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| **Qualification details** | | | |
| **Training Package Code and Title:** | ICT - Information and Communications Technology Training Package (Release 1) | | |
| **Qualification National Code and Title:** | ICT40120 Certificate IV in Information Technology | **State code:** | BFF9 |
| **Qualification National Code and Title:** | ICT30120 Certificate III in Information Technology | **State code:** | BFF7 |

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| **Assessment Title** | Assessment Tool 3 – Practical Assessment | | |
| **Unit National Code & Title** | ICTPRG302 – Apply Introductory Programming Techniques | **State code:** | OBT27 |
| **Date Due** |  | **Date Received** |  |

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| --- | --- | --- | --- |
| **Student Name** |  | **Student ID** |  |
| **Student Declaration** | I declare that the evidence submitted is my own work:  ………………………………………….. | | |

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| --- | --- | --- | --- | --- |
| **Assessor Name** |  | | | |
| **Assessment Decision** | Satisfactory | | Not Yet Satisfactory | |
| **Assessor Signature** |  | | **Date** |  |
| **Is student eligible for reassessment (Re-sit)?** | No | Yes | **Reassessment Date:** |  |

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| --- | --- | --- | --- |
| **Feedback to student** | | | |
| *Via Blackboard (LMS) – Please check [Grade] section.* | | | |
| **Feedback from student** | | | |
| *Via Blackboard (LMS) – Please use [Comment] section during submission.* | | | |
| **Student signature** |  | **Date** |  |

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| **Assessment Instructions** |

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| **TO THE ASSESSOR** | |
| Type of Assessment | Practical Assessment |
| Duration of Assessment | Class Sessions (Week 16 - 18) |
| Location of Assessment | Classroom |
| Conditions | Assessor to ensure that the noise levels, natural interactions and time variances are maintainedas it would in the be in the Software Development industry.  Learners are required to complete the required tasks in class and submit the required documentation electronically via Blackboard |
| Elements and Criteria | As detailed in the assessment plan  You are required to make sure that all students meet the elements, performance criteria and oral communication items as outlined in the provided checklist. |

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| **TO THE STUDENT** | |
| Purpose of Assessment | You are required to show you can:  ICTPRG302 – Apply Introductory Programming Techniques   * Establish application task * Apply language syntax and layout * Apply control structures * Code using standard programming algorithms * Test code * Create a simple application and seek feedback   You are required to meet the elements, performance criteria and oral communication items as outlined in the provided checklist. |
| Allowable Materials | Blackboard (Topic by topic) will include the following: Weekly Readings, Class notes, and Weekly Activities. |
| Required Resources | Computer with:   * Internet Access * Microsoft Office (or Office 365) * Access to Learning Management System (LMS) * Web links and example code can be downloaded from Blackboard Learning Management System. * Desktop Computer with Windows Operating System with PyCharm * Python 3.8.x or Python 3.9.x |
| Reasonable Adjustment | In some circumstances, adjustments to assessments may be made for you. If you require support for literacy and numeracy issues; support for hearing, sight or mobility issues; change to assessment times/venues; use of special or adaptive technology; considerations relating to age, gender and cultural beliefs; format of assessment materials; or presence of a scribe you need to inform your lecturer. |
| Assessment Submission | All questions and activities must be attempted.  Use of research tools and peers in formulating answers are acceptable – but work submitted must be your own work.  Final project documentation is to be uploaded to the appropriate area in the Blackboard course created for this unit.  If you are marked as NYS (Not Yet Satisfactory) on your first attempt, you will be provided with another opportunity to re-attempt the assessment. |
| Project contents | This project consists of the following tasks:  Provide complete answers for all questions in AT3 Task 1  Provide complete answers for all questions in AT3 Task 2  Provide complete answers for all questions in AT3 Task 3 |

# **AT3 Practical**

**Scenario**

You have been hired as a Junior Programmer for CITE Management Services.

CITE MS has a reputation to uphold for providing top quality IT services including SaaS (Software as Service) through a web application they have developed in Python.

This is your first job working as a software developer. It has become apparent to you that your manager wishes to see how extensive your level of knowledge is and what your standard of work is before allowing you to work in the staging or production environment of which the software product the company is known for developing.

It has not been explicitly communicated to you by the manager but one of your peers has warned you that your future at the company depends largely on your ability to be self-driven and to identify and resolve issues.

Some of the tasks given to you are a test by your manager and others you may view as menial what your job description is.

You must do your best job to show your manager that you are worthy of progressing to working in the staging and production environment on their flagship software.

The business is struggling financially and you know you will be out of a job if you fail to perform to the level in your job description and what has been communicated to you by your manager.

