ITP122 Assessment 1

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Table Of Contents

Task 1 - Fundamental Input / Output Programming **3**

Task 2 - Simple Calculation Programming **5**

Task 3 - Programming for text input / output **7**

Task 4 - Simple Coding for Case Sample **8**

Task 1 - Fundamental Input / Output Programming

a) Identify the industry-standard Integrated Development Environment (IDE) for Python. As a beginner, which IDE would you opt to use? Justify your answer.

Based on a survey industry-standard Integrated Development Environment (IDE) for Python is PyCharm. Developed by JetBrains. PyCharm is widely used by developers and is known for its advanced features such as code completion, debugging, code refactoring, version control integration, and support for various frameworks like Django, Flask, and Pyramid. It is available in both free and paid versions, with the paid version offering additional features and support (JetBrains, n.d.).

In a survey conducted by JetBrains in 2021, PyCharm was found to be the most popular Python IDE among developers, with 47% of respondents using it. The survey also found that PyCharm was the most popular IDE for both beginners and experienced developers (Python Developers Survey 2021 Results, 2021).

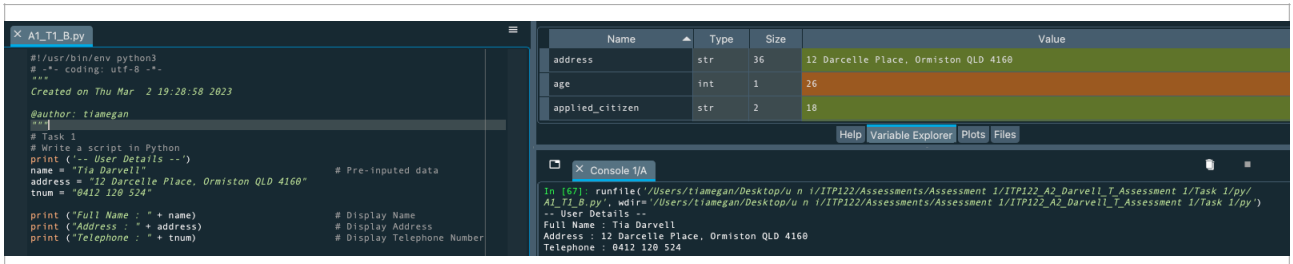
As a Beginner, I personally prefer Spyder due to its features and ease of use. Spyder has an intuitive and user-friendly interface that makes it easy to use. It comes with a range of built-in tools that are useful for scientific computing, eg. Data exploration, visualisation and debugging tools.

Unlike PyCharm, Spyder is free and open-source, which means there is no cost involved so everyone, including those who may not have the resources to pay for an IDE. Documentation in Spyder is aimed at beginners, and even has tutorials and examples that cover the basics of Python.

References:

- JetBrains. (n.d.). PyCharm: The Python IDE for Professional Developers. Retrieved from https://www.jetbrains.com/pycharm/
- Python Developers Survey 2021 Results. (2021). JetBrains. Retrieved from https://www.jetbrains.com/lp/python-developers-survey-2021/

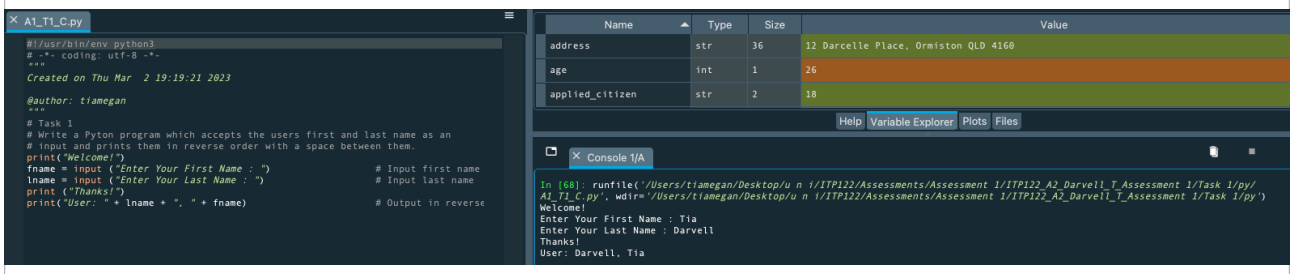
b) Write a script in Python that prints (displays) your name, address and telephone number.



Script that prints, Name, Address and Telephone number from pre-input data.

