DS Lab Programs

1) Stack Program

```
#include <stdio.h>
#define size 3
int top = -1;
void push (int [], int);
int pop (int []);
void display (int []);
int main () {
int stack [size];
int choice, element;
char ch;
do {
printf ("Enter your choice \n");
printf ("1. Push \n");
printf ("2. Pop \n");
printf ("3. Display \n");
printf ("4. Exit \n");
scanf ("%d", &choice);
switch (choice) {
case 1 : printf ("Enter the element to be pushed \n");
scanf ("%d", &element);
push (stack, element);
break;
case 2 : element = pop(stack);
printf ("Popped element is %d \n", element);
break;
case 3 : display (stack);
break;
default : printf ("You have exited the program");
}
```

```
printf("Do you want to continue : \n");
fflush(stdin);
scanf("%s", &ch);
} while (ch == 'y' || ch == 'Y');
return 0;
}
void push (int stack [], int ele) {
if (top == size - 1) {
printf ("Stack Overflow");
}
else {
top ++
stack [top] = ele;
}
}
~~void~~ int pop (int stack []) {
int popele;
if (top == -1) {
printf ("Stack is empty \n");
} else {
popele = stack [top];
top --;
}
return (popele);
}
void display (int stack []) {
int i;
printf ("The stack elements : \n");
for (i = top; i >= 0; i--)
printf ("%d \t", stack [i]);
}
```