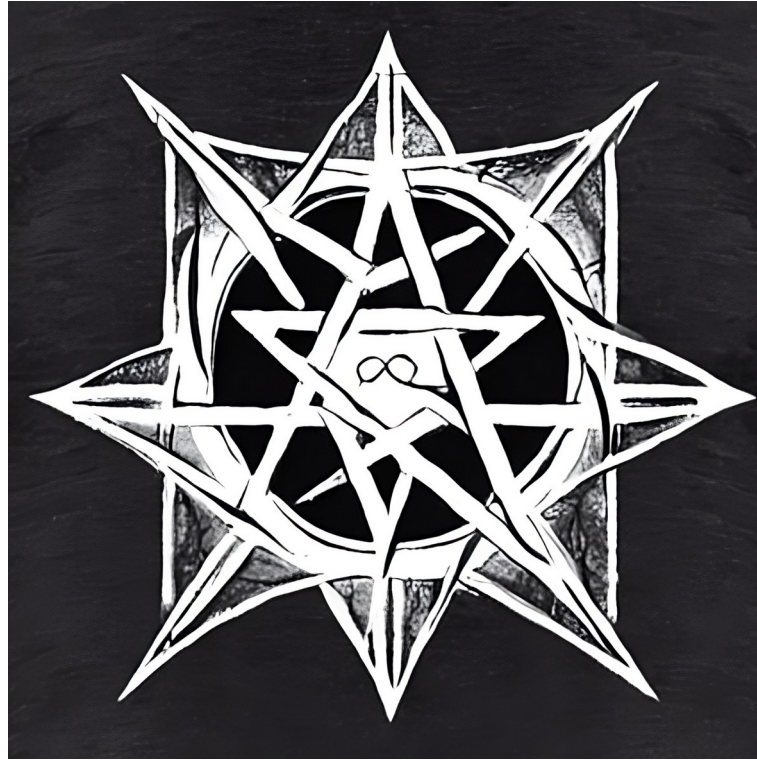# Agenda

- What is Mockito?

- How does Mockito work?

- How to use Mockito?

- Demonstration and Examples

- Best Practice

What is Mockito?

- A mocking framework for unit tests

- Top 3 Java library

- Fork of EasyMock

- First use in 2008

- Currently at version 5

- License under MIT

https://stablediffusionweb.com: Black Magic culture Pentagram

Black Magic

How to use Mockito?

Maven

```xml
<dependency>
    <groupId>org.mockito</groupId>
    <artifactId>mockito-core</artifactId>
    <version>5.2.0</version>
    <scope>test</scope>
</dependency>
```

Gradle

```
repositories { mavenCentral() }
dependencies { testImplementation "org.mockito:mockito-core:5.2.0" }
```

How to use Mockito?

```java
import static org.mockito.Mockito.*;
```

Importend Methods:

- `T mockObject = mock()`

- `when(mockObject.<methodCall>).thenReturn(<value>)`

- `doReturn(<value>).when(mockObject).<methodCall>`

- `verify(mockObject).<methodCall>`

How to use Mockito?

```
T mockObject = mock()
```

- Creates a mock of given type

- Returns nice values by default

- Default can be change via an Answer

```
T mockObject = mock(invocation -> {
    throw new AssertionError("Unexpected Method call");
})
```

How to use Mockito?

```
when(mockObject.<methodCall>).thenReturn(<value>) (Standard)
```

```
doReturn(<value>).when(mockObject).<methodCall> (When other is not working)
```

- Stubs the given method call

- Arguments in Method calls are respected

```
when(listMock.indexOf("value")).thenReturn(0)
```

- Use argument matcher for more control

```
when(listMock.indexOf(anyString())).thenReturn(0)
```

- Note: All values need an argument matcher if used

Wrong: `when(listMock.subList(anyInt(), 6)).thenReturn(new ArrayList())`

Correct: `when(listMock.subList(anyInt(), eq(6))).thenReturn(new ArrayList())`

How to use Mockito?

`verify(mockObject).<methodCall>`

- Check if a method was called once

- Arguments in Method calls are respected

- Use VerificationMode for more control

`verify(listMock, times(2)).size()`

`verify(listMock, atLeast(3)).clear()`

`verify(listMock, atMost(4)).isEmpty()`

Best Practice

- Only one of many tools for testing

- Only mock your own types

- Don't mock value objects

- Don't return a mock from a mock from a mock etc.

Links

- https://site.mockito.org/

- https://github.com/mockito/mockito

- https://github.com/mockito/mockito/wiki/Mockito-Popularity-and-User-Base

- https://stackoverflow.com/questions/2665812/what-is-mocking

- https://stackoverflow.com/questions/14440270/how-does-mockito-when-invocation-work

- https://stackoverflow.com/questions/15693283/mockito-internals

- https://stackoverflow.com/questions/42496911/how-does-mockito-when-work-under-the-hood