**School of Information Technology and Data Science**

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| **OCTO: Software Engineer**  **Program and deploy applications (PRDA)** | |
| **SAQA Qualification ID** | 119458 |
| **Intake / year** | 2-2024 |
| **Assessment Name** | Summative Assessment |
| **Module NQF Level** | 6 |
| **Credits** | 25 |
| **Open date and time** | 20 June 2025   * ***Section B: 09:45*** |
| **Close date and time** | 20 June 2025   * ***Section B: 13:45*** |
| **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.**

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| **Student Number:** | **375246** |
| **Student name and surname:** | **Adam Joshua Malki** | **Date:** | **13/7/2025** |
| **Student cell phone number:** | **0797384779** | | |
| **Student Signature:** | **Ajm** | | |
|  |  | | |
| **Lecturer name and surname:** | **Thaveshan Govender** | **Date:** |  |
| **Lecturer Signature:** | **C:\David\Overdue marking\Signatures\Thaveshan Govender.png** | | |
| **Assessor name and surname:** |  | **Date:** |  |
| **Assessor Signature:** |  | | |
| **Moderator name and surname:** |  | **Date:** |  |
| **Moderator Signature:** |  | | |

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| **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:    1. You are familiar with the AIE’s policies on academic dishonesty and plagiarism;    2. 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;    3. You have not allowed, and will not allow any other student to copy your work; and    4. 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 number | PS Description |
|  | PM-03-PS01 | Write code |
|  | PM-03-PS02 | Debug source code |
|  | PM-03-PS03 | Deploy applications to attain the desired systems’ results |

### Scope:

This module is crafted to immerse you in the practical aspects of software development, focusing on the critical stages of the application lifecycle. By providing hands-on experience in coding, debugging, and deployment, this module aims to equip you with the skills necessary to develop applications that meet user needs and operate efficiently within their intended environments.

### 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

1. Font: Arial
2. Size: 12
3. Font colour: Black
4. **Ensure clear and adequate screenshots are taken where requested**

Save and upload the report as a .PDF **(No backgrounds)** with the following naming convention:

1. StudentName\_ StudentSurname \_Student no\_ModuleCode\_SA1

### Mark allocation for report

See Mark allocation sheet below

Question 1 (35)

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| ***PM No*** | ***PS No*** | ***PS Description*** |
| ***03*** | ***01*** | ***Write code*** |

**Scenario**: Create a Flask-based web application that allows users to register, view, and update their profiles. The app should store data in a JSON file or SQLite database.

**Instructions**:

* Use Python Flask to:
  + Set up routes and templates.
  + Store user data.
  + Add input validation and in-code documentation.

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|  | **Deliverables and Mark Breakdown**   * Displays a user registration form * Processes and stores the form data * Displays stored user data dynamically * Preloads user data into an update form * Use Flask-WTF or manual validation for required fields, email format, etc. * Include at least five (5) meaningful inline or block comments explaining logic * Organize code using Flask best practices | [5] [5] [5] [5] [5] [5] [5] |
|  | **ANSWER: (Paste all relevant code and screenshots here)** |  |

Question 2 (30)

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| ***PM No*** | ***PS No*** | ***PS Description*** |
| ***03*** | ***02*** | ***Debug source code*** |

**Scenario**: After initial development, you (or your instructor) will introduce at least 3 bugs into the Flask app. Your task is to test and debug the code.

**Instructions**:

* Create test cases (manual or Pytest).
* Identify bugs and fix them.
* Retest after each correction.

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|  | **Deliverables and Mark Breakdown::**   * Document at least five (5) test cases (valid, invalid, edge inputs) * Describe and locate three (3) bugs (e.g., syntax, logic, validation) * Provide before/after code for each fix * Include pass/fail status and screenshots of terminal/browser results * Write a short summary of the debugging process and lessons learned * Submit updated, bug-free source code | [5] [5] [5] [5] [5] [5] |
|  | **ANSWER: (Paste all relevant code and screenshots here)** |  |

Question 3 (35)

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| ***PM No*** | ***PS No*** | ***PS Description*** |
| ***03*** | ***03*** | ***Deploy applications to attain the desired systems’ results*** |

**Scenario**: Deploy the working Flask app. Evaluate user feedback through a basic acceptance test.

**Instructions**:

* Choose a deployment platform.
* Push your Flask app via Git.
* Share a live URL and collect feedback from two users.

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|  | **Deliverables and Mark Breakdown:**   * Choose Heroku, Render, or another and explain why * Use Git, Procfile, and requirements.txt to deploy Flask app * Submit link to working web app online * Use Google Forms or feedback form to collect user responses * Summarize two (2) users’ feedback and suggest 2 enhancements * Provide screenshots of platform dashboard and live app | [5] [10] [5] [5] [5] [5] |
|  | **ANSWER: (Paste all relevant code and screenshots here)** |  |

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| **rk allocation for student** | | |
| **Question** | **Maximum Mark** | **Learner mark** |
| Question 1.a | 35 |  |
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| Question 2.a | 30 |  |
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| Question 3.a | 35 |  |
|  | | |
| **Total:** | **100** |  |

**STUDENT ASSESSMENT FEEDBACK**

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| **Qualification Name:** | **OCTO: Software Engineer** |
| **Qualification SAQA Number:** | **119458** |
| **Subject Name:** | **Program and deploy applications** |
| **Subject Code:** | **PRDA** |
| **Assessment Name:** | **Summative Assessment** |
| **Assessment Code:** | **PRDA\_SA** |

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| **Assessment Decision** | **Competent** |  | **Not yet competent** |  |

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| **Feedback report** | **1st Attempt** | | **2nd Attempt** | |
| **C** | **NYC** | **C** | **NYC** |
| **Practical module/Practical skill** |  |  |  |  |
| **PM03** |  |  |  |  |
| PS01 |  |  |  |  |
| PS02 |  |  |  |  |
| PS03 |  |  |  |  |
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| **General feedback to learner**  **Supply comprehensive feedback why learner is found NYC** |
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