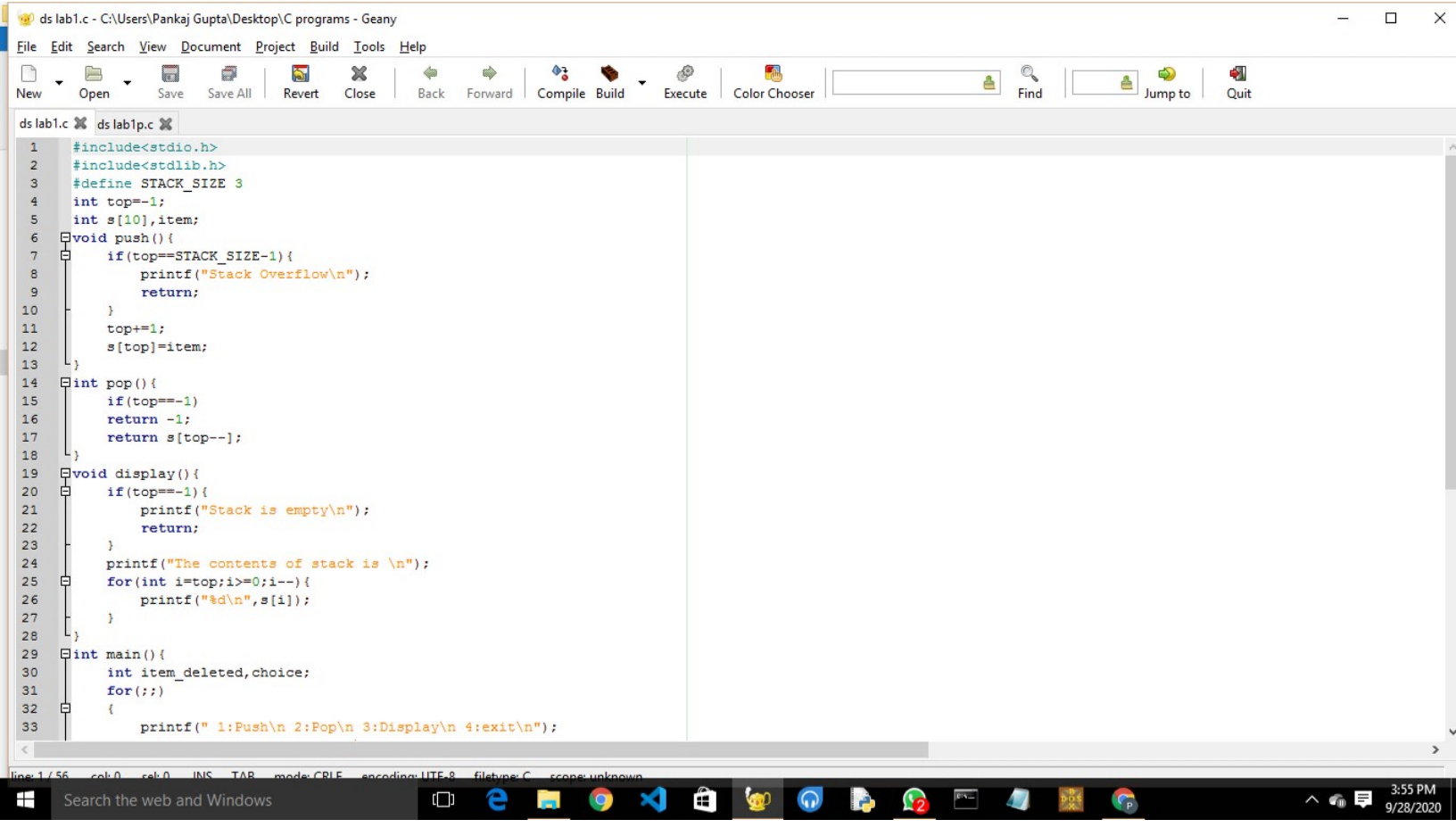
ds lab1.c - C:\Users\Pankaj Gupta\Desktop\C programs - Geany
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ds lab1.c
ds lab1p.c
#include<stdio.h>
#include<stdlib.h>
#define STACK_SIZE 3
int top=-1;
int s[10],item;
void push(){
if(top==STACK_SIZE-1){
printf("Stack Overflow\n");
return;
}
top+=1;
s[top]=item;
}
int pop(){
if(top==-1)
return -1;
return s[top--];
}
void display(){
if(top==-1){
printf("Stack is empty\n");
return;
}
printf("The contents of stack is \n");
for(int i=top;i>=0;i--){
printf("%d\n",s[i]);
}
}
int main(){
int item_deleted,choice;
for(;;)
{
printf(" 1:Push\n 2:Pop\n 3:Display\n 4:exit\n");
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ds lab1.c ds lab1p.c

```
22          return;
23      }
24      printf("The contents of stack is \n");
25      for(int i=top;i>=0;i--){
26          printf("%d\n",s[i]);
27      }
28  }
29  int main(){
30      int item_deleted,choice;
31      for(;;)
32      {
33          printf(" 1:Push\n 2:Pop\n 3:Display\n 4:exit\n");
34          printf("Enter your choice\n");
35          scanf("%d",&choice);
