School of Information Technology, Engineering, Mathematics and Physics

CS341: Software Quality Assurance and Testing
Semester 2, 2025

Assignment 2 – Software Testing

This assignment covers both theoretical and practical aspect of this course. The marking rubric is based on Abstract, Design, Teamwork concepts/issues and Communication, which is in liaison with the Course Outline and Bachelors of Software Engineering program map. Rubrics have been taken from ACS-SCIMS rubrics V1.0.

Learning Outcomes:
This assignment tests the following course learning outcomes and the associated CBOK Attributes:

- CLO 1 - Appraise verification and validation techniques in the various phases of software development life cycles.
- CLO 3: Build test designs using equivalence partitioning, boundary value analysis and static transition techniques.
- CLO4- Evaluate the different tools available for automated testing.

Due Date: Friday 24 October 2025 @ 11:55pm (Fiji Standard Time)

Group: This assignment is to be done in same group from Assignment 1.

Weight: 20%

*Note: The attached marking rubric on page 5 will be used to assess this assignment. Also induvial parts has mark allocations in them.

Part I: (25 marks) – 5%

Overview

For part I, use the **Amazing Lunch Indicator** Software Requirement Specific provided. The part has two tasks (Tasks 1 and 2).The goal of this part is to:

- Build the test designs using appropriate test design techniques.
- Measure the size of the software product statically using function point analysis.
- This size metric must reflect effort, cost and productivity of the software development.
- In your team, you measure the size of the software product for the given Software Requirement Specification Document.

Tasks 1 (15 Marks):

Objective:

- To perform function point analysis.

Steps:

1. Provide detailed analysis of input, output, queries and files for the given SRS (Amazing Lunch Indicator attached)
2. Use section 3.1.1: User Interfaces (UIs) (pages 7 & 8), but you can use the whole documentation if you need.
3. Calculate Unadjusted Function Point Count (UFC) and Adjusted Function Point for the determined EI, EO, EQ, EIF and ILF

Tasks 2(10 Marks):

Objective:

- To build the test designs using appropriate test design techniques for the given SRS.

Steps:

1. Use section 3.1.1: UIs and create test cases by using appropriate test design techniques.
2. If decision table is found appropriate then identify input and output conditions and generate all possible rules for every UI page.
3. Apply rule reduction wherever possible.

Part II: (50 marks) – 10%

Objective:
- To work in teams to understand and gather basic knowledge about open-sourced automation testing tools available in the field of software testing. To demonstrate, compare, contrast, and evaluate the basic functionality of open-sourced testing tools.

Task:
Identify 3 open-sourced automation testing tools, compare and contrast them and demonstrate the use of one of the tools of your choice. A report should be submitted by each team on their task followed by a demonstration of a testing tool of their choice during the presentation session.

The report (55%) should contain the following sections:
1. Abstract – an overview of the report. (Max: 300 words)
2. Introduction – stating the outline of the report and its importance. (Max: 1 page)
3. Tools (3 tools only) – state the description, functionalities, strengths, and weaknesses of each tool separately. (Max: 1 page per tool)
4. Discussion on the Comparison – compare the 3 tools. (Max: 1 page)
5. Bibliography – reference of all resources utilized in the report. Use APA referencing.

Part III: Presentation (25 marks) – 5%
Objective: To make a presentation of your findings in Questions I & II

Steps:
You are required to make your video presentation for up to 5 minutes. Your presentation must include the following:
1. Part I, Task 1:
   A. The step by step approach used to perform the function point analysis.
   B. How function point analysis helps in estimating the effort, cost and productivity of the software development?
2. Part I, Task 2:
   A. Choice of test design techniques
   B. The test cases built
2. Part II:
   A. Choice 1 of the 3 tools and demonstrate 2 core functionalities available to testers along with its strengths and weaknesses. Optionally include any suggestions for improvement of said tool.

Submission Guidelines

1. Submit 2 files upon completion of this group assignment.
   - Report .docx/.doc/pdf for Part I and Part II along with mark allocation sheet.
   - Presentation video for up to 5 minutes (maximum) for Part III
2. The submission filename should read:
   - A2_Report_GPX.pdf and
   - A2_Presenation_GPX.mp4 or other video format
   - Incorrect submission will result in high penalty.

Grading

1. The assignment is worth 20% of your overall grade where the report carries 15% and the presentation carries 5%.
2. Late delivery without prior notification and permission from the course coordinator will result in a loss of 10% of the marks per day.
3. Plagiarism/Cheating in any form are strictly prohibited. If found, complete Assignment 2 will be nullified.