File Name : A1_T1_B.py

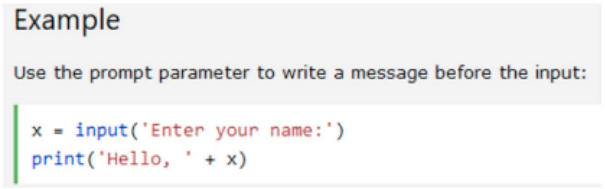
c) Write a Python program which accepts the user's first and last name as an input and prints them in reverse order with a space between them.



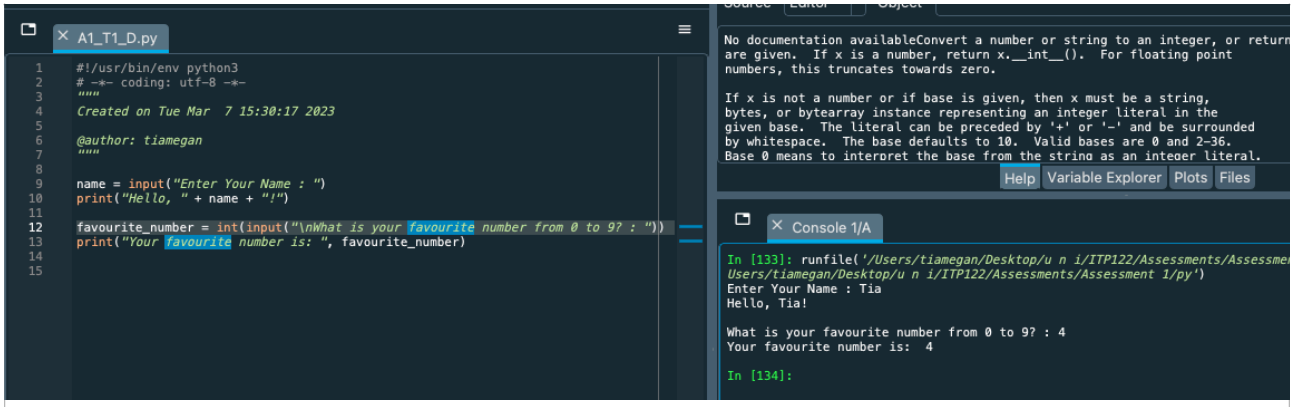
Above code accepts input and enables an output of the reverse with a space between.

File Name: A1_T1_C.py

d) Write an interactive program.
Prompt the user with a question, e.g., "What is your favorite number from 0 to 9?"
Save the user selection into a variable, e.g., b=input ("What is your Favorite number from 0 to 9?").



It's that simple. Did you notice the input function?
Here is another example. Write the code in a new file and display YOUR name.



Above code prompts the user with 2 questions, "What is your name?" And "What is your favourite number from 0 to 9?"

File Name: A1_T1_D.py

Task 2 - Simple Calculation Programming

e) Now, try entering the following arithmetic expressions using only a single operator in each case. Note the response from the interpreter in each case and describe the answers and what you understand from it. (To describe the answers, you can use comments in code or alternatively use ‘print’ Python statement to display your answer).

- 4+2
- 4 + 2.0 (Note the difference from the previous line)
- 3.5 – 4.0
- 5*7
- 23 / 4
- 23 / 4.0 (Note the difference from the previous line)
- 23 % 4
- 3 ** 2
- 9 ** 0.5 (Note: Refer to Learning Activity 3 in Module 2)

