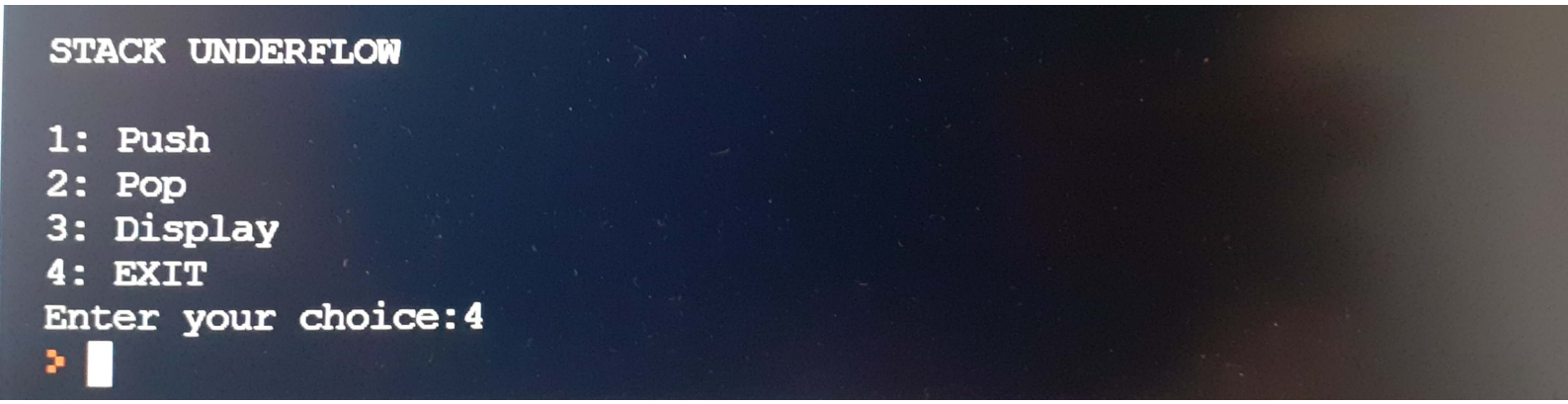
Lab program I :- Write a program to simulate the working of stack using an array with the following
a) Push c) display
b) pop
The program should print appropriate messages for stack overflow and stack underflow.

```
#include<stdio.h>
#include<process.h>
#include<conio.h>
#define STACK_SIZE 5
int top=-1;
int s[10];
int item;
void push()
{
if(top==STACK_SIZE-1)
{
   printf("\n STACK OVERFLOW\n");
   return;
}
top=top+1;
s[top]=item;
}
int pop()
{
  if(top==-1)
      return -1;
  return s[top--];
}
void display()
{
 int i;
 if(top==-1)
 {
 printf("stack is empty\n");
 return;
}
```

```
    printf("The contents of the stack are:\n");
    for(i=0;i<=top;i++)
    {
      printf("%d\n",s[i]);
    }
    }
Void main()
{
int item_deleted;
int choice;
clrscr();
[redacted] while(1)
  {
    printf("\n 1: Push \n 2: Pop \n 3: display \n 4: exit \n");
    printf("Enter youre choice \n");
    scanf("%d",&choice);
    switch(choice)
    {
      case 1: printf("\nEnter the item to be inserted: ");
              scanf("%d",&item);
              push();
              break;
      case 2: item_deleted= pop();
              if(item_deleted==-1)
              {
                printf("Stack is empty \n");
              }
             else
             {
                printf("item deleted is %d \n",item_deleted);
             }
             break;
      case 3: display();
              break;
      default: exit(0);
    }
  getch();
}
```

```
> ./main

1: Push
2: Pop
3: Display
4: EXIT
Enter your choice:1

Enter the item to be inserted:12

1: Push
2: Pop
3: Display
4: EXIT
Enter your choice:1

Enter the item to be inserted:13

1: Push
2: Pop
3: Display
4: EXIT
Enter your choice:1

Enter the item to be inserted:14

1: Push
2: Pop
3: Display
4: EXIT
Enter your choice:1

Enter the item to be inserted:15

STACK OVERFLOW

1: Push
2: Pop
3: Display
4: EXIT
Enter your choice:3
```

```
Enter your choice:3
The contents fo the stack are:
12
13
14

1: Push
2: Pop
3: Display
4: EXIT
Enter your choice:2

The item deleted is 14

1: Push
2: Pop
3: Display
4: EXIT
Enter your choice:2

The item deleted is 13

1: Push
2: Pop
3: Display
4: EXIT
Enter your choice:2

The item deleted is 12

1: Push
2: Pop
3: Display
4: EXIT
Enter your choice:2

STACK UNDERFLOW

1: Push
2: Pop
3: Display
```


STACK UNDERFLOW
1: Push
2: Pop
3: Display
4: EXIT
Enter your choice:4