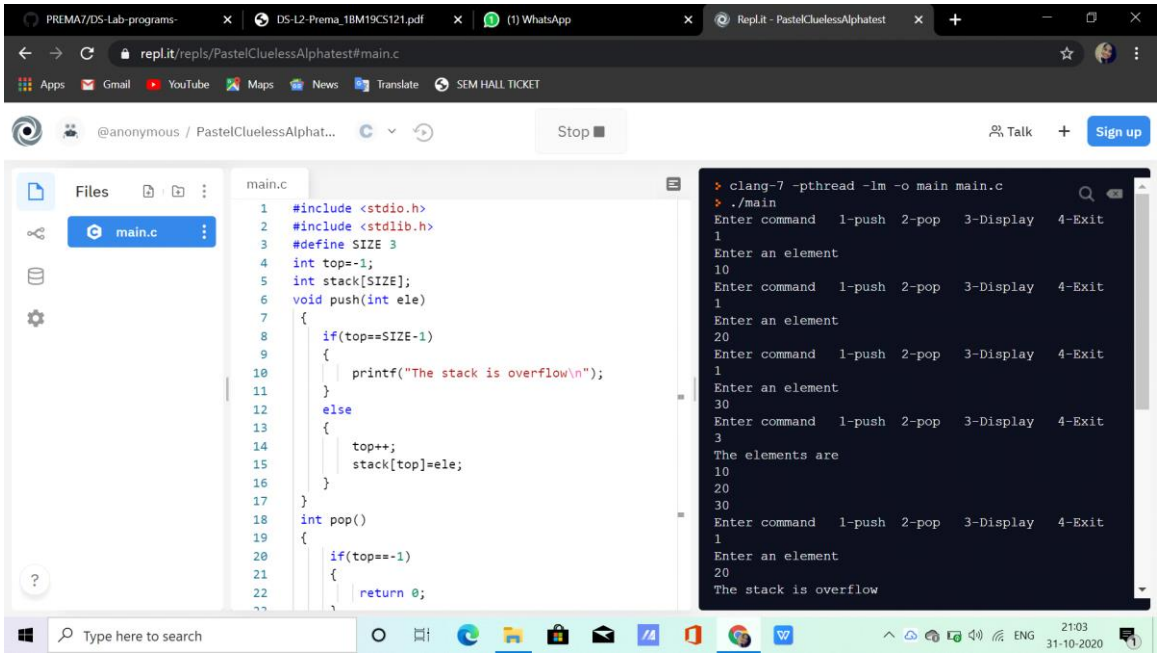
LAB PROGRAM 1:-

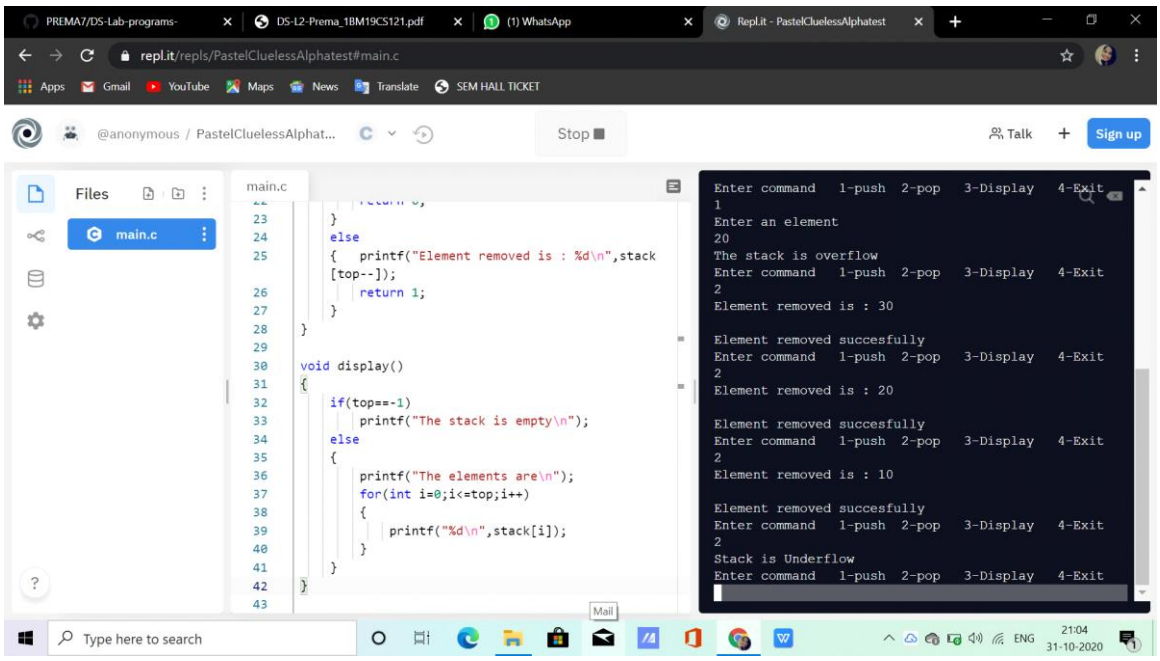
```
#include <stdio.h>
#include <stdlib.h>
#define SIZE 5
int top=-1;
int stack[SIZE];
void push(int ele)
 {
   if(top==SIZE-1)
   {
      printf("The stack is overflow\n");
   }
   else
   {
      top++;
      stack[top]=ele;
   }
 }
 int pop()
 {
    if(top==-1)
    {
       return 0;
    }
    else
    {   printf("Element removed is : %d\n",stack[top--]);
       return 1;
```

```
    }
}

void display()
{
    if(top==-1)
        printf("The stack is empty\n");
    else
    {
        printf("The elements are\n");
        for(int i=0;i<=top;i++)
        {
            printf("%d\n",stack[i]);
        }
    }
}

int main()
{
  int c,d,p;
  while(c!=4)
  {
  printf("Enter command\t1-push\t2-pop\t3-Display\t4-Exit\n");
  scanf("%d",&c);
  switch(c)
  {
    case 1:printf("Enter an element\n");
```

```
        scanf("%d",&d);
        push(d);
        break;
   case 2:p=pop();
        if(p==0)
         printf("Stack is Underflow\n");
         else
         printf("\nElement removed succesfully\n");
         break;
   case 3:display();
        break;
   case 4:break;
   default: printf("Invalid input\n");
  }
  }
return 0;
}
```

SCREENSHOTS OF PROGRAM AND OUTPUT:-


PREMA7/DS-Lab-programs-
DS-L2-Prema_1BM19CS121.pdf
(1) WhatsApp
Repl.it - PastelCluelessAlphatest
repl.it/repls/PastelCluelessAlphatest#main.c
Apps Gmail YouTube Maps News Translate SEM HALL TICKET
@anonymous / PastelCluelessAlphat...
Stop
Talk
Sign up
Files
main.c
#include <stdio.h>
#include <stdlib.h>
#define SIZE 3
int top=-1;
int stack[SIZE];
void push(int ele)
{
if(top==SIZE-1)
{
printf("The stack is overflow\n");
}
else
{
top++;
stack[top]=ele;
}
}
int pop()
{
if(top==-1)
{
return 0;
clang-7 -pthread -lm -o main main.c
./main
Enter command 1-push 2-pop 3-Display 4-Exit
1
Enter an element
10
Enter command 1-push 2-pop 3-Display 4-Exit
1
Enter an element
20
Enter command 1-push 2-pop 3-Display 4-Exit
1
Enter an element
30
Enter command 1-push 2-pop 3-Display 4-Exit
3
The elements are
10
20
30
Enter command 1-push 2-pop 3-Display 4-Exit
1
Enter an element
20
The stack is overflow
Type here to search
ENG
21:03