LATE SUBMISSION = ZERO (0)
Plagiarism
- No two teams should submit the same or similar assignment.

Queries
- Maintain contact through Moodle discussion forum named *Assignment Discussion Forum*.
- Feel free to consult the Lecturer/Course Coordinator during the online consultation hour or tutorial hours for queries.

Assignment 2 Assessment Rubric

Part / Task	Beyond Expectation [76–100 %]	Meet Expectation [50–75 %]	Below Satisfactory [0–49 %]	Score
Part I – Task 1: Function Point Analysis (15 marks)	• Comprehensive and precise identification of all inputs, outputs, queries, internal and external files. • Calculations for Unadjusted and Adjusted Function Points are correct and justified. • Strong connection between size metrics and estimation of effort, cost, and productivity. • Results presented clearly with professional formatting.	• Appropriate identification of key elements with mostly accurate calculations. • Reasonable discussion of cost and effort relation. • Presentation is clear but may lack depth in explanation.	• Incomplete or inaccurate component identification. • Major errors in calculations or missing justification. • Weak or no discussion on cost or productivity relevance. • Disorganized presentation.	/15
Part I – Task 2: Test Design Techniques (10 marks)	• Excellent selection and application of suitable test design techniques. • Test cases accurately derived from user interfaces and input/output conditions. • Demonstrates efficiency through appropriate rule reduction. • Logical structure and justification for all cases provided.	• Appropriate choice of test design technique. • Test cases mostly correct and relevant. • Some rule reduction or explanation evident.	• Incorrect or inappropriate test design technique chosen. • Test cases incomplete, inaccurate, or irrelevant. • No rule reduction or justification.	/10
Part II – Automation Testing Tools Report (50 marks)				
Abstract (5 marks)	• Clear and concise overview of objectives, purpose, and key outcomes of the report.	• Adequate summary of report purpose	• Missing or vague abstract.	/5

	• Effectively summarizes major findings and demonstrates understanding of automation testing relevance.	and tools but lacks clarity or detail. • Covers general objectives and findings.	• Does not summarize report objectives or outcomes.	
Introduction (5 marks)	• Well-structured context describing the importance, scope, and goals of automation testing. • Sets a strong foundation for the rest of the report.	• Provides general background and purpose. • Minor issues in flow or structure.	• Weak or unclear introduction. • Missing relevance or purpose of the report.	/5
Tool Descriptions (15 marks)	• Three open-source tools thoroughly described with detailed features, functionalities, strengths, and weaknesses. • Demonstrates deep understanding and critical evaluation of each tool.	• Three tools described with adequate details. • Some strengths and weaknesses mentioned but limited depth.	• Less than three tools discussed or missing details. • Descriptions inaccurate or too brief.	/15
Comparison and Discussion (10 marks)	• Logical and well-organized comparison across key criteria such as usability, integration, and performance. • Provides clear justification for the preferred tool used in demonstration.	• Tools compared on basic criteria. • Comparison logical but lacks detailed reasoning or justification.	• Weak or no comparison between tools. • Missing justification or unclear criteria.	/10
Demonstration (10 marks)	• Clear and practical demonstration of one tool's key functionalities. • Shows strong understanding of its operation, advantages, and limitations. • Includes suggestions for possible improvements.	• Demonstration of tool covers main functionalities. • Limited discussion of advantages and issues.	• Demonstration unclear, incomplete, or missing. • No explanation or understanding of tool features.	/10

Referencing and Presentation (5 marks)	- Professional structure with consistent formatting and logical flow. - Accurate in-text citations and reference list using APA style. - Clear and error-free writing.	- Proper formatting with minor citation or structural issues. - Generally clear presentation.	- Inconsistent formatting or missing references. - Poorly written or organized report.	/5
Part III – Presentation (20 marks)	- Confident, engaging, and well-organized presentation. - Slides visually appealing and logically sequenced. - Clear explanation of analysis, findings, and tool demonstration. - Excellent response to questions showing full understanding.	- Clear and coherent presentation with adequate structure. - Reasonably confident delivery. - Good understanding of content.	- Poorly structured or unclear presentation. - Lacks confidence or clarity. - Limited understanding of material.	/20
Teamwork and Submission (5 marks)	- Strong collaboration with clear evidence of shared responsibility. - Tasks distributed fairly and completed on or before deadline. - All required files correctly named and submitted.	- Good collaboration and fair task distribution. - Tasks mostly completed on time. - Correct submission format.	- Limited teamwork or unbalanced contribution - Late or incomplete submission. - Incorrect submission format.	/5

The End