Government of Western Australia
North Metropolitan TAFE

Assessment Task: Lab 2

Qualification national code and title	22603VIC Certificate IV in Cybersecurity
Unit/s national code/s and title/s	**ICTPRG434 - Automate processes** **ICTPRG435 - Write script for software applications**

Assessment type (☑):

☐ Questioning (Oral/Written)
☐ Practical Demonstration
☐ 3rd Party Report
☒ Other – Lab

Assessment Resources:

The base requirements this assessment task include:

- IDE or editor for developing Python programs *(only IDLE and PyCharm supported by the college)*
- Access to Office 365 & Microsoft Word
- Virtual machine

You may not need all these for every part in this assessment

Assessment Due:

This assessment is due after the weekly session, **Week 2, Friday 17:00**.

Assessment Instructions:

1. Your code must be written in IDLE or PyCharm IDEs. If you are using a different IDEs or a different structure for your application, then assistance from your lecturers may be limited (at best). Discuss with your lecturer before straying too far off the path!
2. All resources used should be referenced with the question. Answers may not be copied and pasted from any resource. All answers must be reworded to display your understanding.
3. You may only use Python functionality, methods and libraries which were taught in this unit.
4. First line of code in a program should have the student's name and number, as proof of authenticity.
5. Screenshots of all programs must be included **in** this document, with the appropriate question.
6. Screenshots of testing, showing your code works as intended, should be included with the relevant question.
7. Python programs should be named: XXX_Lab##_SYY_QZZ
   Replace XXX with your initials
   Replace ## with Lab number
   Replace YY with Section number,
   Replace ZZ with Question number
8. It is a submission requirement that all screen shots be signed in some way. Some acceptable examples of signed screen shots are shown below.

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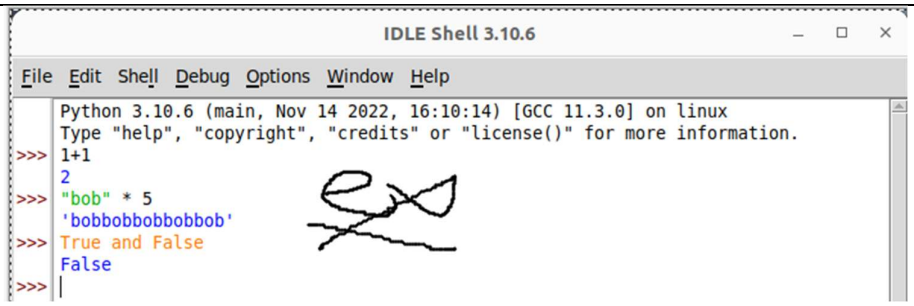
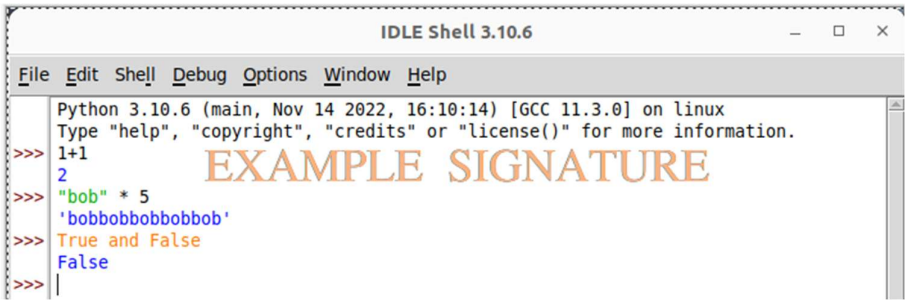
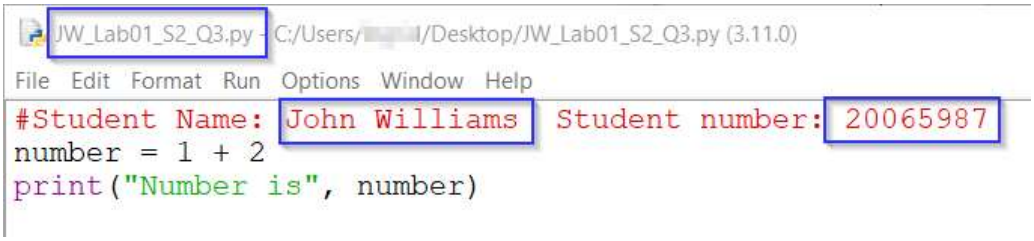


Example 1: Signed using a simple drawing tool.



Example 2: Water marked signature.



Example 3: Program named as prescribed, as well as first line comment with student name and number. Program saved as pre-described.

