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| **FURTHER EDUCATION AND TRAINING CERTIFICATE: INFORMATION TECHNOLOGY: SYSTEMS DEVELOPMENT**  **ID 78965 LEVEL 4 – CREDITS 165** |
| **SUMMATIVE ASSESEMENT**  **SAQA: 14910**  **APPLY THE PRINCIPLES OF COMPUTER PROGRAMMING** |

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| **FULL NAME & SURNAME** | Mila Mihlali Ngewu |
| **ID NUMBER:** | 9909106615084 |
| **NAME OF ASSESSOR** | Anneline Nombeko |
| **DATE OF ASSESSMENT** | 21/08/2023 |
| **VENUE** | Nelson Mandela Bay iHUB |

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|  | **ACHIEVED** | **NOT ACHIEVED** |
| **KNOWLEDGE** |  |  |
| **SKILLS** |  |  |

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| **Signature of learner** | **Signature of Assessor** |

**ASSESSMENT PACK**

**Please complete the following sections (A and B) before commencing with this assessment. The moderator of this assessment will complete section C.**

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| **Section A Learner Information** | | | | | | | | | | | | | | | | |
| **Name:** | | | | | | | **Mila Mihlali** | | | | | | | | | |
| **Surname:** | | | | | | | **Ngewu** | | | | | | | | | |
| **Date:** | | | | | | | **211/09/2023** | | | | | | | | | |
| **Contact telephone no:** | | | | | | | **082 365 5804** | | | | | | | | | |
| **Learnership agreement no:** | | | | | | |  | | | | | | | | | |
| **Company:** | | | | | | | **Site:** | | | | | | | | | |
| **ID** | **9** | **9** | **0** | **9** | **1** | **0** | |  | **6** | **6** | **1** | **5** |  | **0** | **8** | **4** |

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| **Section B Assessor Information** | | | | | | | | | | | | | | | | |
| **Name:** | | | | | | |  | | | | | | | | | |
| **Surname:** | | | | | | |  | | | | | | | | | |
| **Date:** | | | | | | |  | | | | | | | | | |
| **Contact telephone no:** | | | | | | |  | | | | | | | | | |
| **Assessor no:** | | | | | | |  | | | | | | | | | |
| **Provider no:** | | | | | | | **Site:** | | | | | | | | | |
| **ID** |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |

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| **Section C Moderator Information** | | | | | | | | | | | | | | | | |
| **Name:** | | | | | | |  | | | | | | | | | |
| **Surname:** | | | | | | |  | | | | | | | | | |
| **Date:** | | | | | | |  | | | | | | | | | |
| **Contact telephone no:** | | | | | | |  | | | | | | | | | |
| **Moderator no:** | | | | | | |  | | | | | | | | | |
| **Provider no:** | | | | | | | **Site:** | | | | | | | | | |
| **ID** |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |

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| **Results:** |
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**1. INSTRUCTIONS TO ASSESSOR**

**Introduction:**

This assessment guide has been designed as a generic assessment guide and is intended for use by the accredited Training Providers.

**Purpose of the assessment**

The purpose of summative assessment against this unit standard is to:

♦ Award credits to the NQF to learners who are able to start and run their businesses.

**Learning assumptions**

The following knowledge, skills, attitude and/or equivalent:

♦ Demonstrate knowledge of communication and numeracy at Abet Level 3

**Assessment methods**

The following assessment methods will be used for the summative assessments:

♦ written and/or/verbal questioning

♦ Product sample and on site assessment

**2. Assessment Process**

**General**

* Use the assessment guide and your latest company policies and standard operating procedures to assess the evidence received from the learner.
* Use the section: Addition Comments/Questions to note down any further comments or questions on the evidence assessed.
* Use the model answers as a guideline to assess the learner’s answers to the assessment questionnaire.
* The learner can complete the assessment questionnaire orally. In this case, agree a date, time and venue.
* Provide the learner with a feedback within 10 working days of receiving the evidence.

**Step 1 - Planning for the Assessment**

Review this assessment guide to:

* Ensure that you understand all the requirements of the assessment in terms of evidence required to prove competence.
* Identify and prepare the learner for the assessment by:
  + Completing the Assessment Plan with the learner to discuss and agree the details regarding the assessment.
  + Completing the Assessment Preparation Checklist and getting the learner to sign.
* Ensure that you have familiarized yourself with the following:
  + The various patrolling functions and standard operating procedures within the company.

