



UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG
School of Electrical and Information Engineering
ELEN7045 - SD Methodologies, Analysis and Design

Individual Assignment II

Mock Objects Dynamic Proxies

Deadline and Submissions

The deadlines for all the course deliverables are available on the course homepage.

Your paper must cite at least 3 reputable sources that you have used in researching the paper.

Submissions are due at 12pm (noon) on the deadline day. You may submit the following day before 12pm but you will be penalised by 10 percentage points. No submissions after this will be accepted.

Submissions, including all appendices, must be emailed to joshua@jcse.org.za. Emailed documents should be in MS Word or PDF format.

All submissions must be in strict accordance with the guidelines contained in the *School's Blue Book* and the rules contained in the *School's Red Book*.

Plagiarism

Refer to the *School's Blue Book* for an explanation of what plagiarism is and how to avoid it.

All instances of plagiarism from either the internet or within the class will be severely dealt with. No two students may have identical or overly similar reports. No two students may have identical or overly similar source code.

Choose **one** of the tasks below.

Task 1: Mock Objects

The use of mock objects in unit testing and Test-Driven Development has seen widespread adoption over the past few years. There are several mock object libraries and frameworks available for most mainstream Object-Oriented languages today. Recently, however, there has been some controversy and backlash with regards to the use of mock objects.

Deliverables

Write a **brief** paper of not more than 5 pages discussing: *What are mock objects and how are they used?*.

Your paper should include:

1. A brief description of mock objects
2. A discussion of how and why mock objects are used
3. A few code listings demonstrating the use of mock objects in a unit test or unit tests in either C# **or** Java. You may use either hand-rolled mocks or a mocking library or framework in your listings
4. A discussion of the contrasts between mocks, stubs, and fakes etc
5. An argument stating your opinion on whether the use of mocks is advantageous or disadvantageous in unit testing. Your opinion must be substantiated

Task 2: Dynamic Proxy

Dynamic Proxies are a powerful technique made possible by certain features of Object-Oriented Programming. Libraries for creating dynamic proxies exist in many major OO languages available today, and many mature open-source and proprietary packages make use of dynamic proxies. However the way in which dynamic proxies are created and used is not always well understood.

Deliverables

Write a **brief** paper of not more than 5 pages discussing *What are dynamic proxies and how are they used?*.

Your paper should include

- A definition of dynamic proxies
- A description of how dynamic proxies are used, and why
- A few code listings demonstrating the creation of a dynamic proxy in C# **or** Java. You may use a dynamic proxy library in your listings.
- A discussion of the differences in use of dynamic proxies in C# **and** Java
- A discussion of the features of Object-Oriented Programming dynamic proxies rely on, and the constraints involved when using dynamic proxies.

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