9. All python programs must be included in the submission, as well as this document.

Assessment Instrument:

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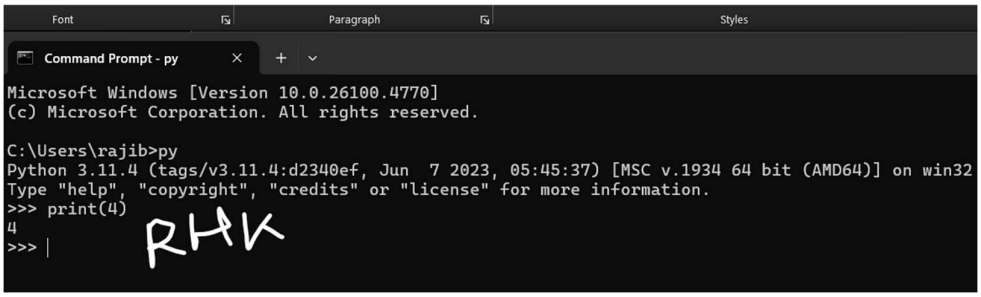
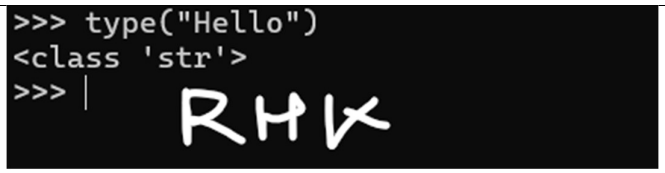
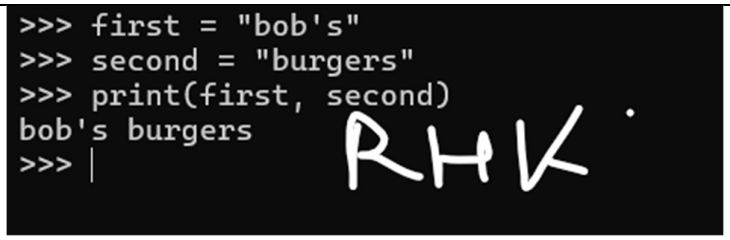
Section 1: Variables

Use any python interpreter to execute the code in this section and verify you correctly understand the output.

1. Run the following operations in the python shell/interpreter and observe the output, provide screen shot evidence you have completed each execution.

Code	Screenshot
print(4)	
type("Hello")	
type(4)	
print(1,000,000)	
first = "bob's" second = "burgers" print(first, second)	

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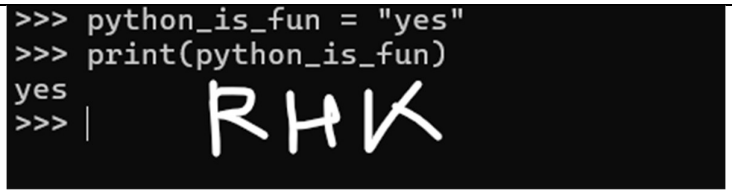
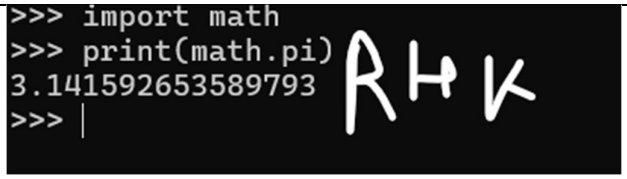
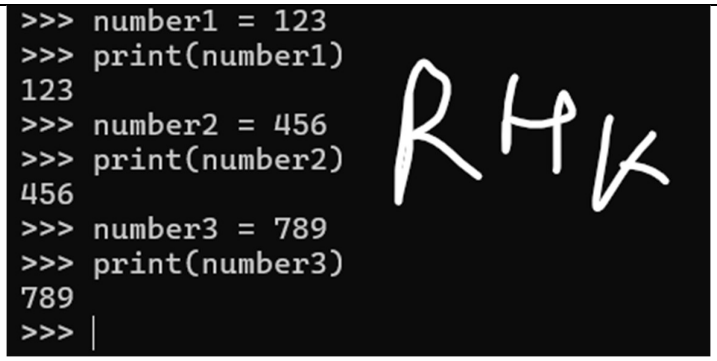
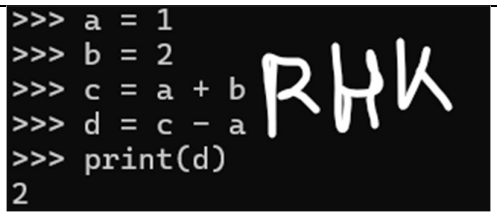
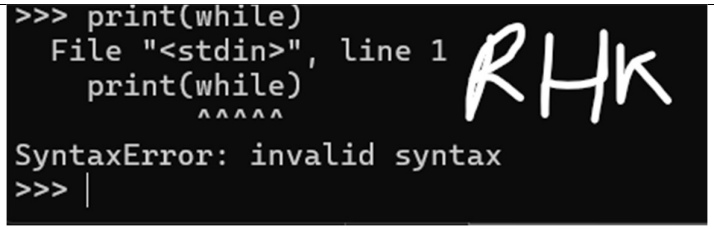
python_is_fun = "yes" print(python_is_fun)	
import math print(math.pi)	
number1 = 123 print(number1) number2 = 456 print(number2) number3 = 789 print(number3)	
a = 1 b = 2 c = a + b d = c – a print(d)	
print(while) *This should result in an error*	