**Step 2: Complete the Assessment**

* Collect the evidence in accordance with the methods and evidence requirements specified.
* Mark each question as correct or incorrect in the “Office Use” column.
* Record the evidence on the assessment guide and indicate “Competent”, “Not Yet Competent” or “Not Assessed” for each assessment criterion. Note down any comments at the back of the assessment guide.
* Ask the learner additional questions, if necessary, to clarify points. Record these on the guide.
* All questions must be complete as per the criteria specified.
* Answers provided must be similar to the model answers.

**Step 3 - After the Assessment**

* Prepare the feedback by writing comprehensive, developmental feedback after each section on the Assignment Sheets. In addition to this, you are required to write a summary overall feedback on the Assessment Guide.
* Provide the feedback to the learner in a safe, undisturbed in nature.
* Ensure that your feedback is developmental and supportive in nature.
* Advise the learner on what action to follow in the event of a “Not Yet Competent” rating.
* Advise the learner on what action to take where he/she feels the need to appeal against your decision.
* Allow the learner time to provide you with feedback relevant to the process.
* Record the learner’s feedback in the guide and ensure that it is given to the person responsible for the quality assurance of assessment tools.
* Ensure that the learner co-signs the assessment guide to indicate agreement with the feedback.

**3. Assessment documentation required:**

**Step 1: Planning for the Assessment**

♦ Assessment Plan

♦ Assessment Preparation Checklist

♦ Assessment Policy (including Appeals)

♦ Evidence Matrix

♦ Assessment Instruments

**Step 2: Conducting the Assessment**

♦ Assessor Guide

♦ Learner’s workbook

♦ Summative assessment pack

**Step 3: After the Assessment**

♦ Assessment Comments

♦ Feedback Report

**4. Specific Instructions**

Please note that Part 3 Assessment Instruments are not included in this guide and are to be included by the assessor on an individual basis.

The actual summative assessments need to be completed and signed off by both learner and assessor. The assessor will take control of the completed assessment instruments and will file them under the tab for Assessment Evidence.

The completed assessment pack will be kept in safekeeping at the training provider for three months after endorsement by SETA and will then be returned to the learner.

**Guidelines where** a**n appeal is lodged**

* The normal appeal procedure prescribed by SETA and described by the provider’s Quality Management System will be followed.

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**ASSESSMENT PLAN**

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| **ASSESSMENT DETAILS** | | | | | | | | | | | |
| **Date of Assessment** | | | | **Option 1** | **Option 2** | | | | **Option 3** | **Option 4** | |
| **21/09/2023** |  | | | |  |  | |
| **TIME OF ASSESSMENT** | | | | | | | | | | | |
| **Start:** | **10:30** | | | | | **End:** | | **16:30** | | | |
| **VENUE** | **Nelson Mandela Bay iHUB** | | | | | **Contact**  **person** | |  | | | |
| **LANGUAGE MEDIUM**  **METHOD OF** | | | | | | **English** | | | | | |
| **METHOD OF ASSESSMENT (please tick off the one to be used)** | | | | | | | | | | | |
| **OBSERVATION** | | | **ORAL** | | | | | **WRITTEN** | | | |
| **Simulation** | |  | **Knowledge test** | | | |  | **Knowledge test** | | |  |
| **Product** | |  | **Interview** | | | |  |  | | |  |

**PRE-ASSESSMENT MEETING CHECKLIST**

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| **ACTION** | **YES/NO** | **COMMENTS** |
| Set learner at ease; be friendly, polite and professional. | yes |  |
| Explain to the learner and agree on the following issues.   1. The unit standard that will be assessed 2. Date, time, venue and process to be followed during the assessment. 3. Summative assessment tools to be used for the assessment. 4. The assessment plan 5. Purpose of assessment | yes |  |
| Explain to the learner and agree on the role of all involved during the assessment process. | yes |  |
| Identify possible barriers and or disabilities of the learner. | yes |  |
| Explain the meaning and application of RPL. | yes |  |
| Explain, discuss and provide one complete set of the Appeals process documentation. | yes |  |
| Explain to the learner when final results will be available and how feedback will be provided. | yes |  |
| Discuss previous assessment results if applicable. | yes |  |

I, MM Ngewu(initials and surname of learner), DECLARE THE FOLLOWING:

A copy of the unit standard(s) involved has been given to me prior to this meeting. I know I will be assessed against the criteria, which have been set to the applicable unit standards. The criteria have been discussed with me, and the procedures and purpose of the assessment has been clearly explained to me.

