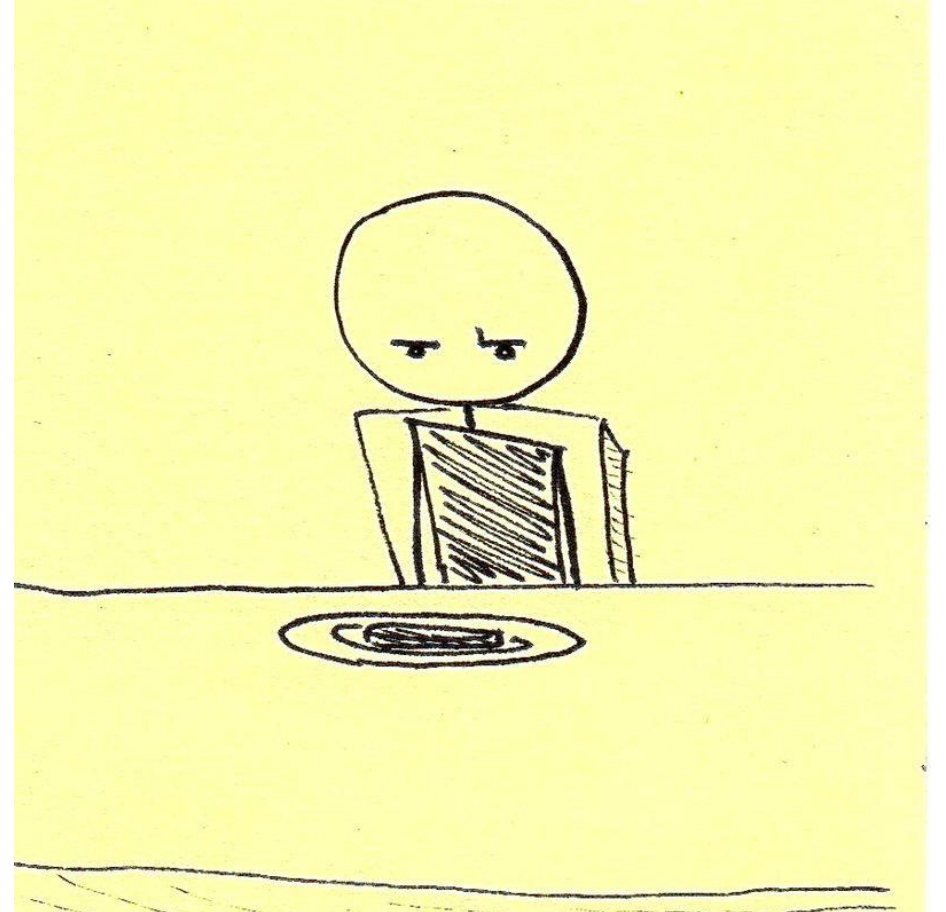


Test doubles

First thoughts on stubs

```
public async Task<string> GetTokenAsync()  
{  
    if (env.IsEnvironment("Test"))  
    {  
        return string.Empty;  
    }  
  
    // Call to token service...  
}
```



Reflection

- Liskov substitution principal

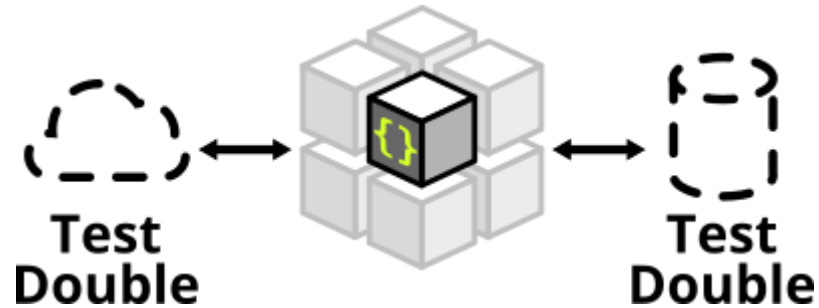
```
public interface IMyService
{
    Task<string> GetTokenAsync();
}

class MyServiceStub : IMyService
{
    public async Task<string> GetTokenAsync() => string.Empty;
}
```



What are test doubles?

- Dummy
- Stub
- Mock



Test Doubles: Dummy

- An empty test double



Test Doubles: Stubs

- Queries



Test doubles: Mocks

- Commands



Test double libraries

From <https://nsubstitute.github.io/>

`//Create:`

```
var calculator = Substitute.For<ICalculator>();
```

`//Set a return value:`

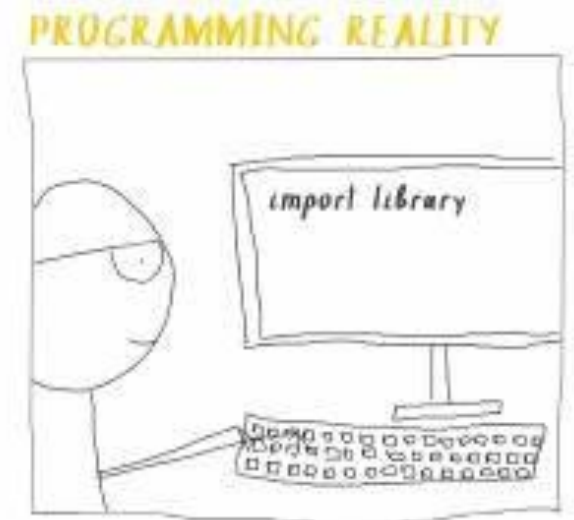
```
calculator.Add(1, 2).Returns(3);
```

```
Assert.AreEqual(3, calculator.Add(1, 2));
```

`//Check received calls:`

```
calculator.Received().Add(1, Arg.Any<int>());
```

```
calculator.DidNotReceive().Add(2, 2);
```



Questions And Discussion.

- Test Doubles
- Dummies
- Stubs
- Mocks
- Test Double Libraries



Thank you for your time 🙏