36          switch(choice){
37              case 1:printf("Enter the item to be inserted\n");
38                     scanf("%d",&item);
39                     push();
40                     break;
41               case 2:item_deleted=pop();
42                     if(item_deleted==-1)
43                     printf("Stack Underflow\n");
44                     else
45                     printf("Deleted item is %d\n",item_deleted);
46                     break;
47                case 3:display();
48                break;
49                default:exit(0);
50              }
51        }
52    }
53
54
```


line: 54 / 56 col: 0 sel: 0 INS TAB mode: CRLF encoding: UTF-8 filetype: C scope: unknown

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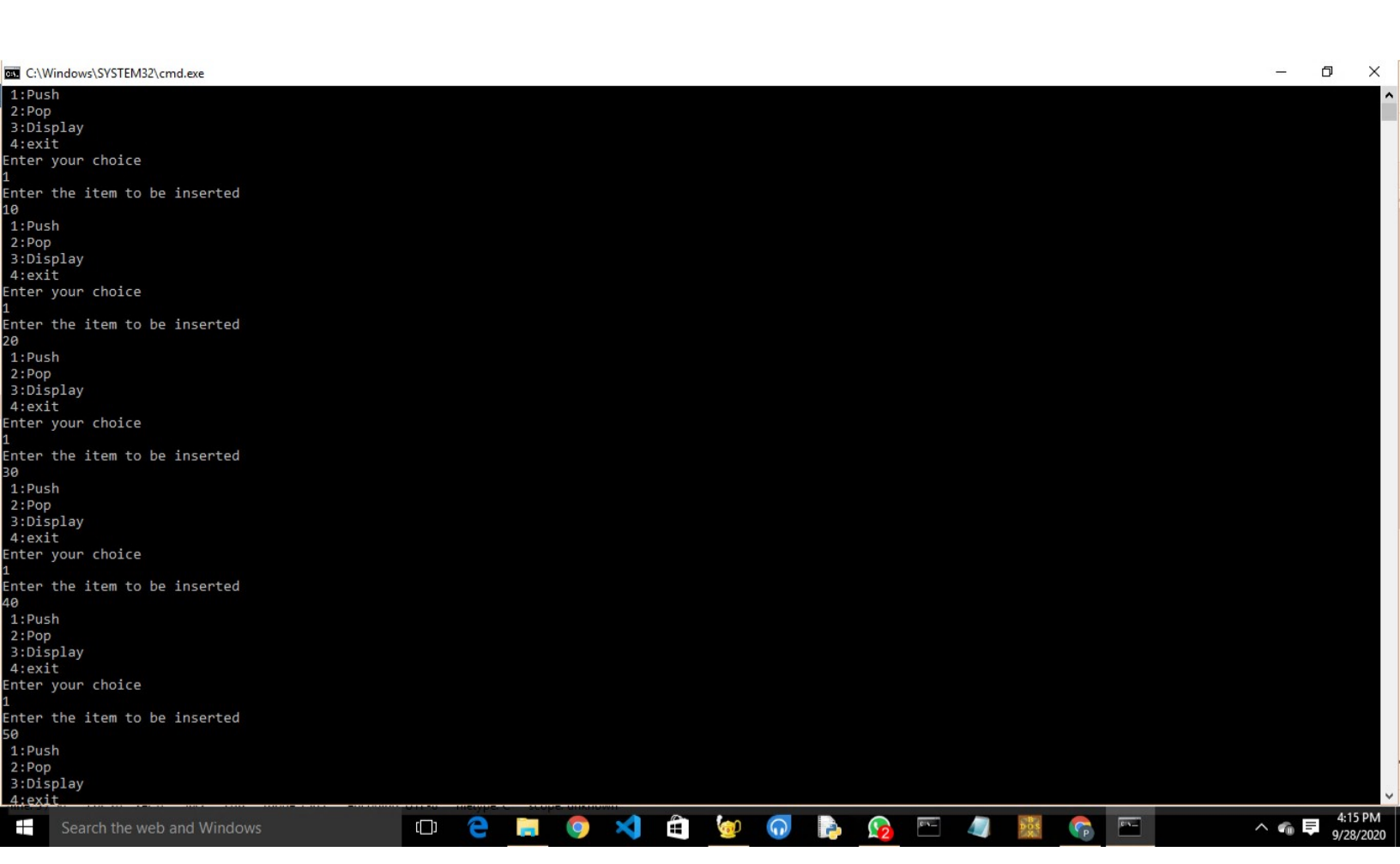
9/28/2020


C:\Windows\SYSTEM32\cmd.exe
1:Push
2:Pop
3:Display
4:exit
Enter your choice
1
Enter the item to be inserted
10
1:Push
2:Pop
3:Display
4:exit
Enter your choice
1
Enter the item to be inserted
20
1:Push
2:Pop
3:Display
4:exit
Enter your choice
1
Enter the item to be inserted
30
1:Push
2:Pop
3:Display
4:exit