Pt.1

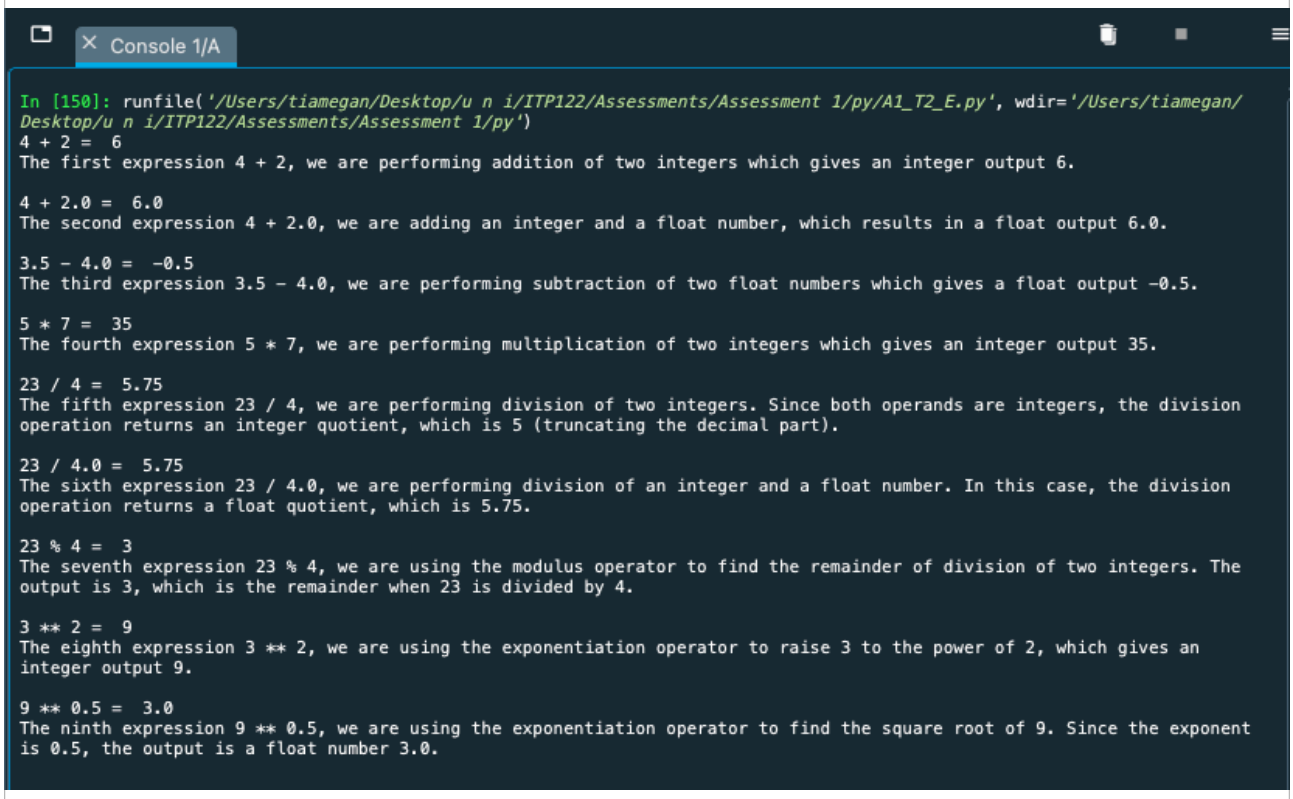
A1_T2_E.py

```
#!/usr/bin/env python3
# -*- coding: utf-8 -*-
"""
Created on Tue Mar  7 15:38:57 2023

@author: tiamegan
"""
# Task 2

print("4 + 2 = ", 4+2)              # Addition of 4 + 2
                                    # Output: 6
                                    # the use of the + operator is used
print("The first expression 4 + 2, we are performing addition of two integers which gives an integer output 6.\n")

print("4 + 2.0 = ", 4+2.0)          # Addition using Float of 4 + 2.0
                                    # Output: 6.0
                                    # the use of the + operator is used
print("The second expression 4 + 2.0, we are adding an integer and a float number, which results in a float output 6.0.\n")

print("3.5 - 4.0 = ", 3.5 - 4.0)    # Subtraction with Float Numbers of 3.5 - 4.0
                                    # Output: -0.5
                                    # the use of the - operator is used
print("The third expression 3.5 - 4.0, we are performing subtraction of two float numbers which gives a float output -0.5.\n")

print("5 * 7 = ", 5 * 7)            # Mulitplication
                                    # Output: 35
                                    # the use of the * operator is used
print ("The fourth expression 5 * 7, we are performing multiplication of two integers which gives an integer output 35.\n")

print ("23 / 4 = ", 23 / 4)        # Division with Integer Opperand
                                    # Output: 5
                                    # the use of the / operator is used
print("The fifth expression 23 / 4, we are performing division of two integers. Since both operands are integers, the division operation returns an integer quotient, which is 5 (truncating the decimal part).\n")

print ("23 / 4.0 = ", 23 / 4.0)     # Division with One Float Opperand
                                    # Output: 5.75
                                    # the use of the / operator is used
print("The sixth expression 23 / 4.0, we are performing division of an integer and a float number. In this case, the division operation returns a float quotient, which is 5.75.\n")

print ("23 % 4 = ", 23 % 4)         # Modulus Opperator
                                    # Output: 3
                                    # the use of the % operator is used
print("The seventh expression 23 % 4, we are using the modulus operator to find the remainder of division of two integers. The output is 3, which is the remainder when 23 is divided by 4.\n")

print ("3 ** 2 = ", 3**2)           # Exponentiation Operator
                                    # Output: 9
                                    # the use of the ** operator is used
print("The eighth expression 3 ** 2, we are using the exponentiation operator to raise 3 to the power of 2, which gives an integer output 9.\n")

print ("9 ** 0.5 = ", 9**0.5)       # Exponentiation outsome of Square root
                                    # Output: 3.0
                                    # the use of the ** operator is used
print("The ninth expression 9 ** 0.5, we are using the exponentiation operator to find the square root of 9. Since the exponent is 0.5, the output is a float number 3.0.\n")
```

Above code showcases the code of the requested equations alongside notes per instruction, and a description of what is happening per line.

