

LAB PROGRAM-2

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 messages for stack overflow, stack underflow

```
#include <stdio.h>
#include <stdlib.h>
#define MAX 10
int top=-1,stack[MAX];
void push();
void pop();
void display();

int main()
{
    int ch;
    while(1)
    {
        printf("\n***STACK MENU***");
        printf("\n\n1.PUSH\n2.POP\n3.DISPLAY\n4.EXIT");
        printf("\n\nENTER YOUR CHOICE(1-4):");
        scanf("%d",&ch);

        switch(ch)
        {
            case 1:push();
                    break;

            case 2: pop();
                    break;
            case 3: display();
                    break;
            case 4: exit(0);
            default: printf("\nWrong choice");
        }
    }
    return 0;
}

void push()
{
    int val;
    if(top==MAX-1)
    { printf("\nSTACK IS FULL");
    }
    else
    { printf("\n ENTER ELEMENTS TO PUSH:");
      scanf("%d",&val);
      top=top+1;
      stack[top]=val;
    }
}

void pop()
{
```

```

    if(top==-1)
    { printf("\nSTACK IS EMPTY");
    }
    else
    { printf("\nDELETED ELEMENT IS %d",stack[top]);
    top=top-1;
    }
}

void display()
{ int i;
  if(top==-1)
  { printf("\n STACK IS EMPTY");
  }
  else
  { printf("\n STACK IS... ");
    for(i=top;i>=0;--i)
    printf("%d\n",stack[i]);
  }
}
}

```

OUTPUT:

```

Snehas-MacBook-Pro:ccp snehasrivastava$ gcc stack.c
Snehas-MacBook-Pro:ccp snehasrivastava$ ./a.out

```

```

***STACK MENU***

```

```

1.PUSH
2.POP
3.DISPLAY
4.EXIT

```

```

ENTER YOUR CHOICE(1-4):2

```

```

STACK IS EMPTY

```

```

***STACK MENU***

```

```

1.PUSH
2.POP
3.DISPLAY
4.EXIT

```

```

ENTER YOUR CHOICE(1-4):1

```

```
ENTER YOUR CHOICE(1-4):1

ENTER ELEMENTS TO PUSH:5

***STACK MENU***

1.PUSH
2.POP
3.DISPLAY
4.EXIT

ENTER YOUR CHOICE(1-4):1

ENTER ELEMENTS TO PUSH:67

***STACK MENU***

1.PUSH
2.POP
3.DISPLAY
4.EXIT

ENTER YOUR CHOICE(1-4):3

STACK IS...67
5
```

```
***STACK MENU***

1.PUSH
2.POP
3.DISPLAY
4.EXIT

ENTER YOUR CHOICE(1-4):1

ENTER ELEMENTS TO PUSH:67

***STACK MENU***

1.PUSH
2.POP
3.DISPLAY
4.EXIT

ENTER YOUR CHOICE(1-4):3

STACK IS...67
5
```

```
***STACK MENU***

1.PUSH
2.POP
3.DISPLAY
4.EXIT
```

```
ENTER YOUR CHOICE(1-4):2

DELETED ELEMENT IS 67
***STACK MENU***

1.PUSH
2.POP
3.DISPLAY
4.EXIT

ENTER YOUR CHOICE(1-4):3

STACK IS...5
```

```
***STACK MENU***

1.PUSH
2.POP
3.DISPLAY
4.EXIT
```

```
ENTER YOUR CHOICE(1-4):4
Snehas-MacBook-Pro:ccp snehasrivastava$ █
```