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Berlin / BED-Con

Self-Contained integration tests with Docker and Testcontainers

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- JavaSPEKTRUM column owner
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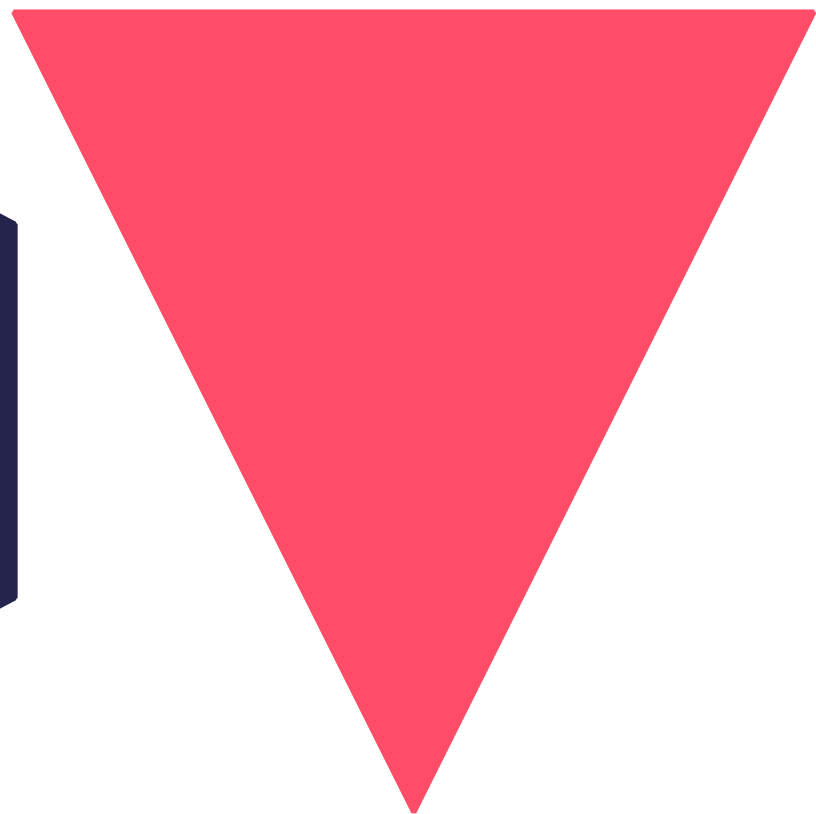
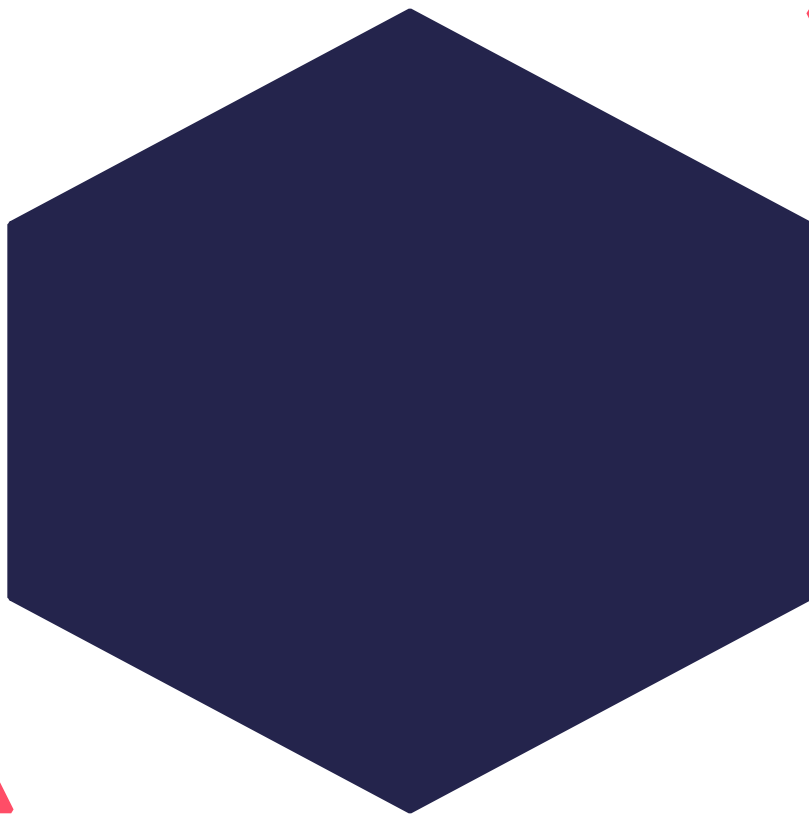
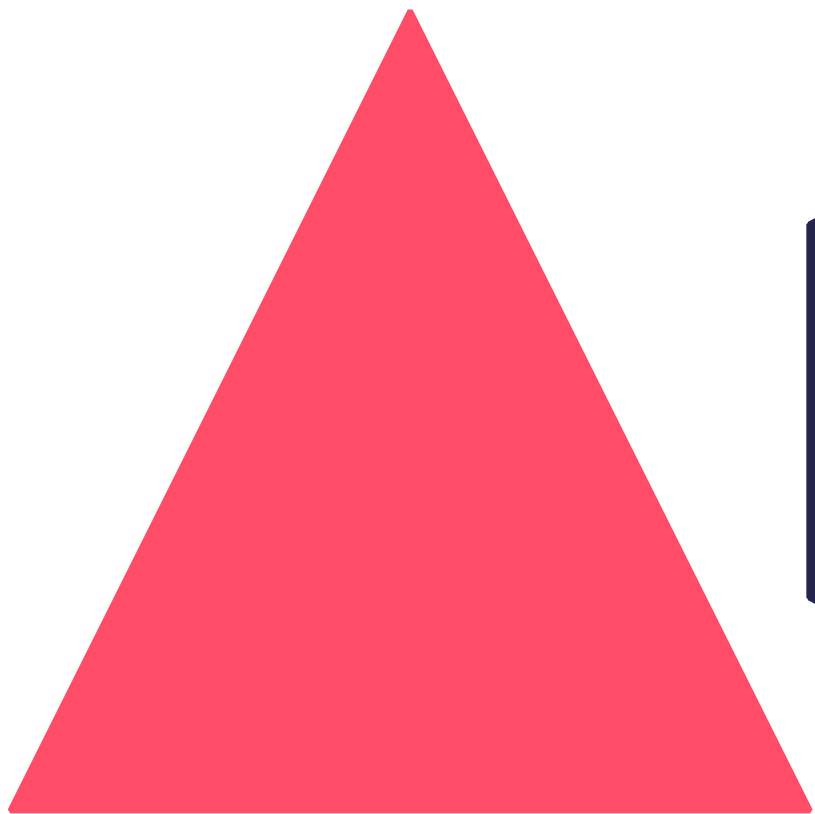
~125 employees
Privately owned
Vendor-independent