I am well aware of the venue, date and time that I will be assessed. I consider the period of time given to me to prepare myself for the assessment to be fair.

I understand clearly that I have the right to appeal against any decision made by the assessor during the assessment of the evidence provided by me, and that I have free access to the appeals procedures attached to this assessment pack. I understand that I have the right to be accompanied by another person during all procedures, and that I have free access to the Training Division of SBV’S Health and Safety Procedures- filed at the offices.

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|  | **21/08/2023** |
| **Signature of learner** | **Date** |

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**Assessment Instruments**

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| **TAKE NOTE** |
| **The assessment instruments included in this assessment pack are all summative assessment instruments and are to be read in conjunction with the formative assessment instruments contained in the learner workbook. Both formative (workbook) and summative assessments are to be retained as part of the learner’s portfolio of evidence.** |

**A number of the assessment instruments contained in this assessment are workplace knowledge based questions. This means that you will arrange with the learner, a time that is suitable, during which the learner will complete each questions.**

**Complete the following activities according to the instructions provided**

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| **Activity** |  | **Mark** |
| **1** | **Demonstrate understanding of the use of the editor of the development tools to produce program source code.** | **5** |

Say we are using Visual Studio Code as an editor and Python as our language of choice.

**Step 1: Launching the Development Environment and creating a new file or project**

To create a new project, you can use the "File" menu or keyboard shortcut (Ctrl + Shift + N or Cmd + Shift + N on macOS). Select "New Folder" to create a new project directory.

To create a new source code file within an existing project, navigate to the project folder, right-click, and choose "New File" or use the keyboard shortcut (Ctrl + N or Cmd + N on macOS).

**Step 2 : Writing Code**

start writing your source code. For example, you might write a simple "Hello World"

code example: print("Hello, World!")

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| **Activity** |  | **Mark** |
| **2** | **Demonstrate understanding of the use of the syntax checker of the tools to check for syntax errors.** | **5** |

Most modern development environments like VS Code automatically perform syntax checking in the background as you type. You'll notice red squiggly lines or other visual cues near the lines with syntax errors.

Hovering over the error indicator will often provide a tooltip with a brief description of the error.

The syntax checker in development tools like VS Code automatically or manually checks your code for syntax errors, highlights them, provides error messages, and helps you identify and correct issues in your code, ensuring that your code is valid and error-free before running it.

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| **Activity** |  | **Mark** |
| **3** | **Demonstrate understanding of different number conversion techniques between data types (at least 2).** | **5** |

**Binary** (base 2) is the natural way most digital circuits represent and manipulate numbers. numbers are sometimes represented by preceding the value with '0b', as in 0b1011. Binary is sometimes abbreviated as bin.

Binary counting goes:

0, 1, 10, 11, 100, 101, 110, 111, 1000, 1001, 1010, 1011, 1100, 1101, 1110, 1111, 10000,

**Decimal** (base 10) is the way most human beings represent numbers. Decimal is sometimes abbreviated as dec.

Decimal counting goes:

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, and so on.

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| **Activity** |  | **Mark** |
| **4** | **Demonstrate understanding of how to distinguish between different logical operators (at least 2).** | **5** |

**1. AND Operator (&&):**

The "AND" logical operator, often represented as &&, is used to combine two or more conditions. It returns true only if all the conditions are true. If any one of the conditions is false, the result is false.

Python code example:

# AND Operator

x = 5

y = 10

z = 3

if x < y and y > z:

print("Both conditions are true.")

else:

print("At least one condition is false.")

**2. OR Operator (||):**

The "OR" logical operator, represented as ||, is used to combine two or more conditions. It returns true if at least one of the conditions is true. It only returns false if all conditions are false.

Python Code Example:

# OR Operator

a = 3

b = 8

c = 12

if a > b or b < c:

print("At least one condition is true.")

else:

print("All conditions are false.")

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| **Activity** |  | **Mark** |
| **5** | **Briefly distinguish between the various algorithmic structures of programming languages, using a language of choice (incl. Pseudo code).** | **10** |

1. **Sequence Structure:** In a sequence structure, statements are executed one after the other in a linear manner.