31-10-2020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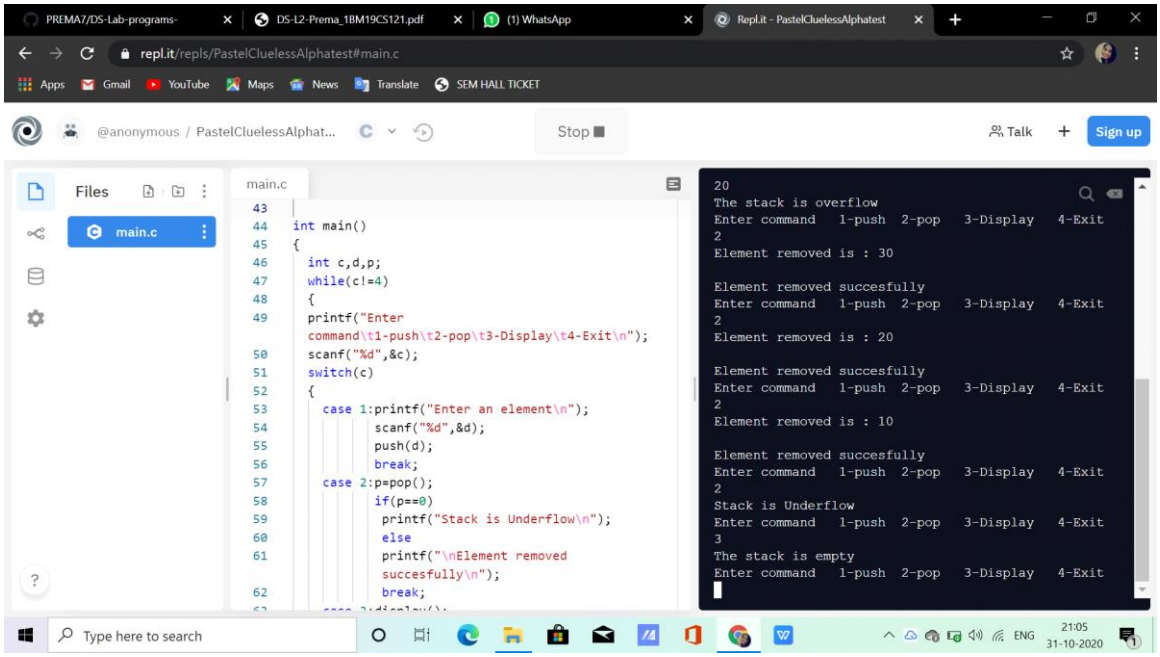
Apps Gmail YouTube Maps News Translate SEM HALL TICKET
@anonymous / PastelCluelessAlphat...
Stop
Talk
Sign up
Files
main.c
}
else
{ printf("Element removed is : %d\n",stack
[top--]);
return 1;
}
}
void display()
{
if(top==-1)
printf("The stack is empty\n");
else
{
printf("The elements are\n");
for(int i=0;i<=top;i++)
{
printf("%d\n",stack[i]);
}
}
}
Enter command 1-push 2-pop 3-Display 4-Exit
1
Enter an element
20
The stack is overflow
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 30
Element removed succesfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 20
Element removed succesfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 10
Element removed succesfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Stack is Underflow
Enter command 1-push 2-pop 3-Display 4-Exit
Mail
Type here to search
ENG
21:04
31-10-2020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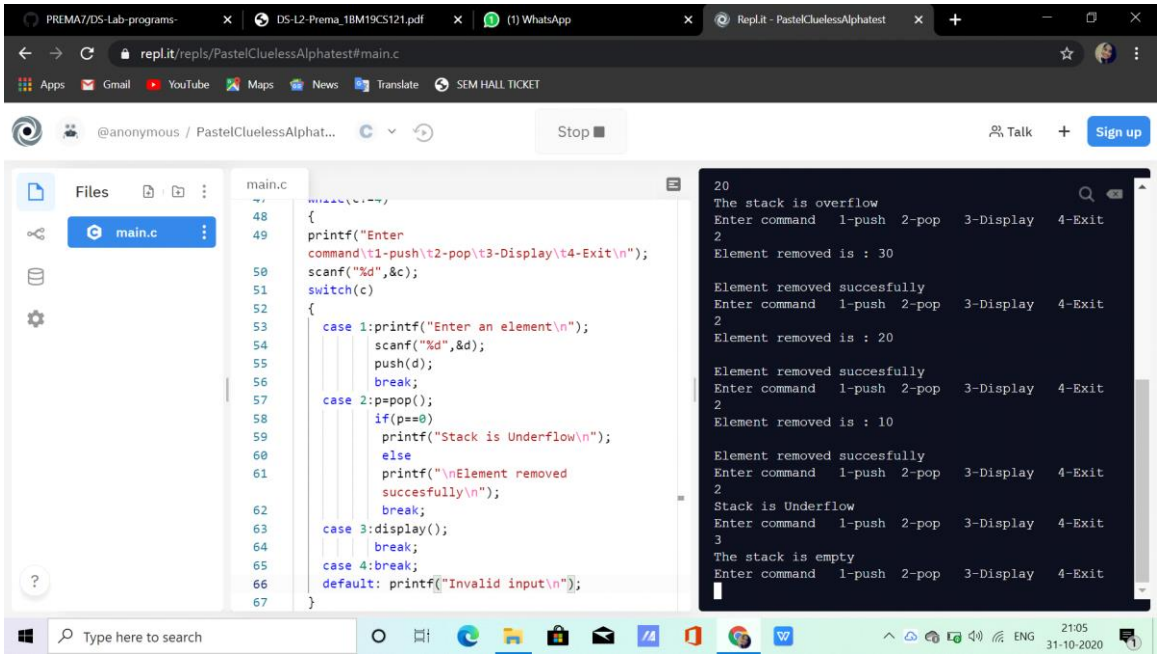
repl.it/repls/PastelCluelessAlphatest#main.c
Apps Gmail YouTube Maps News Translate SEM HALL TICKET
@anonymous / PastelCluelessAlphat...
