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# LAB - 1

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Q. 1) Write a program to simulate stack using array. (a) PUSH
(b) POP
(c) DISPLAY
The program should print appropriate messages for STACK_OVERFLOW and STACK_UNDERFLOW?

—→

```
#include <stdio.h>
#include <process.h>
#define STACK_SIZE 3

int top = -1, st[10];
void push();
void pop();
void display();

int main()
{
int a;
for(;;)
{
printf("\n STACK MENU IS FOLLOWING \n");
printf("\n ---------------\n");
printf("\n 1) PUSH \n 2) POP \n 3) DISPLAY
        \n 4) EXIT \n");
printf("\n ---------------\n");
printf("ENTER YOUR CHOICE \n");
scanf("%d", &a);
switch(a)
{
case 1: push();
break;
```

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```
case 2: pop();
break;
case 3: display();
break;
case 4: Exit(0);
default:
printf("\n INVALID OPTION IS ENTERED\n");
}
}
return 0;
}

void push()
{
int item;
{
if (top==STACK_SIZE-1)
{
printf("\n STACK OVERFLOW\n");
}
else
{
printf("\n ENTER THE ELEMENT TO BE
INSERTED : ");
scanf("%d", &item);
top=top+1;
st[top]=item;
}
}
}
```

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```
void pop()
{
if (top == -1)
{
printf ("\n STACK UNDERFLOW \n");
}
else
{
printf ("TOP VALUE OF STACK HAS BEEN
        DELTED : %d", st[top]);
top= top-1;
}
}

void display()
{
int i;
if (top == -1)
{
 printf ("\n STACK IS EMPTY \n");
}
else
{
printf ("\n CONTENTS IN STACK ARE: \n");
for (i=top; i>0; --i)
printf ("%d \n", st[i]);
}
}
```

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