

# Online Shopping Store Project

## Purpose

Software quality can be relative to various stakeholder perspectives; it is important for designers to be able to identify software quality needs and how to measure it. This project provides learners with the opportunity to put their knowledge of software quality attributes and documentation into practice. Learners will evaluate the description of an online clothing store to develop appropriate quality attribute scenarios and produce software architecture documentation using the C4 approach.

## Objectives

Learners will be able to:

- Develop quality attribute scenarios from given software design requirements.
- Assess the software quality needs for a given project.
- Develop software architecture documents using C4 software architecture documentation notations.

## Technology Requirements

- Access to a modeling and drawing tool to create software architecture diagrams based upon the C4 model.
  - C4 software architecture modeling tools:
    - Draw.io (**strongly preferred**)
    - Structurizr
    - Structurizr Express
    - C4-PlantUML
    - Structurizr for Java/.NET + PlantUML
    - Structurizr for Java + Graphviz
    - Structurizr.Dgml
    - C4 Detonator
    - OmniGraffle

## Project Overview

**Phase I:** Develop measurable and testable quality attribute scenarios.

**Phase II:** Software architecture documentation using C4 approach.

## Project Description

Suppose there is a client-server web application that implements online shopping systems for a department store that sells clothing. The main business goals of the application are to make shopping for clothes online a positive experience for customers, increase the sales of well-known brands, and introduce new brands. This store expects availability 24 hours a day, 7 days a week, and the responses to customer queries for clothing selections, checkout, and other operations should occur in 20-30 seconds.

This system offers a more customized clothing selection process, utilizing a virtual fitting-room functionality that shows customers how the clothing may look on them. Customers have the option to enter their weight, height, and other relevant parameters and select an option that allows them to virtually "try on" the clothing.

For future shopping purposes, each customer's shopping history, address, contact information, and payment methods are stored on the system.

In the case of a failure, the system is expected to recover as fast as possible, with no more than 10 minutes of downtime. The data's confidentiality and integrity is a high priority. The online shopping application expects to expand its customer base and make the shopping application available across different types of mobile devices in addition to client-server web access. Therefore, three (3) of the most important quality factors for this system are time behavior, confidentiality and data integrity, and recoverability.

This store uses three (3) third-party systems: a credit card payment system for processing payments, a delivery system for shipping and handling, and an email system through which customers receive confirmation emails and receipts after each purchase.

## Directions

Refer to the *Template\_Your Name\_CSE 598 ASAD\_Online Shopping Store Project* document to complete Phases I and II.

## Phase I

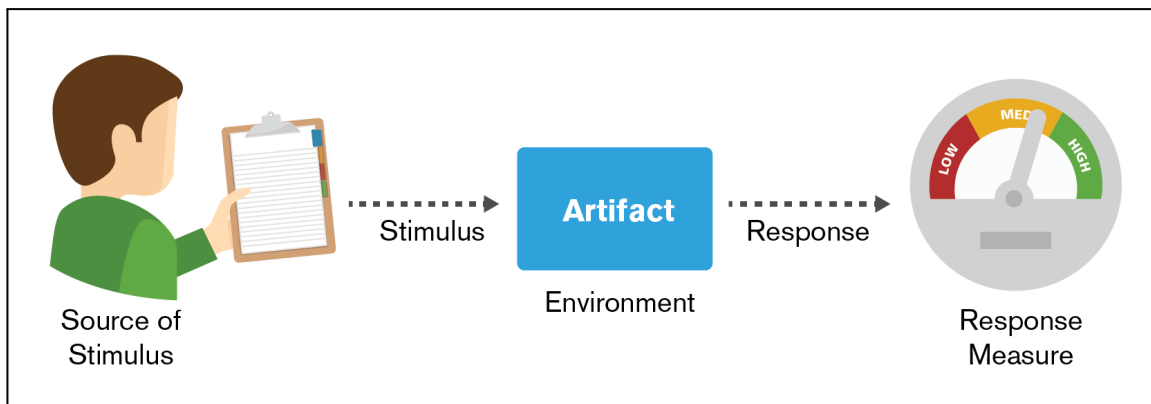
Develop a quality attribute scenario for the three (3) identified quality factors: time behavior, confidentiality, and recoverability. Explain how to test each quality factor for the client-server web application.

Your quality attribute scenarios should be developed using a six-part quality attribute scenario model. For a visual representation of this model, please refer to **Figure 1: Quality Attribute Scenario Model**.

### Quality Attribute Scenario Model:

1. Source of Stimulus
2. Stimulus
3. Environment
4. Artifact
5. Response
6. Response Measure

**Figure 1: Quality Attribute Scenario Model**



**Figure 1: Quality Attribute Scenario Model**

After you have developed your scenarios, briefly explain how to test the quality factors for a client-server web application.

Include your scenarios and test descriptions on your copy of the learner submission template in the space provided for Phase I. You may add pages if necessary.

## Phase II

Identify the main components in the online shopping system, and draw these three (3) software architecture diagrams:

- Level 1: System Diagram
- Level 2: Container Diagram
- Deployment Diagram

Draw your diagrams according to the description of the online shopping store situation. Take a clear screenshot of each diagram and paste them into your copy of the learner submission template in the corresponding spaces provided for Phase II. You may add pages if necessary.

For C4 diagram terminology and usage, please review the "From Requirements to Objects" topic in your course and this link: <https://c4model.com/>.