2. Why did the command **print(while)** result in an error?

Because while is a keyword/reserve word

3. Provide at least 5 python keywords that cannot be used as a variable name and describe them

Keyword	**Description**

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while	To create a while loop
break	To break out of a loop
def	To define a function
if	To make a conditional statement
None	Represents a null value

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Section 2: Data types

You will need to create several different variables and correctly assign data to them. Make sure you use the type() function to demonstrate the exact data type of each. Complete the following exercises using the Python shell/interpreter.

1. Create a string called **str1**
   a. Assign the value "**words**" to it
   b. Print the variable
   c. Use **type()** to demonstrate the variable is a string data type

```
>>> str1 = "words"
>>> print(str1)
words
>>> type(str1)
<class 'str'>
>>>
```

RHK

2. Create an integer called **int1**
   a. Assign the value **65** to it
   b. Print the variable
   c. Use **type()** to demonstrate the variable is an integer data type

```
>>> int1 = 65
>>> print(int1)
65
>>> type(int1)
<class 'int'>
>>>
```

RHK

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Section 3: input()

Capturing user input from the console is a common task in Python. This section of the lab will ask you to use the input() function to assign some data to some variables. Complete the following exercises in the Python shell/interpreter. Remember, you need to capture screen shot evidence of your work completion.

1. Use **input()** to:
   a. Ask the user to enter a **common first name** and store it into a variable called **user_input_1**
   b. Print the variable back to demonstrate the input worked as expected.

```
>>> user_input_1 = input("common user name"); print(user_input_1);
common user name Rajib
 Rajib
>>>
```

RHK

2. Use **input()** to:
   a. Ask the user to input a **number** and store it into a variable called **user_input_2**
   b. Print the variable back to demonstrate the input worked as expected

   Use **type()** to determine the data type of **user_input_2**

```
>>> user_input_2 = input("Please enter a number")
Please enter a number 65
>>> print(user_input_2)
 65
>>> type(user_input_2)
<class 'str'>
>>>
```

RHK

3. Why is **user_input_2** a **string** when the user clearly entered a number?

the input() function always returns a string, regardless of whether the user types in numbers or text.

4. Enter the following code into the interpreter:

```
x = int(input("Enter a number: "))
Enter a number: 2
type(x)
```

```
>>> x = int(input("Enter a numer: "))
Enter a numer: 2
>>> print(x)
2
>>> type(x)
<class 'int'>
>>>
```

RHK

5. Why did **x** become an **integer** rather than a **string**?

Because it was explicitly converted using type conversion functions like int()

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6. Do the following in the interpreter:
   a. Create a variable called **num1** and ask the user to input a number (make sure that input is converted to an integer)
   b. Create a variable called **num2** and ask the user to input a number (make sure that input is converted to an integer)
   c. Use **print(num1*num2)** to multiply **num1** by **num2** and print the result (two integers should be multipliable)

```
>>> num1 = int(input("Enter a number: "))
Enter a number: 3
>>> num2 = int(input("Enter a number: "))
Enter a number: 2
>>> print(num1*num2)
6
>>>
```

