

Occupational Certificate: Software Engineer (NQF6) Test or Debug Source Code to Ensure Client's needs are met (TDS)	
Curriculum Code	251201
SAQA Qualification ID	119458
Intake / year	1-2026
Assessment Name	Summative Assessment
Module NQF Level	5
Credits	15
Open date and time	17 July 2026 • Open time: 17:15
Close date and time	17 July 2026 • Close time: 20:15
Assessment Total Marks	100
Pass percentage	65%

Lecturer Information	
Lecturer	Thaveshan Govender
Lecturer E-mail	thaveshang@aie.ac

IMPORTANT NOTICE

Before submitting your assessment, please ensure that it is signed and that all your personal details are accurately filled in the designated space below (Section in red). Work will not be accepted unless the required sections below are fully completed prior to submission, resulting in a 0% grade for this assessment.

The signature must be your valid handwritten signature and NOT your name and surname typed in the space provided.

Student Number:	461476		
Student name and surname:	John Herbst	Date:	07/17/2026
Student cell phone number:	0604944665		
Student Signature:			
Lecturer name and surname:	Thaveshan Govender	Date:	
Lecturer Signature:			
Assessor name and surname:		Date:	
Assessor Signature:			
Moderator name and surname:		Date:	
Moderator Signature:			

Instructions to Candidates

1. Read each question carefully.
2. You must answer Section B below the space provided named "STUDENTANSWER". Once completed, the answer sheet, with your answers, must be converted to PDF and uploaded to the student portal. Make sure that all additional information is uploaded in a single Zipped folder.
3. QCTO students who achieve between 55-64% may have a further submission opportunity, subject to the departmental rules.
4. **NO LATE submissions will be accepted. (System will automatically close when due date and time is reached). If you encounter any difficulty with the student portal, immediately take a screenshot, log a ticket (attention support), and attach your assessment to the ticket.**
5. You must follow the departmental formatting guidelines.
6. You must write your name, surname, and student number on your script. A failure to do so will result in your script not being marked.
7. By submitting your answer sheet for marking, you declare the following:
 - a. You are familiar with the AIE's policies on academic dishonesty and plagiarism;
 - b. Your submitted is your own original work. Where you have made use of someone else's work, you have duly referenced such work making using of the APA style of referencing;
 - c. You have not allowed, and will not allow any other student to copy your work; and
 - d. You did not copy the work of another student.
8. Students that are dishonest will be subjected to disciplinary procedures.

Assessment Objective/s:

The Formative assessment will cover the following assessment topics:

No	PM/PS number	PM Description
1.	PM-04-PS01	Perform functional and non-functional tests

Scope:

This module aims to immerse you in the essential processes of software testing and debugging, focusing on evaluating applications to identify and fix errors, and to validate that all features and functionalities perform as intended. By engaging in functional and non-functional testing, you'll learn to assess software from multiple perspectives, ensuring reliability, performance, and user satisfaction.

Technical Aspects:

Please verify that all pages are included when downloading this assessment by checking the page numbers at the bottom of the document.

Ensure the following font and size is used in this assessment

- a. Font: Arial
- b. Size: 12

c. Font colour: Black

Save and upload the report as a .PDF (**No backgrounds**) with the following naming convention: StudentName_ StudentSurname _Student no_ ModuleCode_ SA1

SCENARIO

You are testing an online food ordering web application recently developed for a local restaurant chain. The application allows customers to register, place orders, make payments, and track delivery in real time. The restaurant wants to ensure reliability, security, and performance before full deployment.

Your role is to test and debug this system, ensuring it meets both functional and non-functional requirements.

Question 1

(10)

a)	List at least four (4) functional tests and three (3) non-functional tests needed for this application.	[10]
	ANSWER: Functional tests: FT01: Register view opens on first open FT02: User can register a profile FT03: After register, user is redirected to home page. FT04: User can create an order Non-Functional NFT01: The users passwords must be hashed in the database using bcrypt NFT02: The users token must be encrypted with JWT. NFT03: This website should be compatible on both windows and mobile devices on any web browser.	

Question 2

(20)

a)	Write down how you would execute two functional and two non-functional tests, including the tools or methods you would use.	[20]
	ANSWER: Functional: Register page first- I'd run the server and open it on any web browser and visually see. Register-I will use postman to run a test and pass the details with a post function to the correct URL Non-Functional Password hashed- Use postman to register a profile and then Use mongo-atlas to view the database and see if passwords are hashed. JWT token encryption- Use Postman to login or register a user, check the output for the token, if it is a random string, the token is encrypted.	

