# Student Version

| Section A – Program/Course details | | | |
| --- | --- | --- | --- |
| **Qualification code:** | ICT40120 | **Qualification title:** | Certificate IV in Information Technology |
| **Subject Code:**  **Unit code:** | ICTPRG433 | **Subject Title:**  **Unit title:** | Test software developments |
| **Department name:** | BDIT, Computer and Information Technology | **CRN number:** | Enter CRN number |

| Section B – Assessment task details | | | |
| --- | --- | --- | --- |
| **Assessment number:** | 1 of 1 | **Semester/Year:** | 1/2025 |
| **Due date:** | Session 17 | **Duration of assessment:** | 5 sessions |
| **Assessment method** | Knowledge/Observation/Portfolio | **Assessment task results** | Ungraded result (S/NS) |
| Other: Click here to enter text. |

| Section C – Instructions to students |
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| **Task instructions:** |
| This assessment is comprised of 2 steps.   Step 1: Knowledge questions Step 2: Software test  In step 1, you are required to answer knowledge questions.  In step 2, you are required to design and develop test plan to test the application  You will find detailed information for each step in the [supporting document](#_Supporting_document) section.  For all parts in this assessment   * You are required to correctly answer all questions and complete all tasks as per instructions and assessment criteria to a satisfactory level for each question/task of this assessment to be given a satisfactory result by the assessor. * Once you have completed all the questions, the assessment must be uploaded and submitted along with the signed assessment coversheet via Brightspace. * If the result is not satisfactory within the enrolment period as per Holmesglen assessment procedure, you will be requested to resubmit within seven days of receiving feedback. You are permitted two resubmissions per assessment task. * You must contribute to and abide by organisational standards including intellectual property and privacy laws. * You may use the internet for research purpose however the learner’s answer must be in their own words. * See supporting documentation for further instructions |

| Section D – Conditions for assessment | |
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| **Conditions:**  Student to complete and attach Assessment Submission Cover Sheet to the completed Assessment Task. | |
| * This assessment is to be completed individually. * You must meet all criteria listed in the marking guide to be satisfactory in this task. * You may resubmit this task if not successful within the enrolment period as per Holmesglen conducting assessment procedure. * This is an individual task; however, you are required to get information, feedback and ideas from your assessor, peers and industry to help complete the assessment planning guide. * It is expected all documents will be completed and submitted electronically but if this is not possible, make alternative arrangements for submitting the documents with your assessor. * You will have the opportunity to resubmit if any part of the assessment is deemed unsatisfactory * You will be permitted TWO (2) resubmissions per assessment task * You can appeal an assessment decision according to the Holmesglen Assessment Complaints and Appeals Procedure. * If you feel you require special allowance or adjustment to this task, please decide with your assessor within one week of commencing this assessment. * You may use the internet for research purpose only. | |
| **Equipment/resources students must supply:** | **Equipment/resources to be provided by the RTO:** |
| Equipment/resources students must supply:  Students intending to learn remotely will require access to:  A PC/laptop with the following minimum specification:  Quad Core CPU   * Quad Core CPU * 8GB of RAM * CPU with minimum 2ghz processor or faster * 200GB of Storage * Access to internet connection (ADSL or cable connection desirable) * Headset with microphone & webcam   Applications:   * Office 365 (including Word, Excel, PowerPoint…) – free to download through office.com login with your Holmesglen email * WebEx - free to download * 7Zip or an equivalent compression utility - free to download * OneDrive or google drive account for storage * Microsoft Visual Studio Community 2022 – free to download   SQLite DB Browser – free to download | Equipment/resources to be provided by the RTO:  A Mac or PC/laptop with the following minimum specification:  Quad Core CPU   * Quad Core CPU * 8GB of RAM * CPU with minimum 2ghz processor or faster * 200GB of Storage * Access to internet connection   Applications:   * Office 365 (including Word, Excel, PowerPoint…) * WebEx * 7Zip * OneDrive * Microsoft Visual Studio Community 2022 * SQLite DB Browser |

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| Section E – Marking Sheet - Student Answer Sheet | | | |
| **Subject code:**  **Unit code:** | ICTPRG433 | **Subject Title:**  **Unit title:** | Test software developments |

**Assessment Submission Cover Sheet (VET)**

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| **Student Declaration – Must be signed before submission** |  |
| By submitting this assessment task and signing the below, I acknowledge and agree that:  • This completed assessment task is my own work.  • I understand the serious nature of plagiarism and I am aware of the penalties that exist for breaching this.  • I have kept a copy of this assessment task.  • The assessor may provide a copy of this assessment task to another member of the Institute for validation and/or benchmarking purposes. | |

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| **Student ID:** |  | **Student name:** |  |

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| **Submission or observation date:** |  |
| **Student signature**  For electronic submissions: By typing your name in the student signature field, you are accepting the above declaration. |  |

| Section F – Feedback to Student | | | | | | |
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| **Has the student successfully completed this assessment task?** | | | | | **Yes** | **No** |
| **☐** | **☐** |
| **Additional Assessor comments (as appropriate):** | | | | | | |
|  | | | | | | |
| **Resubmission allowed:** | **Yes ☐** | **No ☐** | **Resubmission due date:** |  | | |
| **Assessor name:** |  | | | | | |
| **Assessor signature:** |  | | | | | |
| **Date assessed:** |  | | | | | |

# Supporting document

# Task Develop a 2D-Shapes Calculator Testing

## Step 1 – Answer Knowledge questions

In this step, you are required answer the following questions.