Stop
Talk
Sign up
Files
main.c
main.c
43
44 int main()
45 {
46 int c,d,p;
47 while(c!=4)
48 {
49 printf("Enter command\t1-push\t2-pop\t3-Display\t4-Exit\n");
50 scanf("%d",&c);
51 switch(c)
52 {
53 case 1:printf("Enter an element\n");
54 scanf("%d",&d);
55 push(d);
56 break;
57 case 2:p=pop();
58 if(p==0)
59 printf("Stack is Underflow\n");
60 else
61 printf("\nElement removed succesfully\n");
62 break;
20
The stack is overflow
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 30
Element removed succesfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 20
Element removed succesfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 10
Element removed succesfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Stack is Underflow
Enter command 1-push 2-pop 3-Display 4-Exit
3
The stack is empty
Enter command 1-push 2-pop 3-Display 4-Exit
Type here to search
ENG
21:05
31-10-2020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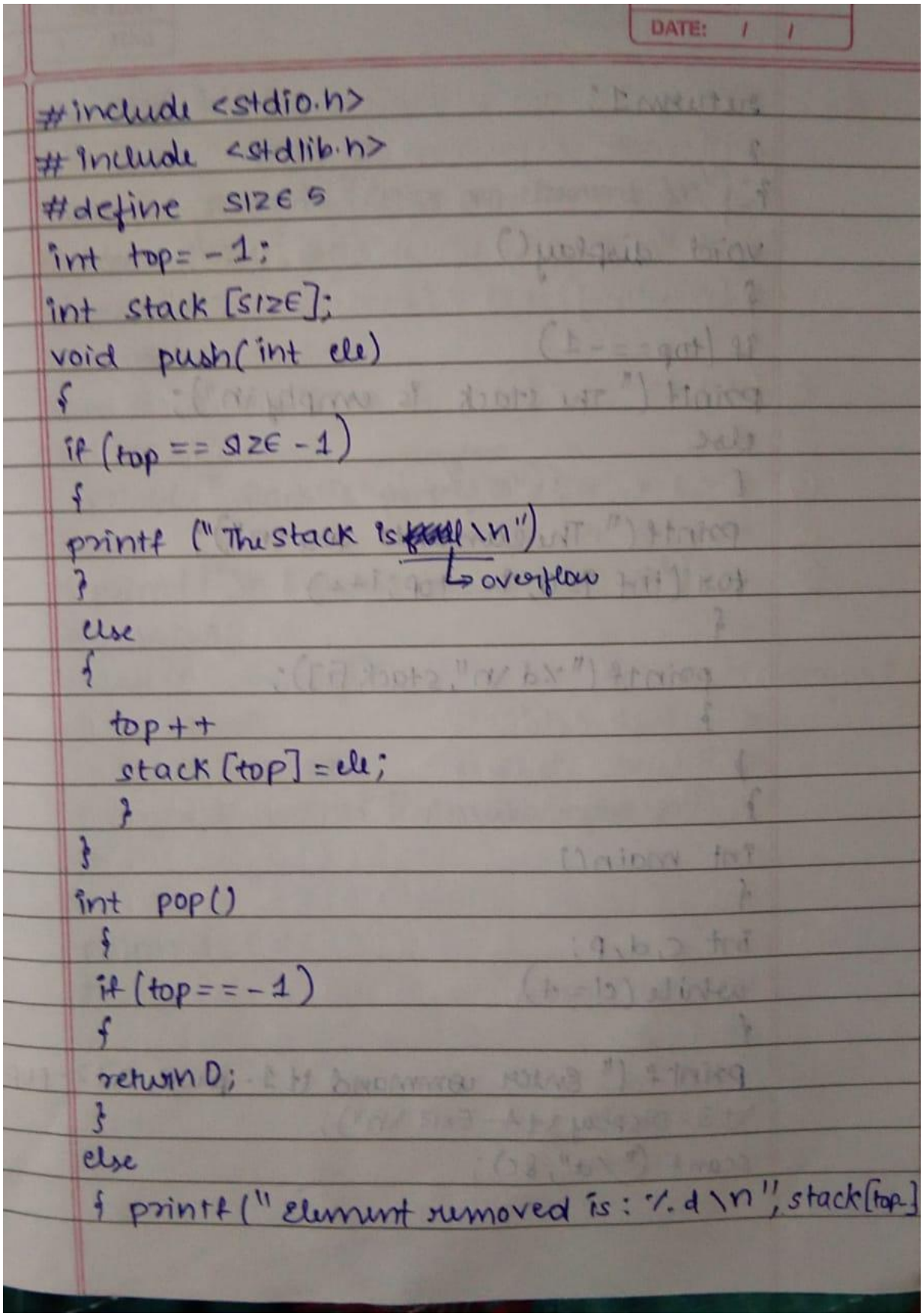
repl.it/repls/PastelCluelessAlphatest#main.c
Apps Gmail YouTube Maps News Translate SEM HALL TICKET
@anonymous / PastelCluelessAlphat...
Stop
Talk
Sign up
Files
main.c
main.c
48 {
49 printf("Enter command\t1-push\t2-pop\t3-Display\t4-Exit\n");
50 scanf("%d",&c);
51 switch(c)
52 {
53 case 1:printf("Enter an element\n");
54 scanf("%d",&d);
55 push(d);
56 break;
57 case 2:p=pop();
58 if(p==0)
59 printf("Stack is Underflow\n");
60 else
61 printf("\nElement removed succesfully\n");
62 break;
63 case 3:display();
64 break;
65 case 4:break;
