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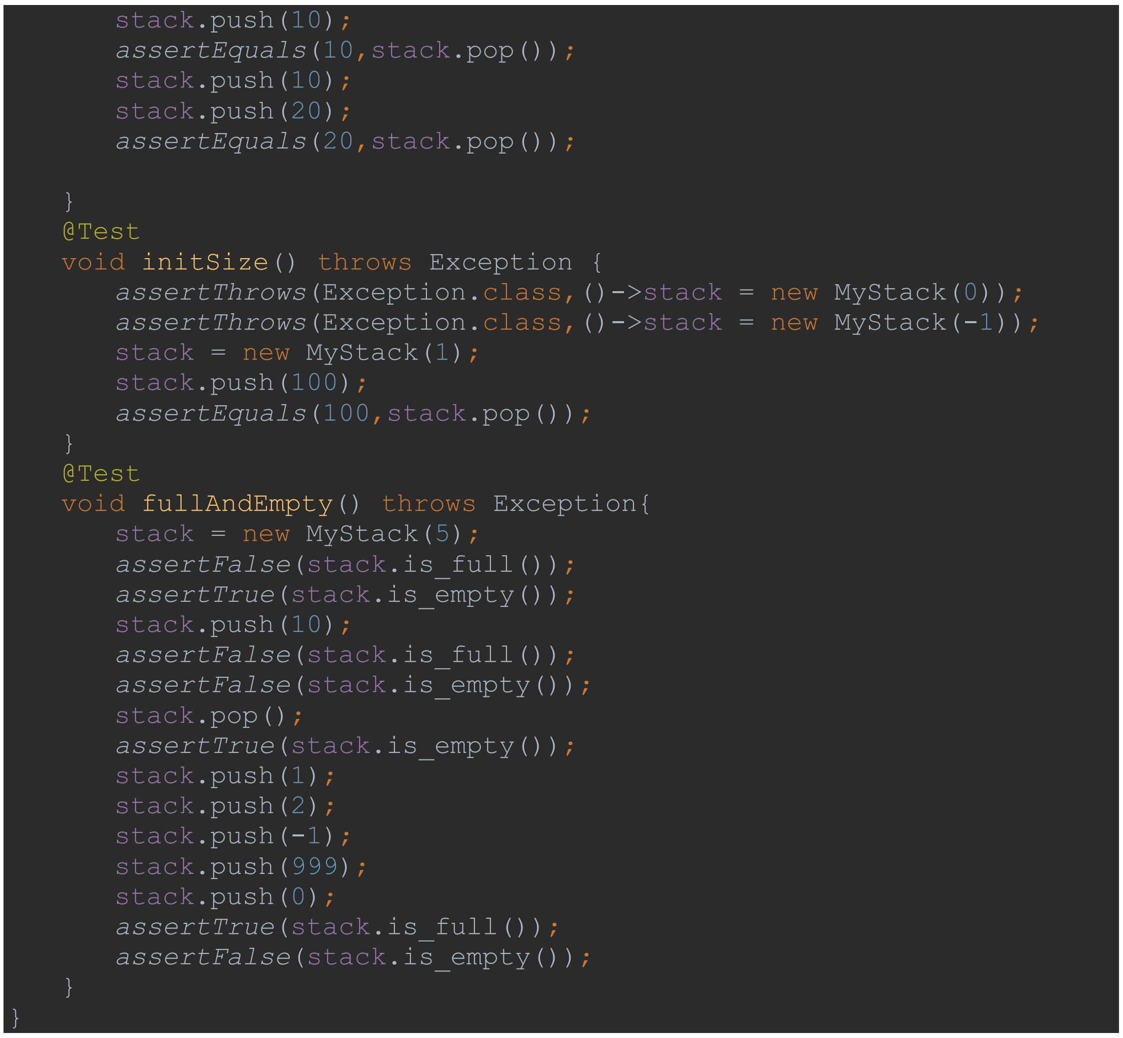
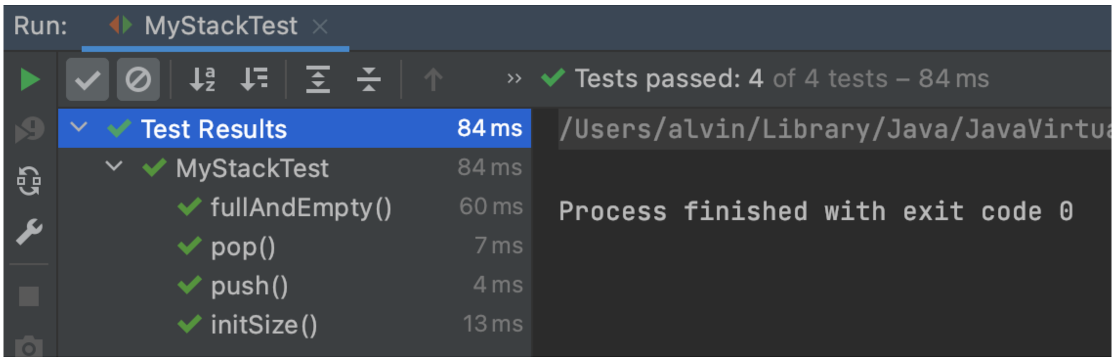
M5.2