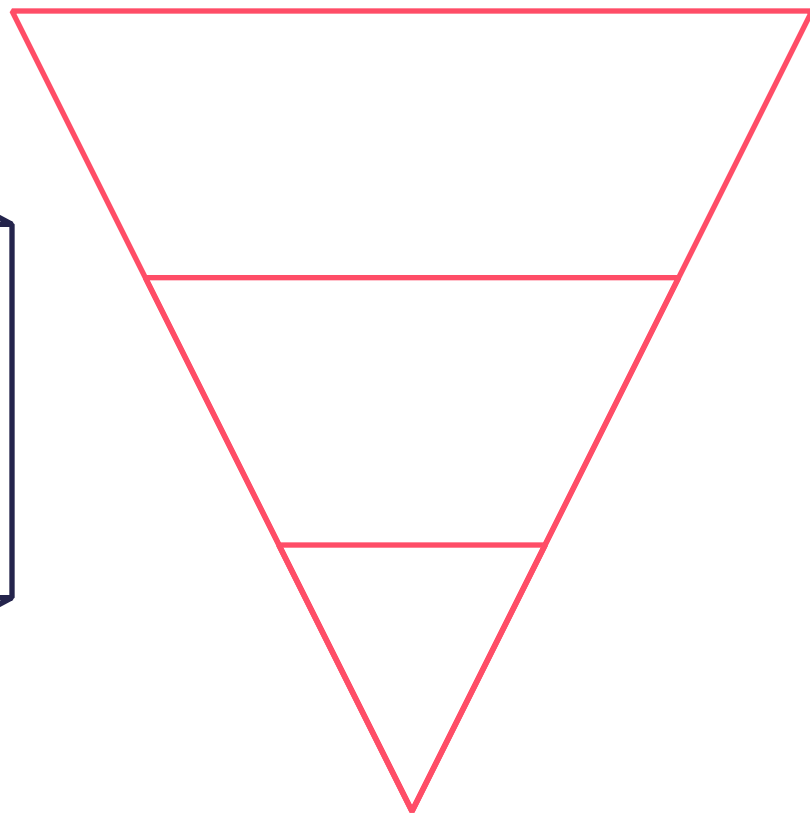
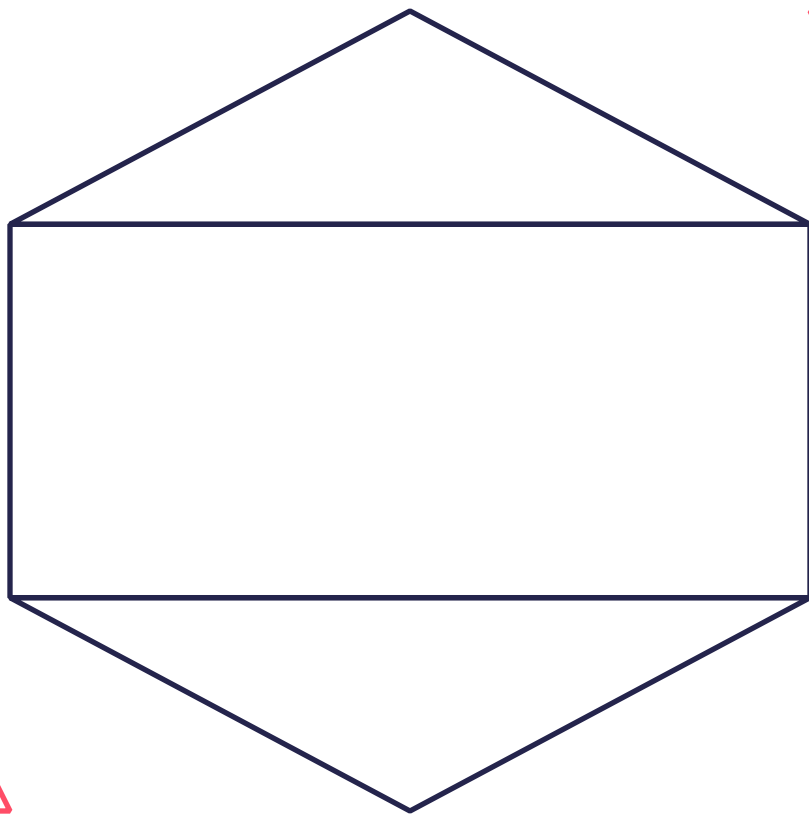
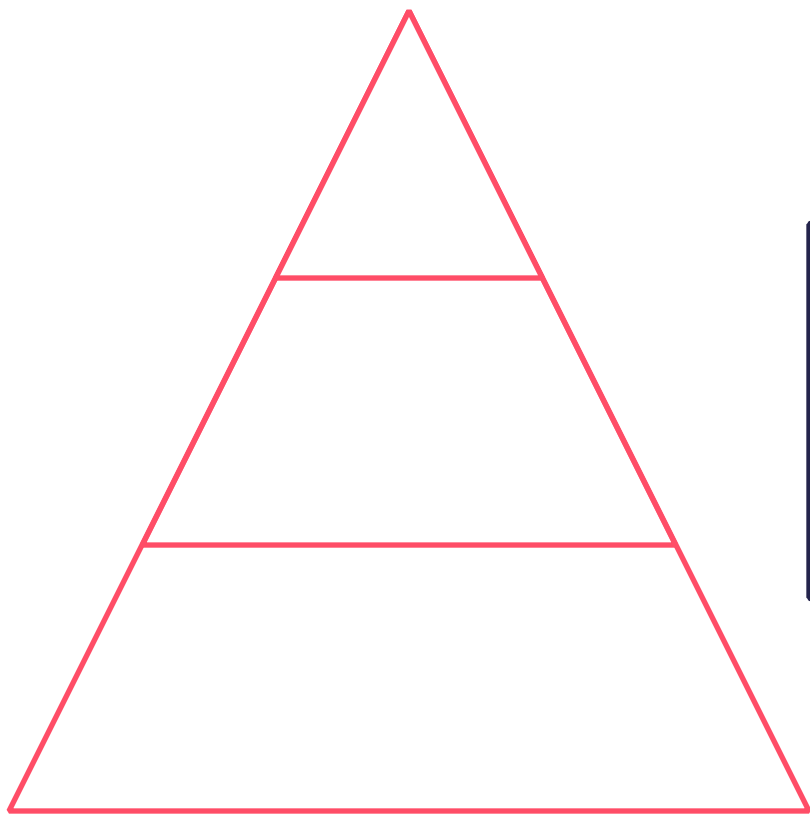
OFFICES

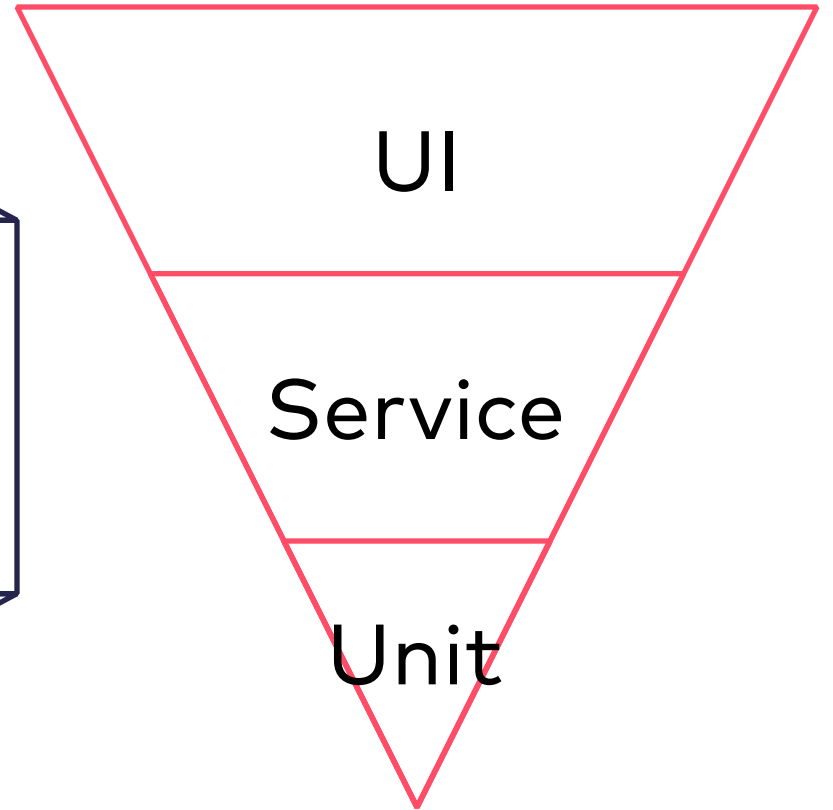
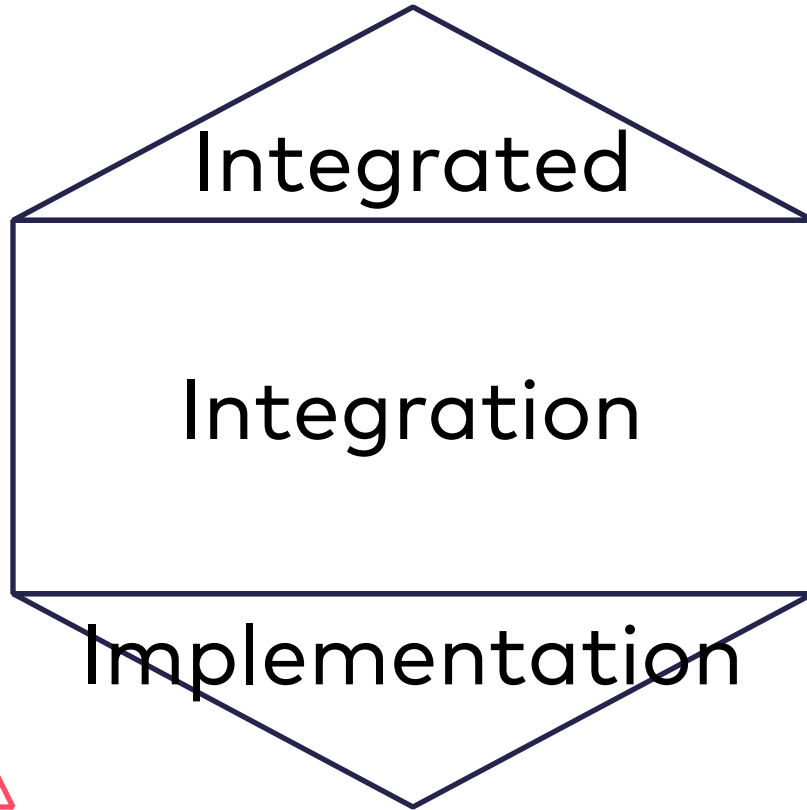
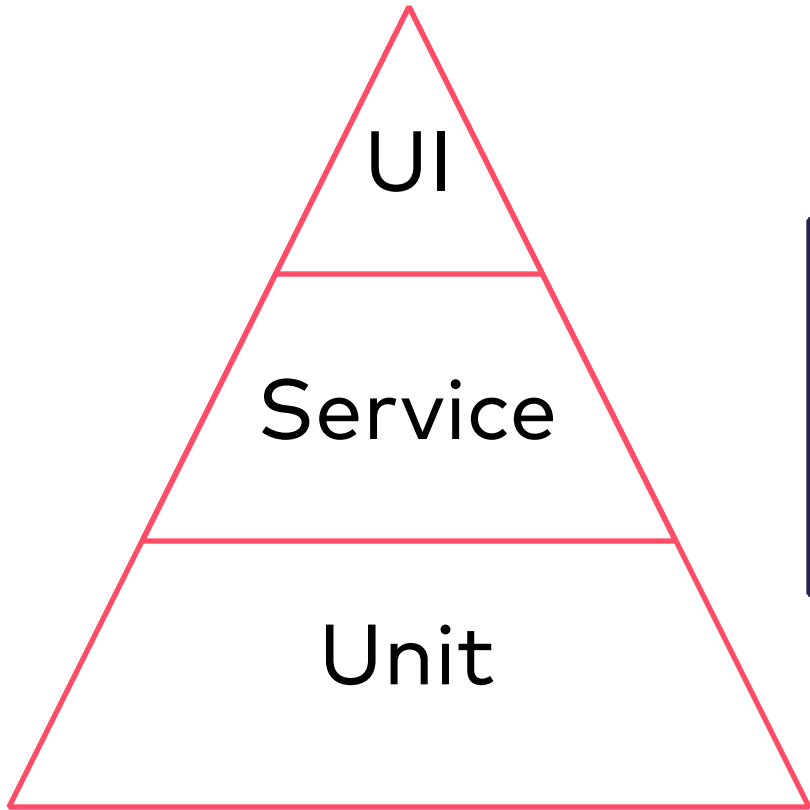