You may use the Draw.io diagramming tool to construct these diagrams. Draw.io is free, open-source software that has C4 modeling plugging. A tutorial that shows the step-by-step process for using Draw.io to construct C4 architecture diagrams can be found here:

<https://github.com/tobiashochguertel/c4-draw.io>.

## Submission Directions for Project Deliverables

This is a peer reviewed assignment. It is recommended that you submit your project for peer review at least two (2) days before the deadline. You are given three (3) attempts to submit your best work. The number of attempts is given to anticipate any submission errors you may have in regards to properly submitting your best work within the deadline (e.g., accidentally submitting the wrong paper). It is **not** meant for you to receive two (2) rounds of feedback and then one (1) final submission. If you resubmit your assignment, be aware that any reviews or grades you have already received will be deleted. If you submit (or resubmit) your assignment too late, there may not be anyone to review your work. You must submit your Online Shopping Store Project as a single PDF in the designated submission space in the course.

Learners may not email or use other means to submit any project for review, including feedback, and grading. Your Online Shopping Store Project includes one (1) deliverable:

1. **Project Answers PDF:** Phase I and II of your project must be a **single PDF** with the correct naming convention: *Your Name\_CSE 598 ASAD\_Online Shopping Store Project*. You are **required** to use the provided template document, *Template\_Your Name\_CSE 598 ASAD\_Online Shopping Store Project*.

## Evaluation

This assignment is peer-graded.

*Review the course syllabus for details regarding late penalties.*

## Receiving Peer Reviews

Three (3) of your peers will assess your submission using the criteria in the provided rubric. Please review the rubric for how your Online Shopping Store Project will be assessed and graded by your peers. Submissions will be evaluated based on each criterion. Project grades are calculated by adding the median grades of each criterion. Submissions missing any part of the project will be graded based on what was submitted against the rubric criteria. If you submit (or resubmit) your assignment too late, there may not be anyone to review your work.

To pass a peer graded assignment, learners must complete the required number of peer reviews and receive a passing grade on their own submission. Your grade will become available immediately after your submission is reviewed by the required number of peers.

## Completing Peer Reviews

The deadline for completing reviews is three (3) days after the assignment submission deadline. The number of assignments you must review is set by the instructor of the course. You can only review other submissions after you submit your own work. This ensures that no one gains an unfair advantage by viewing other answers.

Use the provided rubric to grade each section of your peer's submission honestly and fairly. Each prompt will ask you to score that section according to the provided rubric for the project. Where applicable, provide respectful, useful feedback to demonstrate your review and feedback that was provided. If your peers' answers are excellent, score them highly and tell them what they did well, and if their answers are not as good, give the score they deserve and help them to understand where they can improve. The instructor reserves the right to deduct points if a learner provides no comments at all or if their feedback is at a minimal level.

## Rubric

Rubrics communicate specific criteria for evaluation. Prior to starting any graded coursework, learners are expected to read through the rubric, so they know how they will be assessed. You are encouraged to self-assess your responses and make informed revisions before submitting your final report. Engaging in this learning practice will support you in developing your best work. Points may be deducted at the discretion of the faculty for disorganized submissions that convolute the grading process.

Component	No Attempt	Undeveloped	Developing	Approaching	Meets
<b>Phase I: 6-part quality attribute scenario for time behavior, confidentiality, and recoverability.</b>	Provided no response	Submission does not contain six-part quality attribute scenarios for some or all of the three (3) quality factors.	Submission contains six-part quality attribute scenarios for all three (3) quality factors with several or major mistakes.	Submission contains fully-developed six-part quality attribute scenarios for all three (3) quality factors with a few mistakes.	Submission contains fully-developed, accurate six-part quality attribute scenarios for all three (3) quality factors.
<b>Phase I: Explanation of how to test each quality factor</b>	Provided no response	Submission is missing explanations of how to test the quality factors.	Submission contains incomplete explanations of how to test each quality factor, or has major inaccuracies or flaws.	Submission contains complete explanations of how to test each quality factor, but has minor inaccuracies or flaws.	Submission contains complete and accurate explanations of how to test each quality factor.
<b>Phase II: System Diagram</b>	Provided no response	The diagram is not a system diagram, the wrong system diagram is submitted, or the system diagram is not drawn using the correct C4 model.	The system diagram has major mistakes, is missing most or all necessary components, or is not readable.	The system diagram contains almost all necessary components with few mistakes, and is mostly accurate and readable.	The system diagram contains all necessary components and is accurate and readable.
<b>Phase II: Container Diagram</b>	Provided no response	The diagram is not a container diagram, the wrong container diagram is submitted, or the container diagram is not drawn using the correct C4 model.	The container diagram has major mistakes, is missing most or all necessary components, or is not readable.	The container diagram contains almost all necessary components with few mistakes, and is mostly accurate and readable.	The container diagram contains all necessary components and is accurate and readable.
<b>Phase II: Deployment Diagram</b>	Provided no response	The diagram is not a deployment diagram, the wrong deployment diagram is submitted, or the deployment diagram is not drawn using the correct C4 model.	The deployment diagram has major mistakes, is missing most or all necessary components, or is not readable.	The deployment diagram contains almost all necessary components with few mistakes, and is mostly accurate and readable.	The deployment diagram contains all necessary components and is accurate and readable.