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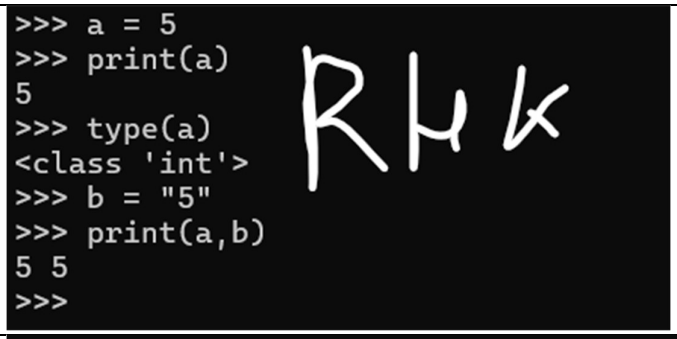
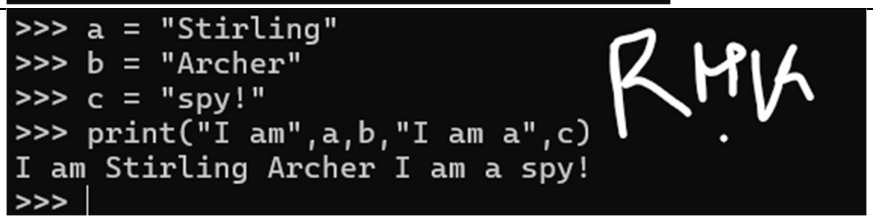
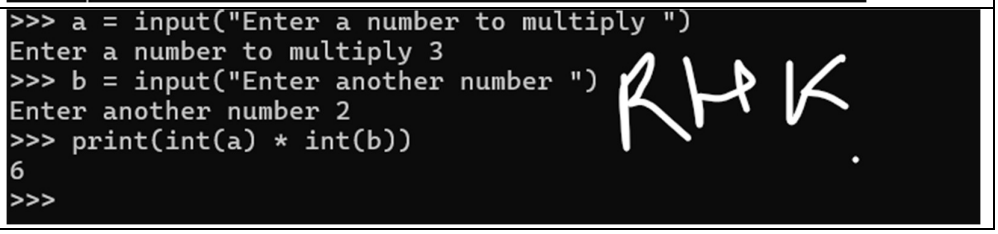
Section 4: print()

Here are some simple print commands that are used to demonstrate the functionality of the **print()** command. Complete the following exercises in the Python shell/interpreter.

1. Run all the below commands taking screen shots to demonstrate how they function.

Code	Screenshot
a = 5 print(a) type(a)	
a = 5 b = “5” print(a,b)	
a = “Stirling” b = “Archer” c = “spy!” print(“I am”, a , b , “I am a”, c)	
a = input(“Enter a number to multiply: “) b = input(“Enter another number: “) print(int(a)*int(b))	

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Section 5: Debugging problems

Here are a couple of code examples with errors, use any available means to debug them and explain the issue in each.

Problem 1:

```
1 my variable = 1
2 print(my variable)
```

Why does this code fail to execute?

Variable name should not have any space in between
in the above code the variable declaration is done in an incorrect way

Problem 2:

```
1 hoursWorked = 10
2 hourlyRate = 25
3 pay = hourlyRate * hourWorked
```

Why does this code fail to execute?

While calculating the pay hourWorked variable is misspelt and missing s after hour

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Section 6: Challenge time

Combine your skills to complete the following challenge! This challenge needs to be done in a code file, not the shell/interpreter.
You are required to **submit the code file** and **screen shots** of the code working as intended, this includes formatting the output exactly as displayed in the example!

1. Create a script that will accept a **user's full name**, **date of birth** and **hobbies** then print them to the screen.
2. Improve the script above by adding a question to ask the user for their **favourite number**.
3. Once the favourite number is acquired, multiply that number by 10 and let the user know the result.
4. Make the script tell the user a goodbye message including their name as the final line.

The final resulting script should produce an output formatted in the same way as the below screen example:

```
What is your name? Alys
What is your DOB? 11/11/2011
What are your hobbies? Python!
What is your fav number =) 47
Your name is Alys Your DOB is 11/11/2011
Your hobbies are Python! Your fav number x10 is 470
Goodbye Alys Have a nice day
```

You might find the following ***pseudocode*** useful for building this script:

1. Ask the user for their name and store is as username.
2. Ask the user for the DOB and store it as userDOB.
3. Ask the user for their hobbies and store it as userHobbies.
4. Ask the user for their favourite number and store it as an integer called userNum.
5. Print the username (username) and DOB (userDOB).
6. Print their hobbies (userHobbies) and multiply userNum by 10.
7. Print a goodbye message.

Code	Output
userHobbies = input("What are your hobbies? ") userNum = int(input("What is your fav number =) ")) print("Your name is " + username + ". Your DOB is " + userDOB + ".") print("Your hobbies are " + userHobbies + " Your fav number x10 is " + str(userNum * 10) + ".") print("Goodbye " + username + ". Have a nice day.")	

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