66 default: printf("Invalid input\n");
67 }
20
The stack is overflow
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 30
Element removed succesfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 20
Element removed succesfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Element removed is : 10
Element removed succesfully
Enter command 1-push 2-pop 3-Display 4-Exit
2
Stack is Underflow
Enter command 1-push 2-pop 3-Display 4-Exit
3
The stack is empty
Enter command 1-push 2-pop 3-Display 4-Exit
Type here to search
ENG
21:05
31-10-2020

WRITTEN PROGRAMS:-



```
#include <stdio.h>
#include <stdlib.h>
#define SIZE 5
int top= -1;
int stack [SIZE];
void push(int ele)
{
if (top == SIZE -1)
{
printf ("The stack is full \n")
}
 else
 {
   top++
   stack [top] = ele;
   }
}
int pop()
 {
 if (top== -1)
 {
 return 0;
 }
else
{ printf (" element removed is : %d \n", stack[top]
```

↳ overflow

```
return 1;
}
}
void display()
{
if (top==-1)
printf("The stack is empty\n");
else
{
printf("The elements are\n");
for (int i=0; i<=top; i++)
{
printf("%d\n", stack[i]);
}
}
}
int main()
{
int c, d, p;
while (c!=4)
{
printf("Enter command \t1-push \t2-POP
\t3-Display \t4-Exit \n");
scanf("%d", &c);
```

```
switch(c)
{
case 1: printf("Enter an element \n");
scanf("%d", &d);
push(d);
break;
case 2: p = pop();
if(p==0)
printf("Stack is ~~empty~~ underflow \n");
else
printf("\n Element removed \n");
   break;
case 3: display();
      break;
case 4: break;
default: printf("Invalid input \n");
}
}
return 0;
}
```