Question 3

(20)

Compile a brief report including:						[20]
- Objective of each test - Steps performed - Expected vs Actual Results - Issues/bugs found						
ANSWER:						
Test Case ID	Objective	Test steps	Expected results	Actual results	Status	Bugs/Issues
FT01	Register view opens on first open	1.Run server 2.Open server	Register view opens	Register view opens up	passed	Anyone could just type /Home and get to the home page
FT02	The users	1.Run server	Token is a random	The token is a random generated string	Passed	

		token must be encrypted with JWT	2.Register/Log in with postman 3.Look at the results for the token	generated string			
FT03	After register, user is redirected to home page.	1.Run server 2.Register a new user 3.Observe outcome	After registration is successful the user gets redirected to the home screen	After I registered Successfully I got redirected to the home screen.	Passed	User got redirected even if the registration failed	
NFT01	The users passwords must be hashed in the database using bcrypt	1. Open dbatlas, 2.Observe previous logged in users in users table	Passwords must not show in the database	Password just shows "\$2b\$12\$gVVhhhe9bl0xTqntValR1e9dX3Z0/cl.Tzgh7kAHJ.BfLz MjJX11W "	Passed		
NFT02	The users Token is encrypted using JWT	1.Login Using postman 2.Observe output for token	Token must be encrypted	The token just shows a random string "gdhjpg21hgh312g4f2gh14f14f12gh4f1h"	Passed		

Question 4

(25)

a)	Perform exploratory testing by identifying five edge-case scenarios. Include your observations and outcomes.	[25]				
ANSWER:						
Test Case ID	Objective	Test steps	Expected results	Actual results	Status	Bugs/Issues
EC01	User registers with a username longer than 20 characters	1.Start server 2. Try to register with a long string	System blocks typing more than 20 characters	I cannot type more than 20 characters	Passed	
EC02	Email address does not follow the usual email Formatting	1.Start server 2.Try to input diffrent names into the email field except the usual format	The system shows a message when an email is not the correct format	When I just insert a name or any other symbols thats not the Email Format it shows a message and does not register me	passed	The + sign is a normal used sign in email formatting but it could not be used here.And valid users was blocked
EC03	User tries to order with invalid number	1.Start server 2. Login with existing user 3. Try to order with 0, -1, -10 or a,b,d,	The system should make it physically impossible	I cannot type anything else except 1- 10 And when the stock is only 4 I can only go up to 4	passed	
EC04	Customer cannot order after 7pm,becuae store closes at 8pm	1.Change time to 7:01pm 2. start server 3.login 4,try to order	The Order button should be greyed out and not work,a message should display stating that the	I cannot click order , It shows a message on the side saying"Sorry the shop is closed	passed	

				store is closed and opens tomorrow morning at 8am	come back tomorrow at 8AM"		
	EC05	A product shows when there is no more stock available	1.Change stock of a product to zero. 2. Login 3.Try to order the product	The product shows out of stock and the order button is greyed out	I can view the product it says out of stock ,but the order button is greyed out so I cannot order	Passed	Users could still order even if the stock says zero.

Question 5

(25)

Create a regression test suite with at least three (3) previously tested features to ensure no new bugs were introduced after fixes.							[25]
ANSWER:							
Test Case ID	Previous test	Objective	Test steps	Expected results	Actual results	Status	Bugs/Issues
RG01	EC05	Can you still order when the stock has been updated	1.Remove stock 2. add stock 3.try to order	User can now order again	I can now order again it does not say out of stock anymore	passed	
RG02	EC02	Can the user type in any other formats	1.Run server 2. Try to register a new user using the normal email format	User should be able to register using any email formatting	I can register using any email formatting I want to even with or without the +	Passed	
RG03	FT03	Does the user get redirected to the home page when the registration fails	1.Run server 2.try to register with invalid credentials 3.observe	The user does not get redirected	I Don't get redirected the registration fails and leaves me on the registration page	passed	

Mark allocation for student		
Question	Maximum Mark	Learner mark
Question 1.a	10	
Question 2.a	20	
Question 3.a	20	
Question 4.a	25	
Question 5.a	25	
Total:	100	

STUDENT ASSESSMENT FEEDBACK

Qualification Name:	Occupational Certificate: Software Engineer
Qualification SAQA Number:	119458
Subject Name:	Test or Debug Source Code to Ensure Client's needs are met
Subject Code:	TDS
Assessment Name:	Summative Assessment
Assessment Code:	TDS_SA

Assessment Decision	Competent		Not yet competent	
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Feedback report	1st Attempt		2nd Attempt	
	C	NYC	C	NYC

Practical module/Practical skill				
PM04				
PS01				

General feedback to learner
Supply comprehensive feedback why learner is found NYC