

**(Extra Credit) Homework Assignment 6 - (CSE/SER 464)**  
SCAI, Arizona State University  
Total Points: 50 Points (Bonus)

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**Introduction:** This assignment helps you to reinforce the topics discussed in the class, including

- a) Special considerations in web application testing
- b) Software architectural considerations in client-server web applications towards better quality
- c) Using selenium IDE and selenium web driver to test web applications.

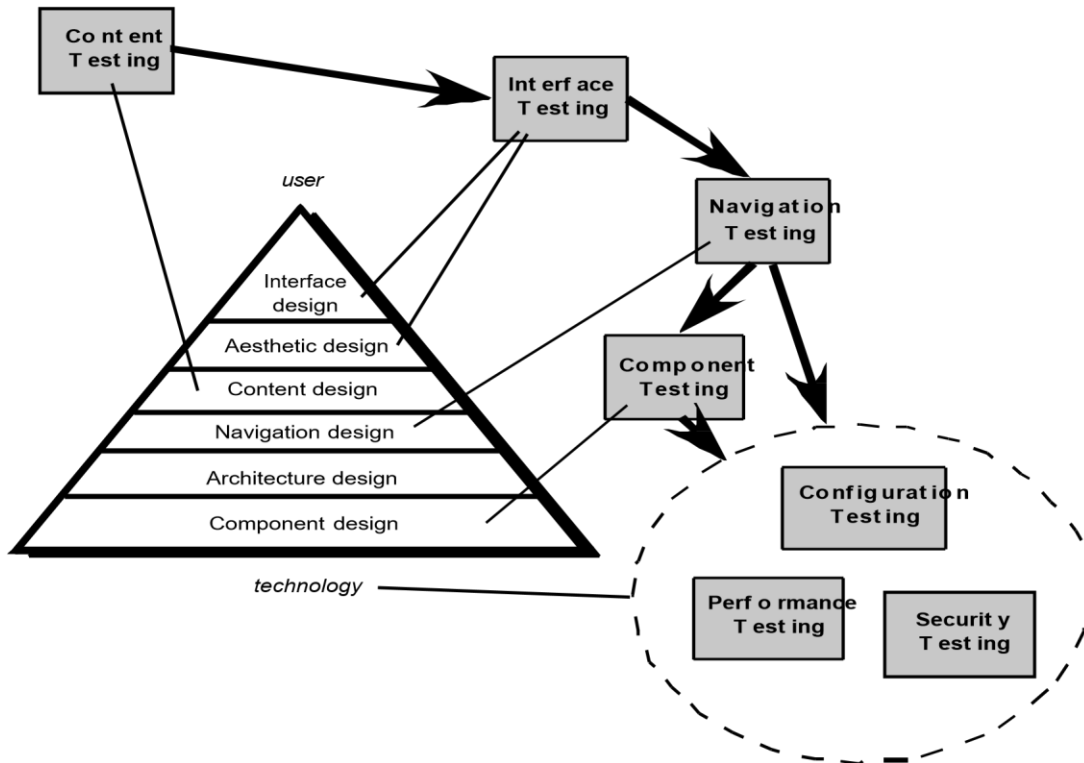
Reading: Lecture notes and example programs/test cases related to web application testing are posted under lecture notes.

**Prerequisites:** Install Selenium IDE in Chrome and configure Eclipse/IntelliJ to run the Selenium web driver (check the lecture slides for links to download and documentation).

1.) [ 25 Points] **Testing Web Applications: Basic Concepts (Module 11 covers this topic)**

- a) The Gray box approach is the most appropriate approach in testing web applications. Briefly explain the difference between the gray box approach and black box and white box testing.
- b) The following figure shows the mapping of web application design and testing. (conventional three-tier applications). Briefly explain testing considerations (what do we test and any tools that can be used) in each testing area in the following figure.

**Read web application testing notes posted with the homework.**



2.[25 Points] **Using Selenium Toolkit: Selenium is a toolkit that facilitates testing various aspects of web applications.**

Consider the following application that implements a simple calculator (Module 11 covers this topic):

<http://magma.maths.usyd.edu.au/calc/>

Use Eclipse or IntelliJ IDE to develop selenium web driver-based test cases to test the above calculator's four mathematical operations (addition, subtraction, multiplication, and division). Name your test program as `calcTest.java`. Please use the Chrome driver.

**Submission: Submit your `calcTest.java`.**

Note: The web driver sample program is posted under the Week 11 Module.

## Submission Instructions

Please use the HW6 submission template given. **No late submissions will be accepted.**