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| **1.1.** Discuss software development life cycle |
| **Answer:** |
| **1.2.** Discuss the processes, tools and techniques for testing small-size applications |
| **Answer:** |
| **1.3.** Research industry standard auto test frameworks for the following languages |
| **Answer:**   |  |  |  |  | | --- | --- | --- | --- | | **Language** | **What is this programming language** | **Auto test framework name** | **Official site URL** | | **C#** |  |  |  | | **Python** |  |  |  | | **JavaScript** |  |  |  | |
| **1.4.** Describe software test concept “IPO” (Inputs, Process and Outputs) |
| **Answer:** |

## Step 2 – Software test

You have developed a 2D-shape calculator program which meet the following requirements

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| --- | --- |
| 1 | User is able to use a command line-based console interface to operate the calculator. |
| 2 | User is able to choose the target shape from a predefined list, including square, rectangle, circle. |
| 3 | User is able to choose what to calculate for each selected geometry shape from a predefined list, including area and perimeter. |

You are now required to

* Develop a test plan that covers the requirements using provided template
* Execute the test plan to verify the program
* Generate a test report using provided template
* Answer all questions below

## Organisational guidelines

* C# Coding Conventions - <https://docs.microsoft.com/en-us/dotnet/csharp/fundamentals/coding-style/coding-conventions>
* Software test principles and guidelines. See attached file below.



Please use the check list below to check if you have got everything ready before submitting the assessment for review.

|  |  |
| --- | --- |
| **Submission check list** | |
| Assessment document with all questions answered |  |
| All source codes |  |
| Test plan document for system test |  |
| Test plan document for unit test |  |
| Test report document for system test |  |
| Test report document for unit test |  |

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| **2.1** Identify unit test requirements for each class and list all requirements with bullet points. |
| **Answer:** |
| **2.2** Identify system test requirements for the application and list all requirements with bullet points |
| **Answer:** |
| **2.3** Discuss and confirm the above development requirements with a member in software development team.  Note: The member in software development team can be role played by another student. You are required to discuss the following items in the meeting. |
| **Answer:**   |  |  | | --- | --- | | **Participants/roles** |  | | **Meeting date** |  | | **Scope of test** | *What will be included in the test, and what will not be.* | | **Types of tests** | *e.g. unit test, system test …* | | **Tools** | *What are the software tool used in the test* | | **Benefits** | *Discuss the benefits of the selected type of test, tools…* | |
| **2.4** Identify organisational guidelines and frameworks related to testing. List them all using bullet points |
| **Answer:** |
| **2.5** Discuss at least three test-case design techniques and explain how they are applied in your test case design. |
| **Answer:**  Test-case design technique #1   |  | | --- | | Discuss this technique | | Explain how you apply this technique in your test case design |   Test-case design technique #2   |  | | --- | | Discuss this technique | | Explain how you apply this technique in your test case design |   Test-case design technique #3   |  | | --- | | Discuss this technique | | Explain how you apply this technique in your test case design | |
| **2.6** Develop test plan and test cases using provided template.  You are required to apply the test-case design techniques discussed above and develop TWO test cases with EACH technique.  Write the submitted test plan file name in the answer box below. |
| **Answer:**  *Test plan file name* |
| **2.7** Develop unit test procedures using an auto testing framework (e.g. Visual Studio Unit Testing). Provide a screenshot of the unit test codes (if the codes are too long, screenshot 2 test case for this question and your teacher will check all the codes in your code submission). |
| **Answer:** |
| **2.8** Perform manual test according to system test plan, screenshot the test results |
| **Answer:** |
| **2.9** Perform auto test according to unit test plan, screenshot the test results. |
| **Answer:** |
| **2.10** Discuss and confirm the above test results with a member in software development team.  Note: The member in software development team and be role played by another learner. |
| **Answer:**   |  |  | | --- | --- | | **Participants/roles** |  | | **Meeting date** |  | | **Meeting minutes** |  | |
| **2.11** Produce and save test reports using provided template.  Write the submitted test plan file name in the answer box below. |
| **Answer:**  *Test report file name* |
| **2.12** Manage defects and review software, amending further defects. You are required to record how did you managed defect for at least one issue based on the test results using the template below. |
| **Answer:**  Issue description  Code review and root cause analysis  Resolution description |

| **Skills to be observed for this step 2 by assessor** | | **1. Date:** | | **2. Date:** | | **Comment** |
| --- | --- | --- | --- | --- | --- | --- |
|  | |  | |
| **Satisfactory** | | **Satisfactory** | |
| **Yes** | **No** | **Yes** | **No** |
| 2.13 | Learner identified test and script requirements including data structures |  |  |  |  |  |
| 2.14 | Learner analysed and identified test data using multiple test-case design techniques. |  |  |  |  |  |
| 2.15 | Learner defined and designed test cases. |  |  |  |  |  |
| 2.16 | Learner documented test plan and script according to organisational guidelines and industry standards |  |  |  |  |  |
| 2.17 | Learner designed and implemented algorithm required in test procedures |  |  |  |  |  |
| 2.18 | Learner took responsibility for planning, sequencing and prioritising tasks and own workload |  |  |  |  |  |