

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

<b>Assessment Title</b>	Assessment Tool 1 – Knowledge-Based Assessment		
<b>Unit National Code &amp; Title</b>	ICTPRG302 – Apply Introductory Programming Techniques	<b>State code:</b>	OBT27
<b>Date Due</b>		<b>Date Received</b>	

<b>Student Name</b>	<b>Richard Pountney</b>	<b>Student ID</b>	
<b>Student Declaration</b>	I declare that the evidence submitted is my own work: <b>RBP</b> .....		

<b>Assessor Name</b>			
<b>Assessment Decision</b>	<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Not Yet Satisfactory	
<b>Assessor Signature</b>		<b>Date</b>	
<b>Is student eligible for reassessment (Re-sit)?</b>	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<b>Reassessment Date:</b>

<b>Feedback to student</b>			
Via Blackboard (LMS) – Please check [Grade] section.			
<b>Feedback from student</b>			
Via Blackboard (LMS) – Please use [Comment] section during submission.			
<b>Student signature</b>		<b>Date</b>	

### Assessment Instructions

#### TO THE ASSESSOR

Type of Assessment	Knowledge Based Assessment
Duration of Assessment	5 Class Sessions (Week 1 - 5)
Location of Assessment	Classroom
Conditions	<p>Assessor to ensure that the noise levels, natural interactions and time variances are maintained as it would in the be in the Software Development industry.</p> <p>Learners are required to complete the required tasks in class and submit the required documentation electronically via Blackboard</p>
Elements and Criteria	<p>As detailed in the assessment plan</p> <p>You are required to make sure that all students meet the elements, performance criteria and oral communication items as outlined in the provided checklist.</p>

#### TO THE STUDENT

Purpose of Assessment	<p>This assessment has been developed to test that you have knowledge of:</p> <p>ICTPRG302 – Apply Introductory Programming Techniques</p> <ul style="list-style-type: none"><li>• Language data types, operators, expressions and variables</li><li>• Basic language syntax rules</li><li>• Sequence, selection and iteration constructs</li><li>• The development of small-sized applications</li><li>• Industry programming standards and guidelines</li><li>• Commenting techniques</li><li>• Debugging techniques</li><li>• Application testing methods</li><li>• Basic data structures.</li></ul> <p>You are required to meet the elements, performance criteria and oral communication items as outlined in the provided checklist.</p>
Allowable Materials	<p>Blackboard (Topic by topic) will include the following: Weekly Readings, Class notes, and Weekly Activities.</p>

### 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

### 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 Part 1 – Theory Questions on: Programming Design Specifications & Programming Standards

Provide complete answers for all questions in Part 2 – Theory Questions on: Data types, Variable Scope

Provide complete answers for all questions in Part 3 – Theory Questions on: Loops & Data Structures

Provide complete answers for all questions in Part 4 – Theory Questions on: Debugging and Testing

Provide complete answers for all questions in Part 5 – Creating a Python Programming Guide

## PART 1

### Python and Programming Basics

1. Explain the difference between a multi-line comment and a single-line comment in Python.

Using (#) at the start of a line allows you to make a single line comment on that line.

# This is an example

Using ("""") on a line to start a multi-line comment & use it on the line after you finish the comment.

"""

This

is an

Example

"""

2. Provide a link from a reputable source on Python programming standards.

<https://www.python.org/dev/peps/pep-0008/>

3. Are tabs or spaces the preferred method for indentation?

Spaces the preferred but if you used tabs the python will keep consistency.

Don't mix spaces & tabs. (4 spaces = 1 tab)

4. What is Pseudo Code? And why would you write pseudo code?

It is a more simplified code

5. Why is it important to comment your code?

Because it helps tell someone what the code is doing where you put the comment.

6. Provide the name of an Integrated Development Environment you have used for developing a small-sized application in Python.

Python Idle

## PART 2

### Data Types and Variable Scope

1. Provide a data type you could use if you wanted to store a number with decimals places.

float

2. What data type would you use to store text?

String (str)

3. Why might you use a number data type as opposed to the String data type?

When you are using just numbers & no words.

4. What data type would you use if you wanted to store a number without decimal places?

int

## PART 3

### Loops and Data Structures

1. What type of loop would you use when you want to keep looping until a condition is false?

A while loop

2. What type of loop would you use to iterate through a set number of times?

A while loop

3. What keyword would you use inside of a loop to stop and go out of it?

break

4. What would be the output of the for loop below:

for x in range(6):

print(x)

0  
1  
2  
3  
4  
5

5. Is a **List** ordered or unordered and is it changeable or unchangeable?

A List is ordered & changeable.

6. Is a **Tuple** ordered or unordered and is it changeable or unchangeable?

A Tuple is ordered & unchangeable.

7. Is a **Set** ordered or unordered? Is it indexed?

A Set is unordered & unchangeable.

8. Is a **Dictionary** ordered or unordered? Is it indexed? Is it changeable?

A Dictionary is ordered & changeable.

## PART 4

### Debugging and Testing

1. What is Debugging in Software Development?

Debugging is where you make the software show something that only developers should know about & when testing the software. It also can be a secret menu that only the developers should know about & is used to test the software capability.

2. What is a test table and how is it used in programming?

A test table is a table that you fill out with what you are testing with what you expect it to do. After you do the test, you fill out what was the actual results & say if it turned out how you expected it or not. It is used in programming to help with documenting the program that is being developed.

## PART 5 – Operators

### Question 1

Complete the following tables to demonstrate you have knowledge of Arithmetic Operators in Python.

#### Arithmetic Operators

Name	Operator	Example	Result
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Addition	+	2 + 3	5
Subtraction	-	3 - 2	1
Multiplication	*	2 * 5	10
Division	/	10 / 2	5

### Question 2

Complete the following tables to demonstrate you have knowledge of Comparison Operators in Python.

#### Comparison Operators

Name	Operator	Example	Result
Equal	==	6 == 3	False
Equal	==	6 == 6	True
Not Equal	!=	5 != 5	False
Greater than	>	5 >= 10	False
Less Than	<	5 <= 10	True

### Question 3 - Logical Operators

Name	Operator/Description	Example
AND	And Returns True if both	x < 5 and x < 10

	statements are true.	
OR	Or Returns True if one of the statements is true	$x < 5$ and $x < 4$

4. Which of the following is an incorrect syntax for writing an expression in Python and why.

- a. first\_name = "John"
- b. age = 18
- c. country = "Australia"
- d. country = "Russia";

d