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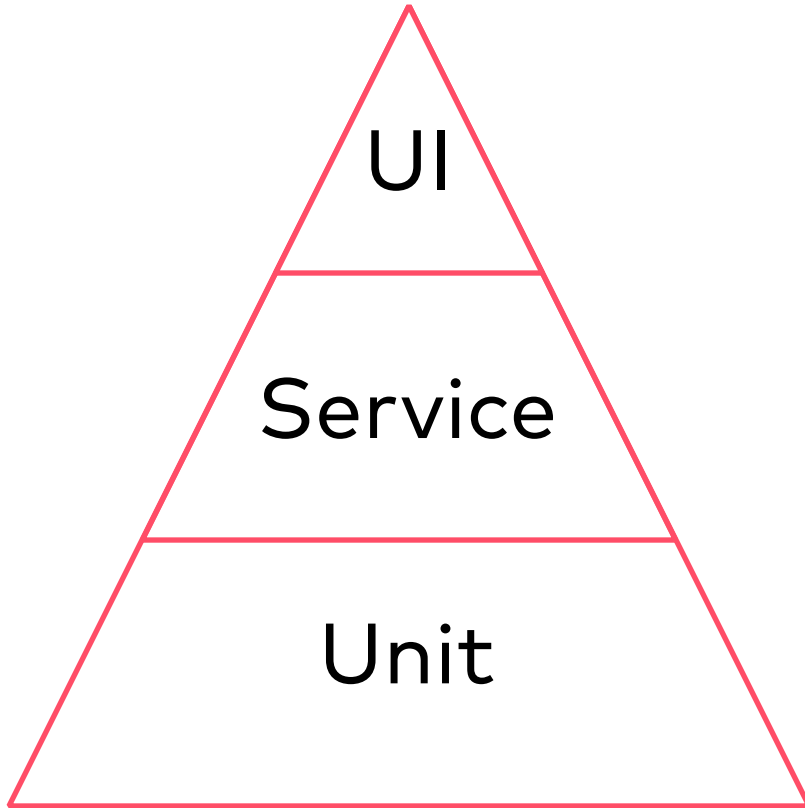




