

## Lab Program - 1

81) Write a program to simulate the working of stack using ~~an~~ array with push, pop and peek outputs for stack underflow and overflow conditions.

```
#include <stdio.h>
```

```
#include <
```

```
#define STACK_SIZE 5
```

```
int top = -1;
```

```
int s[10];
```

```
int item;
```

```
void push()
```

```
{
```

```
    if (top == STACK_SIZE - 1)
```

```
    { printf("Stack overflow \n");
```

```
        return;
```

```
    }
```

```
    top = top + 1;
```

```
    s[top] = item;
```

```
}
```

```
int pop()
```

```
{    if (top == -1)
```

```
        return -1;
```

```

return s[top--];
}

void display()
{ int i;
  if (top == -1)
  { printf("Stack is empty");
    return;
  }
  printf("Contents of the stack are");
  for (i = 0; i <= top; i++)
  { printf("%d \n", s[i]);
  }
}

void main()
{ int item_deleted;
  int choice;
  for(;;)

  printf("\n 1. Push 2. Pop 3. Display\n 4. Exit");
  printf("\n Enter your choice");
  switch (choice)
  scanf("%d \n", &choice);
  switch (choice)
  {
    case 1: printf("Enter the item to be\n inserted \n");
    scanf("%d", &item);
    push();

```



```
break;
case 2: printf
item_deleted = pop();
if (item_deleted == -1)
printf("Stack is empty");
else
printf("Item deleted is %d \n", item_deleted);
break;
case 3: display();
break;
default: exit(0);
} } }
```

- 1.Push
- 2.Pop
- 3.Display
- 4.Exit

Enter the choice:

2

Stack underflow!

- 1.Push
- 2.Pop
- 3.Display
- 4.Exit

Enter the choice:

1

Enter the item to be inserted:

1

- 1.Push
- 2.Pop
- 3.Display
- 4.Exit

Enter the choice:

1

Enter the item to be inserted:

2

- 1.Push
- 2.Pop

3.Display

4.Exit

Enter the choice:

1

Enter the item to be inserted:

2

1.Push

2.Pop

3.Display

4.Exit

Enter the choice:

1

Enter the item to be inserted:

3

1.Push

2.Pop

3.Display

4.Exit

Enter the choice:

1

Enter the item to be inserted:

4

1.Push

2.Pop

3.Display

4.Exit

Enter the choice:

1

Enter the item to be inserted:

5

Stack overflow!

1.Push

2.Pop

3.Display

4.Exit

Enter the choice:

2

Item deleted is 4

1.Push

2.Pop

3.Display

4.Exit

Enter the choice:

3

Contents of the stack:

3

2

2

1