf("Enter your choice\n");
    scanf("%d", &choice);

    switch (choice)
    {
```

```
      case 1:
        push(&st);
        break;

      case 2:
        pop(&st);
        break;

      case 3:
        display(&st);
        break;

      case 4:
        exit(0);
        break;

      default:
        printf("wrong choice");
      }
    }
}

void push(struct stack *p)
{
   int item;
   if (p->Top == (size - 1))
   {
      printf("Stack overflow\n");
      return;
```

```
  }
  else
  {
    p->Top++;
    printf("Enter element\n");
    scanf("%d", &item);
    p->s[p->Top] = item;
  }
}

int pop(struct stack *p)
{
  int D;
  if (p->Top == -1)
  {
    printf("stack underflow\n");
    return 0;
  }
  else
  {
    D = p->s[p->Top];
    p->Top--;
    printf("popped element is %d\n", D);
  }
}

void display(struct stack *p)
{
  int i;
  if (p->Top == -1)
```

```
  {

    printf("stack is empty\n");
    return;
  }
  else
  {
    printf("stack contents\n");
    for (i = p->Top; i >= 0; i--)
      printf("%d\n", p->s[i]);
  }
}
```

OUTPUT:


PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PS C:\Users\VIGNESH\OneDrive\Desktop\DSLAB> gcc StackPtr.c
PS C:\Users\VIGNESH\OneDrive\Desktop\DSLAB> ./a.exe
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your choice
1
Enter element
100
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your choice
1
Enter element
200
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your choice
1
Enter element
300

```
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your choice
1
Stack overflow

1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your choice
3
stack contents
300
200
100

1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your choice
2
popped element is 300

1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your choice
2
popped element is 200
```

```
1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your choice
2
popped element is 100

1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your choice
2
stack underflow

1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your choice
3
stack is empty

1.PUSH
2.POP
3.DISPLAY
4.EXIT
Enter your choice
4
PS C:\Users\VIGNESH\OneDrive\Desktop\DSLAB>
```