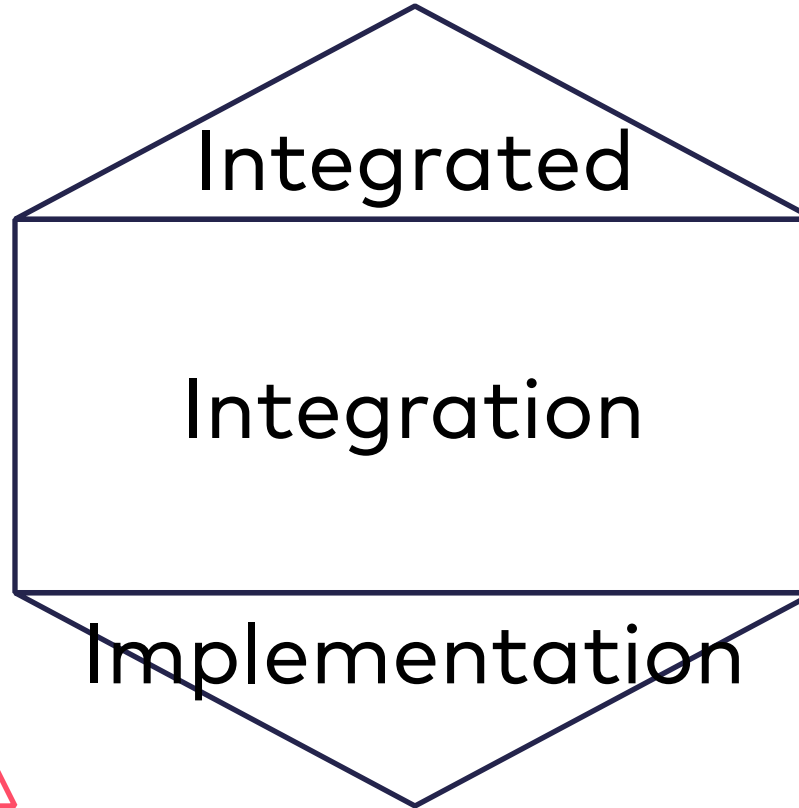


Testing

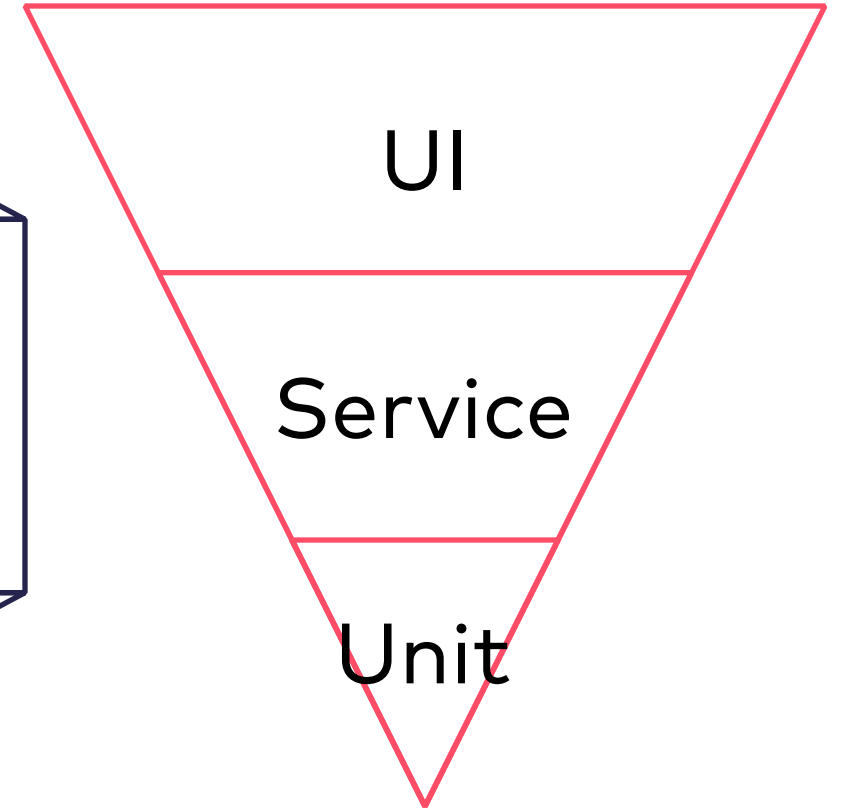
Pyramid