**Python Example:**

a = 5

b = 10

result = a + b

**Pseudocode:**

Set a to 5

Set b to 10

Calculate result as a + b

1. **Selection (Conditional) Structure:** The selection structure allows you to make decisions based on conditions.

**Python Example:**

if condition:

# Code block executed if the condition is true

else:

# Code block executed if the condition is false

**Pseudocode:**

If condition is true:

# Code block executed if the condition is true

Else:

# Code block executed if the condition is false

1. **Repetition (Loop) Structure:** Repetition structures allow you to execute code repeatedly based on a condition or a fixed number of iterations.

**Python Example (for loop):**

for i in range(5):

# Code block executed 5 times

**Pseudocode (for loop):**

For i from 1 to 5:

# Code block executed 5 times

**Python Example (while loop):**

while condition:

# Code block executed as long as the condition is true

**Pseudocode (while loop):**

While condition is true:

# Code block executed as long as the condition is true

**4. Function (Subroutine) Structure**: Functions allow you to encapsulate a block of code into a reusable unit**.**

**Python Example:**

def calculate\_sum(a, b):

return a + b

**Pseudocode:**

Function calculate\_sum(a, b):

Return a + b

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| **Activity** |  | **Mark** |
| **6** | **Outline why quality information systems are vital to total quality management** | **5** |

1. Because the firm's business processes depend on information systems, the effectiveness of such systems has a significant impact on how well they perform.

2. Most business process design efforts are made possible by information systems. This IS-enabled process simplification reduces potential for error, improving the output quality of the operations.

3. Information systems are a crucial part of the feedback loop in business management. IS are essential for tracking performance variance by continuously identifying any departures from the firm's expected standards.

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| **Activity** |  | **Mark** |
| **7** | **Distinguish between concepts of operators and expressions.** | **5** |

**Operators:**

In a computer language, operators are symbols or keywords that carry out operations on one or more operands. A few examples of these operations are arithmetic, comparison, logical, and others. Data manipulation and computation are done with the help of operators.

Common types are Arithmetic Operators, Comparison Operators, logical Operator etc.

**Expressions:**

When evaluated, an expression is a grouping of operators, operands, and variables that yields a single value. Expressions represent computations or assessments and might be straightforward or complex.

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| **Activity** |  | **Mark** |
| **8** | **Describe different debugging techniques.** | **5** |

**RTFM technique**

*RTFM* stands for *Read The Fine Manual*. Make sure you take the time to find the necessary documentation for the task at hand, i.e. the documentation of the tools, libraries, and algorithms you are expected to use, such as [CPP][GCC][MAKE], make, the preprocessor, and the linker.

**print() debugging**

We refer to a debugging method that we come with all too frequently as printf debugging. Ad hoc additions of numerous printf (C), cerr, or cout (C++) statements are used to keep track of the data values and control flow when a piece of code is executed.

This method's major drawbacks include:

• Its high degree of ad hocness. When the current bug is fixed, code is inserted on a temporary basis, to be removed when the next bug occurs, and so on. Debugging information can be added in more effective ways, as you will see in a moment.

• It interferes with your program's usual output and significantly slows it down.

**ANWB debugging**

The foundation of "ANWB debugging" is a straightforward tenet: teaching others is the greatest way to learn something.

In "ANWB debugging," you locate a bystander, preferably one who is eager and innocent, and you explain to her how your code operates. This pushes you to reconsider your presumptions and attempt to explain what is actually taking place; frequently, you solve your difficulties in this way.

**Code Reviews:**

Having peers or colleagues review your code to identify issues, improve code quality, and provide different perspectives.

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| **ASSESSOR REPORT** |
| **ASSIGNMENT**  CANDIDATE NAME:  DATE OF FEEDBACK: |
| OVERALL ASSESSMENT DECISION:  I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the assessor, declare the candidate **Competent / Not Yet Competent** (circle relevant) on all the criteria within the assignment. |
| STRENGTHS: |
| WEAKNESSES: |
| LEARNER COMMENTS: |
| DEVELOPMENT PLAN: |
| CANDIDATE DECLARATION:  I Mila Ngewu, the candidate, declare that I have received feedback and been informed of my overall competence for the criteria within the assignment. |
| ASSESSOR SIGNATURE LEARNER SIGNATURE  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |