


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

Assessment Title	Assessment Tool 1 - Knowledge-Based Assessment		
Unit National Code & Title	ICTPRG302 - Apply Introductory Programming Techniques	State code:	OBT27
Date Due		Date Received	

Student Name	Richard Pountney	Student ID	30007736
Student Declaration	I declare that the evidence submitted is my own work: 		

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

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	

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">• Language data types, operators, expressions and variables• Basic language syntax rules• Sequence, selection and iteration constructs• The development of small-sized applications• Industry programming standards and guidelines• Commenting techniques• Debugging techniques• Application testing methods• Basic data structures. <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>

Assessment Coversheet

AT1 Knowledge Based Assessment

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 pseudocode?

It is a more simplified code because you don't have to put all the operators in like you would have to do when writing normal code. Pseudocode isn't meant for the computer to interpret. You would write pseudocode to make a basic outline of the code that you want. An example is outlining how you want the controls for the player character to work.

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 numbers for mathematical equations.

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 for 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 & unindexed.

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

A Dictionary is ordered, changeable & is made with a special type of indexed.

PART 4

Debugging and Testing

1. What is Debugging in Software Development?

Debugging is a process that involves identifying a problem, isolating the source, & then either correcting the problem or finding a way to work around the problem. The last step is to test the correction or workaround. Debugging specifically deals with software problems & coding problems.

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. Then you say true if it turned out how you expected or say false if it didn't. It is used in programming to help with documenting the program that is being developed & helps keep see if there were different outcomes than what was expected.

Test Case	Expected Results	Actual Results	Success
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Testing the Sum method with values 1 & 1	Should return the value '2'	Returns a value of 2	TRUE
Testing the Sum method with values 1 & 2	Should return the value '3'	Returns a value of 100	FALSE
Testing the Sum method with values 1 & 2	Should return the value '3'	Returns a value of 3	TRUE

↑ here is an example of a test table.

PART 5 – Operators

Question 1

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

Arithmetic Operators

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Name	Operator	Example	Result
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 statements are true.	x > 5 and x < 10 x = 7 True x = 11 False
OR	or Returns True if one of the statements is true	x > 5 or x < 4 x = 4.5 False x = 3 True x = 7 True

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. `weight = 70,5`
- d. `1country = Australia`
- e. `_2country = ""Russia""`
- f. `country = "Western Australia, " + 'Australian State'`

a
because the quotation marks are left open & because it is an invalid character for that action.

d
because the 1 is an invalid decimal literal.