Enter your choice
1
Enter the item to be inserted
40
1:Push
2:Pop
3:Display
4:exit
Enter your choice
1
Enter the item to be inserted
50
1:Push
2:Pop
3:Display
4:exit
Search the web and Windows
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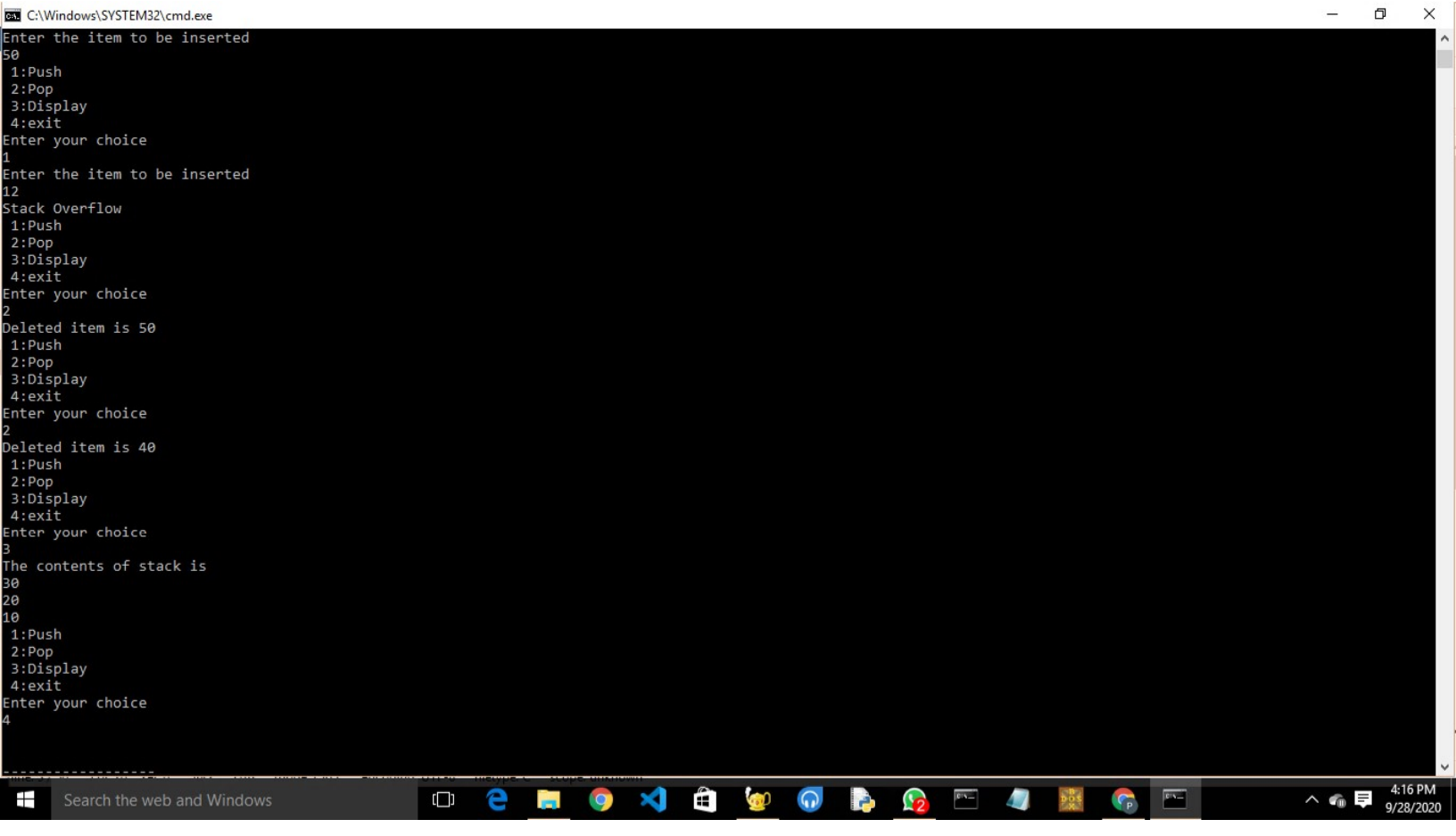
C:\Windows\SYSTEM32\cmd.exe
Enter the item to be inserted
50
1:Push
2:Pop
3:Display
4:exit
Enter your choice
1
Enter the item to be inserted
12
Stack Overflow
1:Push
2:Pop
3:Display
4:exit
Enter your choice
2
Deleted item is 50
1:Push
2:Pop
3:Display
4:exit
Enter your choice
2
Deleted item is 40
1:Push
2:Pop
3:Display
4:exit
Enter your choice
3
The contents of stack is
30
20
10
1:Push
2:Pop
3:Display
4:exit
Enter your choice
4
Search the web and Windows
4:16 PM
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```
switch (choice) {
    case 1: printf ("Enter the item to be inserted.\n");
            scanf ("%d", &item);
            push();
            break;
    case 2: item_deleted = pop();
            if (item_deleted == -1)
            printf ("Stack Underflow\n");
            else
            printf ("Deleted item is %d\n", item_deleted);
            break;
    case 3: display();
    default: exit (0);
}
}
```

Output :

```
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
1
Enter the item to be inserted
20
1: push
2: Pop
3: Display
4: Exit
Enter your choice.
3
The contents of the stack is
20
```

Lab Program - 1

Write a program to simulate the working of stack using an array with the following
a) Push b) Pop c) Display
The program should print appropriate message for stack overflow, stack underflow

```
#include<stdio.h>
#include<stdlib.h>
# define STACK_SIZE 5
int top = -1;
int S[10], item;
void push {
  if (top == STACK_SIZE-1)
      return;
  {
     top+=1;
     S[top] = item;
}
int pop(){
  if (top == -1)
     return -1;
  return S[top--];
}
void display (){
  if (top==-1){
  printf("Stack is empty\n");
     return;
  }
  printf("The contents of stack is \n");
     for(int i=top; i>=0; i--){
       printf("%d", S[i]);
  }
  int main(){
  int item_deleted, choice;
  for(;;){
  printf(" 1: Push\n 2: Pop\n 3: Display\n 4: exit\n");
  printf("Enter your choice\n");
    scanf("%d", &choice);
```