File Name: A1_T2_E.py

Pt.2



File Name: A1_T2_E.py

Task 3 - Programming for text input / output

f) Write a Python program to print the following string in a specific format (see the output). Use escape sequences in the string '\t' and '\n' Sample String:

"Baby baby, Yes Mama, Eating sugar, No Mama, Telling a lie, No Mama, Open your mouth, Ha Ha Ha!"

Expected Output:

Baby baby,

Yes Mama,

Eating sugar,

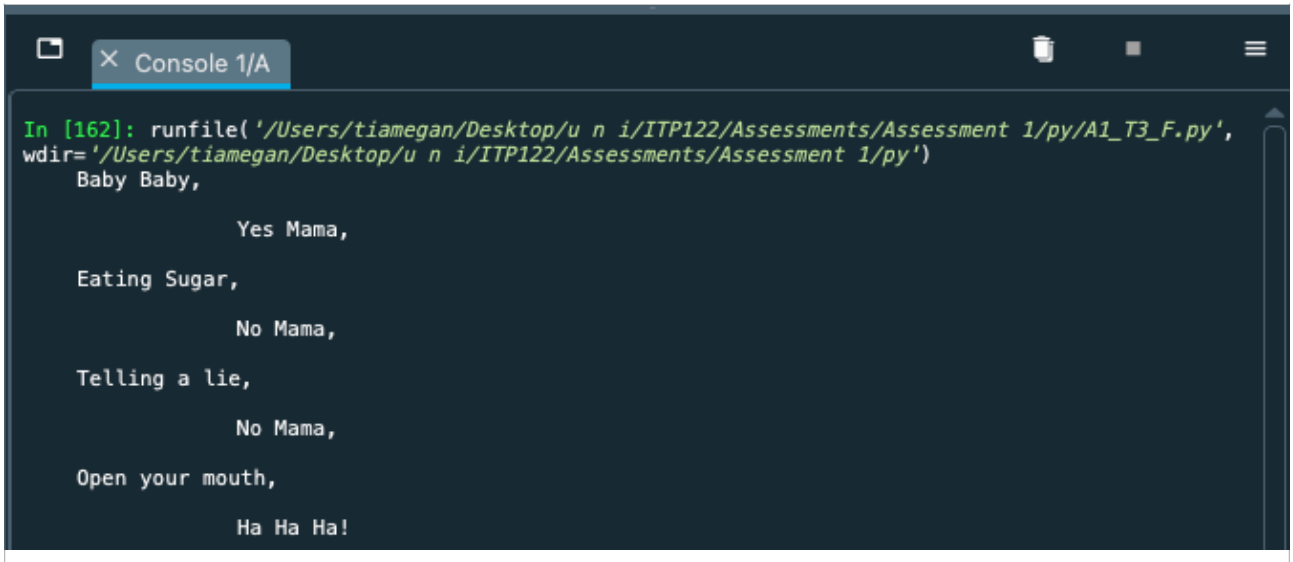
No Mama,

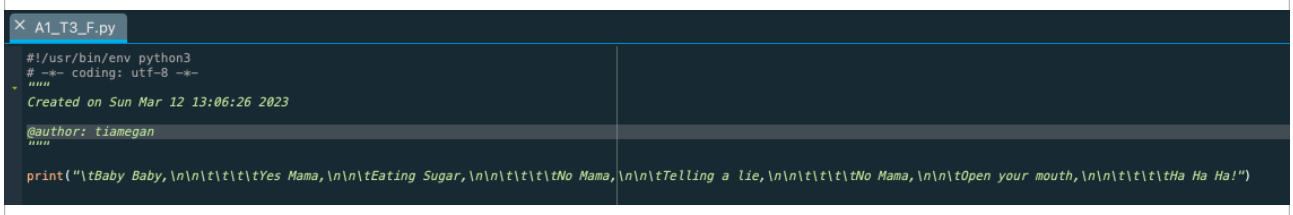
Telling a lie,

No Mama,

Open your mouth,

Ha Ha Ha!





Above is the output of the code, printed in a single line using '\n' and '\t' to output the desired visual.

