2. Develop a stack class to hold a maximum of 10 integers with suitable methods. Develop a JAVA main method to illustrate Stack operations.

Stack.java

```java
import java.util.*;
public class Stack
{
    int s[]=new int[10]; int top= -1;
    int size=3;

    void push(int i)
    {
        if(top==size-1)
            System.out.println("Stack Overflow");

        else
        {
            s[++top] = i;
        }
    }

    void pop( )
    {
        if (top == -1)
        {
            System.out.println("Stack Underflow");
        }
        else
        {
          System.out.println(" Popped Element= " + s[top]);
          top--;
        }
    }

    void display( )
    {
        if(top == -1)
        {
            System.out.println("Stack is Empty\n");
        }

        else
        {
            System.out.println("Stack Elements are:\n");
            for (int i = top; i >= 0; i--)
                    System.out.println(s[i]);
        }
    }
```

```java
public static void main(String args[])
{
    Scanner scan = new Scanner(System.in);
    Stack stk = new Stack();
    for(;;)
    {
        System.out.println("\n---Stack Operations---");
        System.out.println("1. Push");
        System.out.println("2. Pop");
        System.out.println("3. Display");
        System.out.println("4. Exit");

        System.out.println("Enter your choice:\n");
        int choice = scan.nextInt();
        switch (choice)
        {
          case 1 :
                  System.out.println("Enter the element
              to push");
                  stk.push(scan.nextInt());
                  break;

          case 2 :  stk.pop();
                  break;

          case 3 :  stk.display();
                  break;

          case 4 :  System.exit(0);

          default :
              System.out.println("Invalid Choice\n");
                  break;
        }
    }
}
}
```

OUTPUT:

-------Stack Operations-------

1. Push

2. Pop

3. Display

4. Exit

Enter your choice: 3

Stack is Empty

-------Stack Operations-------

1. Push

2. Pop

3. Display

4. Exit

Enter your choice: 2

Stack Underflow

-------Stack Operations-------

1. Push

2. Pop

3. Display

4. Exit

Enter your choice: 1

Enter the element to push 10

-------Stack Operations-------

1. Push

2. Pop

3. Display

4. Exit

Enter your choice: 1

Enter the element to push 60

-------Stack Operations-------

1. Push

2. Pop

3. Display

4. Exit

Enter your choice: 1

Enter the element to push 30

-------Stack Operations-------

1. Push

2. Pop

3. Display

4. Exit

Enter your choice: 1

Enter the element to push 50

Stack Overflow

-------Stack Operations-------

1. Push

2. Pop

3. Display

4. Exit

Enter your choice: 3

Stack Elements are:

30   60   10

-------Stack Operations-------

1. Push

2. Pop

3. Display

4. Exit

Enter your choice: 2

Popped Element= 30

-------Stack Operations-------

1. Push

2. Pop

3. Display

4. Exit

Enter your choice: 3

Stack Elements are:

60   10

-------Stack Operations-------

1. Push

2. Pop

3. Display

4. Exit

Enter your choice: 4