You must show your employer that you are invaluable or risk becoming unemployed and being set back in your mission to become a software developer.

You must complete all of the tasks contained here to demonstrate that you are a competent employee.

**Job Role Requirements (Assessment Requirements)**

1. All code must be thoroughly commented to and demonstrate a very clear understanding of how the code works on a method by method basis. And in smaller solutions essentially a line by line basis. An overall understanding of the solution must be communicated in the code comments.
2. All documentation and answers to questions MUST be detailed (three or four words is NOT an answer.) Your manager (Lecturer) will not accept anything but your full effort. And you will comply with this if you wish to keep your job.
3. All of your code must follow the standard naming conventions for Python code. Your manager (Lecturer) will reject your work.
4. If you fail to complete a task to a satisfactory level you MUST include all files in your re-submission not just the files you have corrected or brought up to standard.

# **AT3 Practical Assessment**

After you have completed the first two tasks of AT3 you must present them to your manager (Lecturer.)

A follow up meeting will be held to discuss your performance.

In the meeting your manager will go over how well you clarified and detailed required information for programming tasks, identified specifications, adhered to programming standards and followed required guidelines.

You will receive feedback on your project sign off sheet.

**AT3.1**

## Question 1 – File I/O and Pseudo Code

Write a single code file named **file\_input\_output.py** in Python that concatenates the following two strings and stores them in a variable named output\_string:

“Python has been an important part of Google since the beginning, and remains so as the system grows and evolves.”

“Today dozens of Google engineers use Python, and we're looking for more people with skills in this language." said Peter Norvig, director of search quality at Google, Inc.”

Your application then needs to write the contents of the variable (output\_string) to a file called “Python.txt”.

Create a second variable named input\_string and read the contents of the text file in and print out the contents of input\_string.

Also create and submit pseudo code of your application in a file called pseudo\_file\_input\_output.txt

**AT3.1 Submission Requirements:**

1. file\_input\_output.py code file.
2. pseudo\_file\_input\_output.txt containing pseudo code.
3. A JPEG/PNG screenshot showing your application executing.
4. All your work MUST be entirely in line with the **Job Role Requirements.**
5. You must present your code and demonstrate it working to your Lecturer and verbally communicate and clarify with your lecturer that it meets requirements and make any requested changes.

**AT3.2**

## Question 1 – Algorithm Development

You must create a program in Python that meets the following criteria:

* + - 1. Contains a **Tuple** data structure with the data in the table below.
      2. Contains a method for doing a linear search of the data structure. This linear search method should return the index of the value.
      3. The string searched for should be taken from user input using the input() function.
      4. The code should call the search method and successfully demonstrate your linear search works.
      5. Your application must demonstrate use of the type() Python library function to output to the console the type of the data structure you have chosen to use (Tuple.)
      6. Your code must be in a file called algorithm.py

**Tuple Data Structure Contents:**

|  |
| --- |
| Windows 10 |
| Linux Mint |
| Mac OS 11 |
| Android Oreo |
| Android Pie |
| Android 11 |
| iOS 14 |

## Question 2 – Testing and Debugging

After you have completed your code, you must debug your application.

You must also include in a formatted document screenshots and evidence of your testing and debugging.

You may use any selection/iteration/sequence constructs that you wish in your development.

**AT3.2 Submission:**

1. A single Python code file with a method for a linear search that performs a search on a Tuple data structure for a single string.
2. Screenshots of the testing and debugging of your application. This must be included in a formatted document.
3. All your work MUST be entirely in line with the **Job Role Requirements.**
4. You must present your code and demonstrate it working to your Lecturer and verbally communicate and clarify with your lecturer that it meets requirements and make any requested changes.

**AT3.3**

## Question 1 – Project Sign Off

After you have completed all of AT3.1 and AT3.2 you need to email your manager (Lecturer) and arrange for a meeting.

Use the meeting minutes template provided as AT3-Task3-Minutes.docx and alter the document for use for the meeting you will have with your manager.

During your meeting you must present your applications to your manager and explain the testing that you have performed and why it is satisfactory to evaluate your application meets all required specifications.

You must also explain to your manager your programming code and conduct a review with them and make any changes requested by your manager.

You must ensure to document in the meeting minutes what you have said to your manager and their responses.

After you have completed the meeting and written your meeting minutes send an email to your manager (Lecturer) with the Project Sign Off Form. Which you will need to edit and add the project requirements to.

**AT3.3 Submission:**

1. Completed AT3-Task3-Minutes.docx with details of your meeting.
2. Completed AT3-ProjectSignOff.docx
3. All your work MUST be entirely in line with the **Job Role Requirements.**