Honeycomb



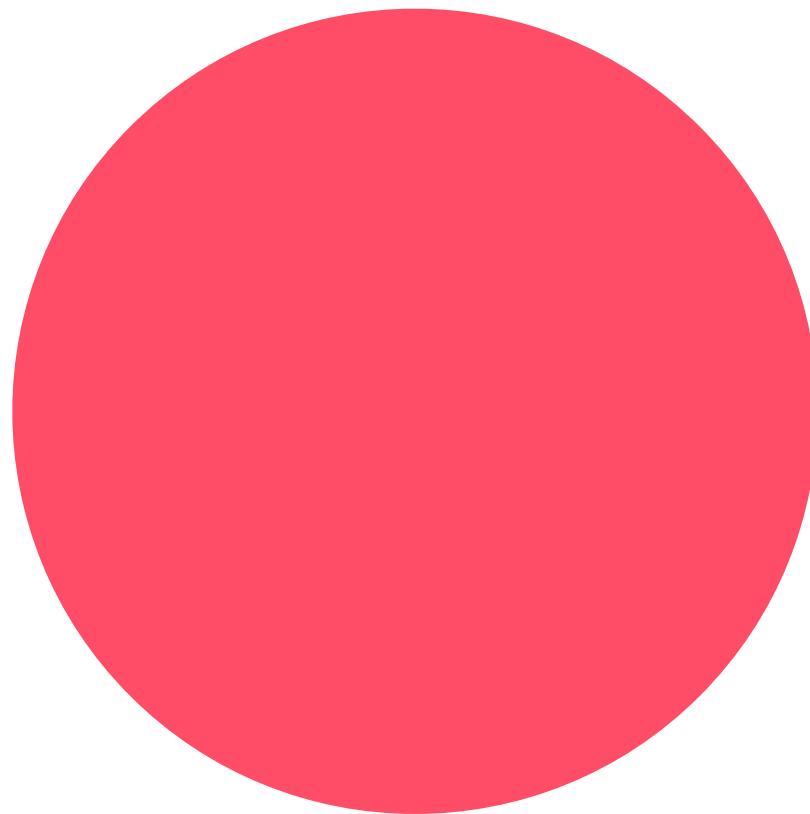
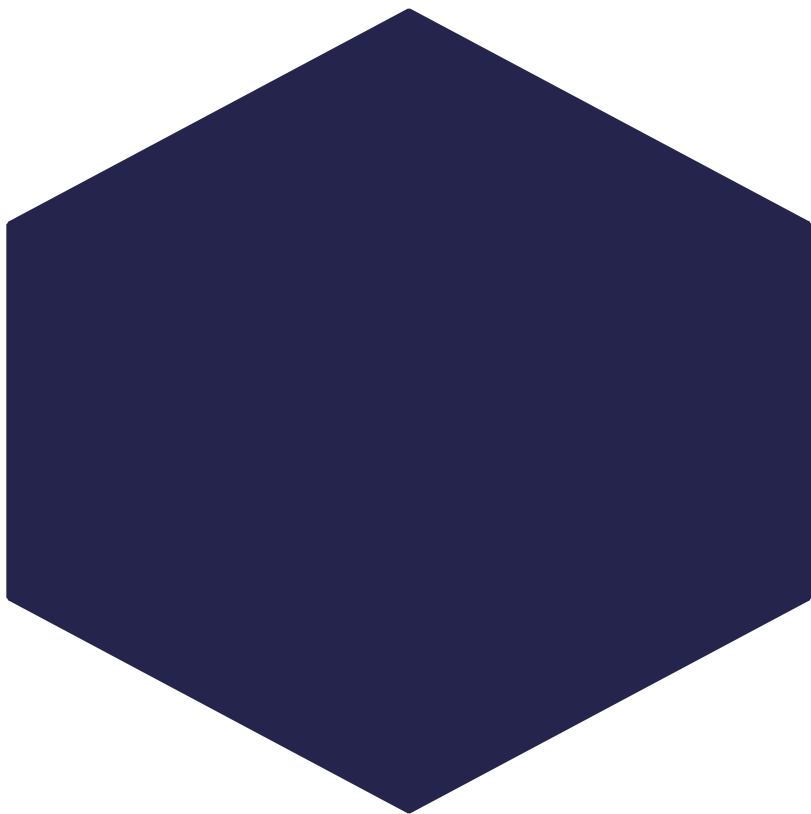
Ice Cream Cone