File Name: A1_T3_F.py

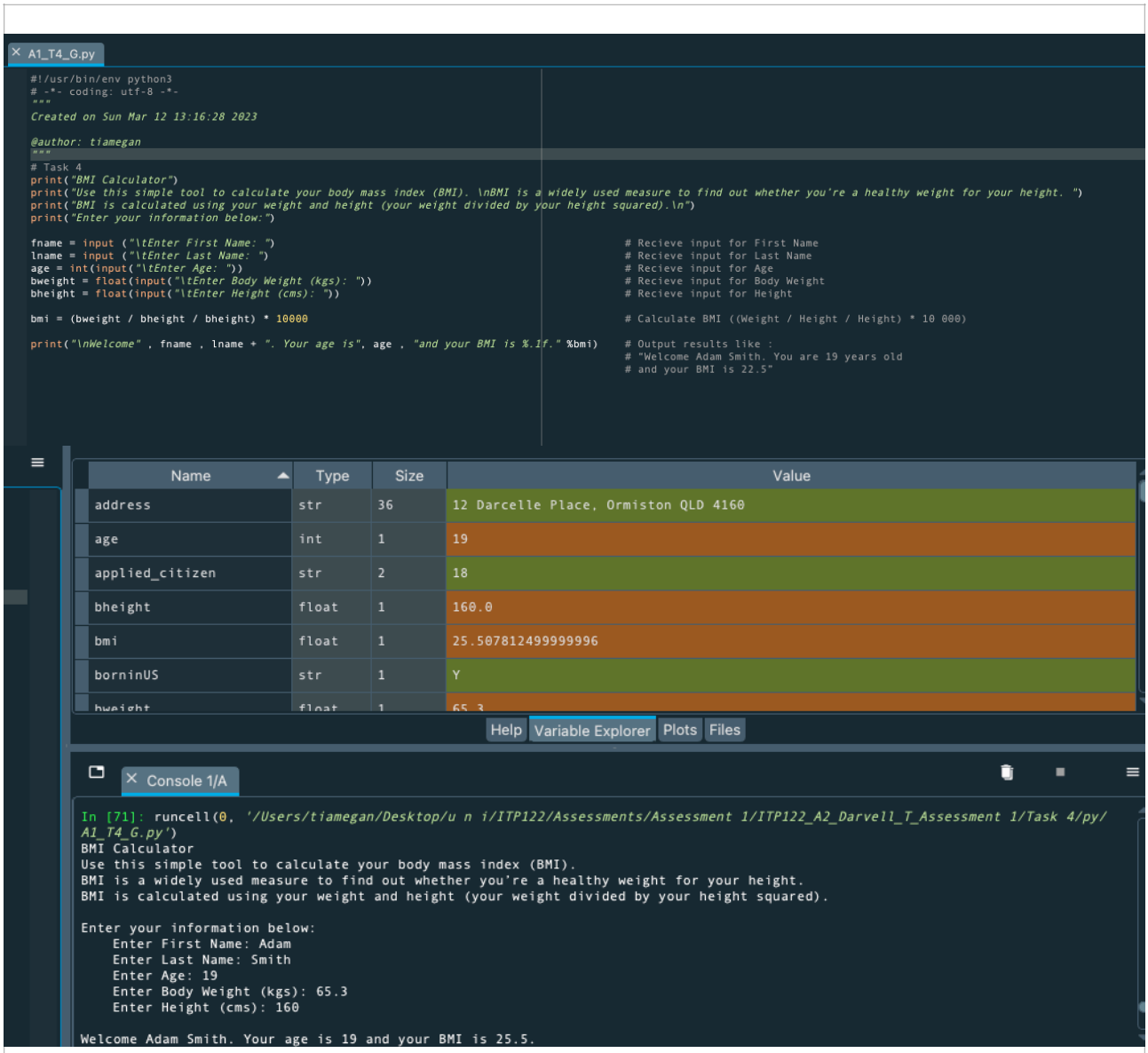
Task 4 - Simple Coding for Case Sample

You are hired as a software coder for LoseWeightNow Pty Ltd located in Redfern, NSW, Australia. Your task is to build a simple software program that receives input from the patients including their first name, last name, age, body weight, and body height; your software program is to calculate the body mass index (BMI) of the patient, and display the output as

“Welcome + First Name + Last Name. Your age is Age and your BMI is BMI Value”.
For example, if Adam Smith, 19 years old having BMI of 22.5 will display

“Welcome Adam Smith. You are 19 years old and your BMI is 22.5”

Write software program to accomplish the above given task.



Above it both the code and the output of the code, displaying the request of input data to output the phrase listed above.

File Name: A1_T4_G.py

End of Assessment 1.