MyStack
```
package M52;
public class MyStack {
    private final int[] data;
    private final int size;
    private int index = 0;
    public MyStack(int size) throws Exception{
        if (size<1){
            throw new Exception("Not a stack");
        }
        this.data = new int[size];
        this.size = size;
    }
    public void push(int addData) throws Exception{
        if (is_full())
            throw new Exception("Full");
        data[index++] = addData;
    }
    public int pop() throws Exception{
        if (is_empty())
            throw new Exception("Empty");
        return data[--index];
    }
    public boolean is_full(){
        return size == index;
    }
    public boolean is_empty(){
        return index==0;
    }
}
```
MyStackTest
```
package M52;
import org.junit.jupiter.api.BeforeEach;
import org.junit.jupiter.api.Test;
import static org.junit.jupiter.api.Assertions.*;

class MyStackTest {
    MyStack stack;
    @BeforeEach
    void set(){
        stack = null;
    }
    @Test
    void push() throws Exception {
        stack = new MyStack(3);
        stack.push(10);
        stack.push(10);
        stack.push(10);
        assertThrows(Exception.class,()->stack.push(10));
    }

    @Test
    void pop() throws Exception {
        stack = new MyStack(3);
        assertThrows(Exception.class,()->stack.pop());
```



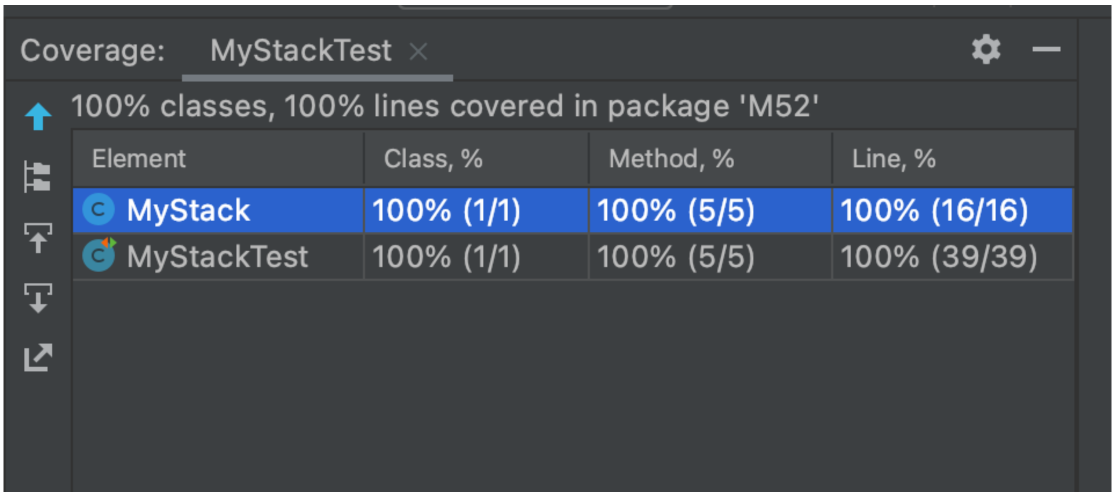
```java
        stack.push(10);
        assertEquals(10,stack.pop());
        stack.push(10);
        stack.push(20);
        assertEquals(20,stack.pop());

    }
    @Test
    void initSize() throws Exception {
        assertThrows(Exception.class,()->stack = new MyStack(0));
        assertThrows(Exception.class,()->stack = new MyStack(-1));
        stack = new MyStack(1);
        stack.push(100);
        assertEquals(100,stack.pop());
    }
    @Test
    void fullAndEmpty() throws Exception{
        stack = new MyStack(5);
        assertFalse(stack.is_full());
        assertTrue(stack.is_empty());
        stack.push(10);
        assertFalse(stack.is_full());
        assertFalse(stack.is_empty());
        stack.pop();
        assertTrue(stack.is_empty());
        stack.push(1);
        stack.push(2);
        stack.push(-1);
        stack.push(999);
        stack.push(0);
        assertTrue(stack.is_full());
        assertFalse(stack.is_empty());
    }
}
```

測試結果



```
Tests passed: 4 of 4 tests – 84 ms

Test Results        84 ms
  MyStackTest       84 ms
    fullAndEmpty()  60 ms
    pop()            7 ms
    push()           4 ms
    initSize()      13 ms

/Users/alvin/Library/Java/JavaVirtu

Process finished with exit code 0
```

涵蓋度測試



100% classes, 100% lines covered in package 'M52'

Element	Class, %	Method, %	Line, %
MyStack	100% (1/1)	100% (5/5)	100% (16/16)
MyStackTest	100% (1/1)	100% (5/5)	100% (39/39)