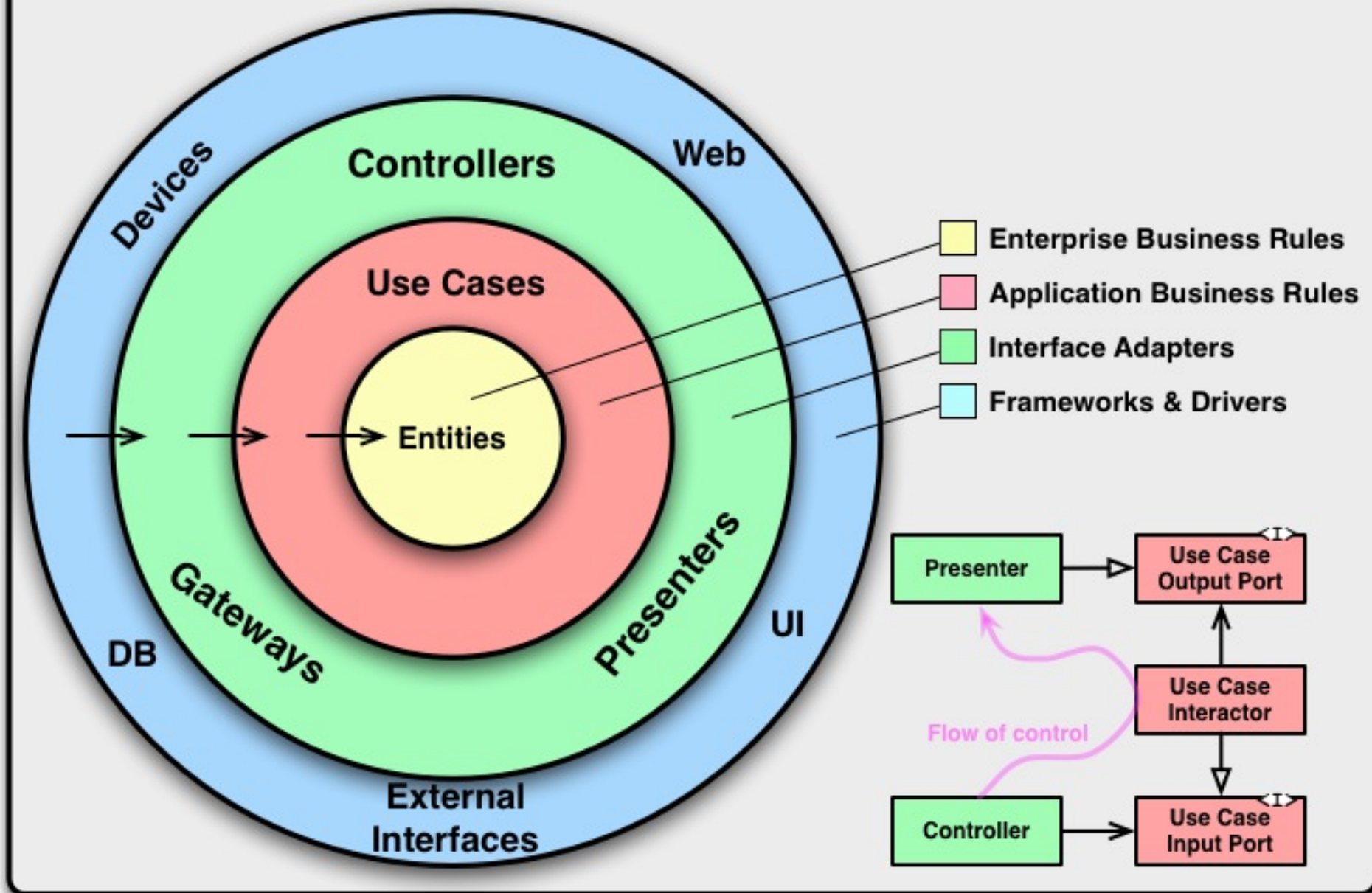
<https://martinfowler.com/bliki/TestPyramid.html>

<https://labs.spotify.com/2018/01/11/testing-of-microservices>

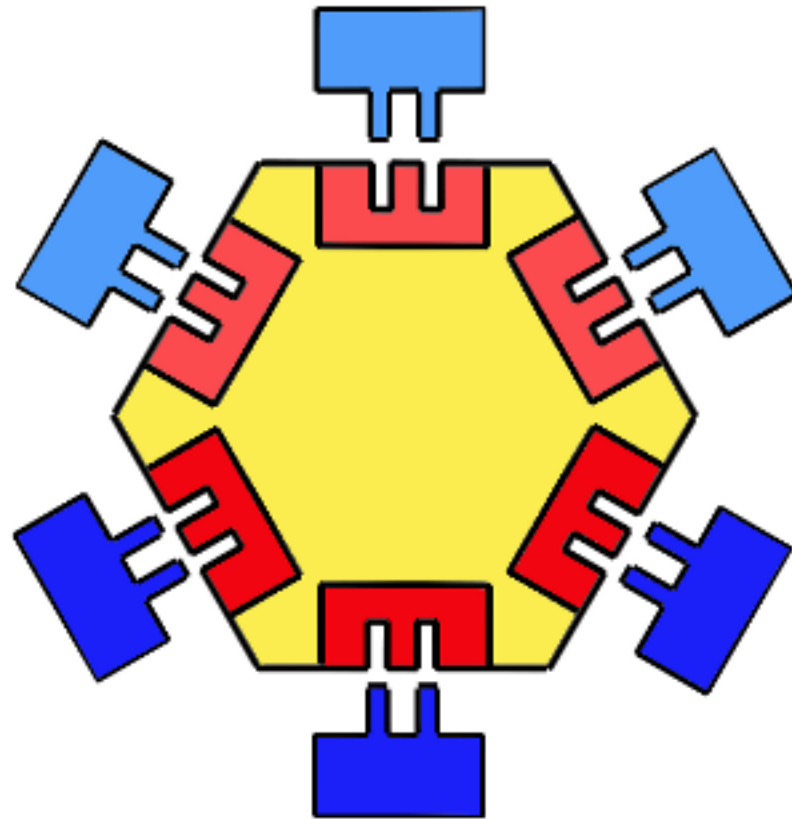
<https://www.thoughtworks.com/de/insights/blog/introducing-software-testing-cupcake-anti-pattern>



The Clean Architecture



Ports-And-Adapters





TESTCONTAINERS

Testcontainers

- Launch Docker containers from Java
- Test data access layer
- UI browser tests
- Requires Docker
- Requires Java 8

Generic Containers

```
@ClassRule
```

```
public static GenericContainer postgres =  
    new GenericContainer("postgres:latest")  
        .withEnv("POSTGRES_PASSWORD", "mysecretpassword");
```

```
private Connection create() throws Exception {  
    String host = postgres.getContainerIpAddress();  
    int port = postgres.getMappedPort(5432);  
    String url = "jdbc:postgresql://" + host + ":" + port + "/postgres";  
    String user = "postgres";  
    String password = "mysecretpassword";  
    return DriverManager.getConnection(url, user, password);  
}
```

Container != Application

```
static String WAIT_PATTERN =  
    ".*database system is ready to accept connections.*\\s";
```

```
@ClassRule
```

```
public static GenericContainer postgres =  
    new GenericContainer("postgres:latest")  
        .withEnv("POSTGRES_PASSWORD", "mysecretpassword")  
        .waitingFor(forLogMessage(WAIT_PATTERN, 2));
```

Database Container

```
@ClassRule
```

```
public static PostgreSQLContainer postgres =  
    new PostgreSQLContainer()  
        .withPassword("mysecretpassword");
```

```
private Connection create() throws Exception {  
    String url = postgres.getJdbcUrl();  
    String user = postgres.getUsername();  
    String password = postgres.getPassword();  
    return DriverManager.getConnection(url, user, password);  
}
```

Selenium Container

```
@Rule
```

```
public BrowserWebDriverContainer chrome =  
    new BrowserWebDriverContainer()  
        .withDesiredCapabilities(DesiredCapabilities.chrome())  
        .withRecordingMode(RECORD_ALL, new File("build"));
```

```
@Test
```

```
public void test() {  
    WebDriver driver = chrome.getWebDriver();  
}
```


Testcontainers 2.0

- Cleanup API
- Entangle from JUnit 4 rules

Thanks! Questions?



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<https://speakerdeck.com/michaelvitz/testcontainers>

<https://github.com/mvitz/javaspektrum-testcontainers>

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