ENGG1330 Computer Programming

Tutorial 1

Objectives:

- Write and execute programs on Python IDLE
- Submit and evaluate programs using VPL
- Write simple programs with input and output

Attention: This is a trial run for you to familiarize with Python IDLE and Moodle VPL. Both the "Tutorial participation" and "Tutorial/take-home exercises" of Tutorial 1 will **not** be counted toward the continuous assessment.

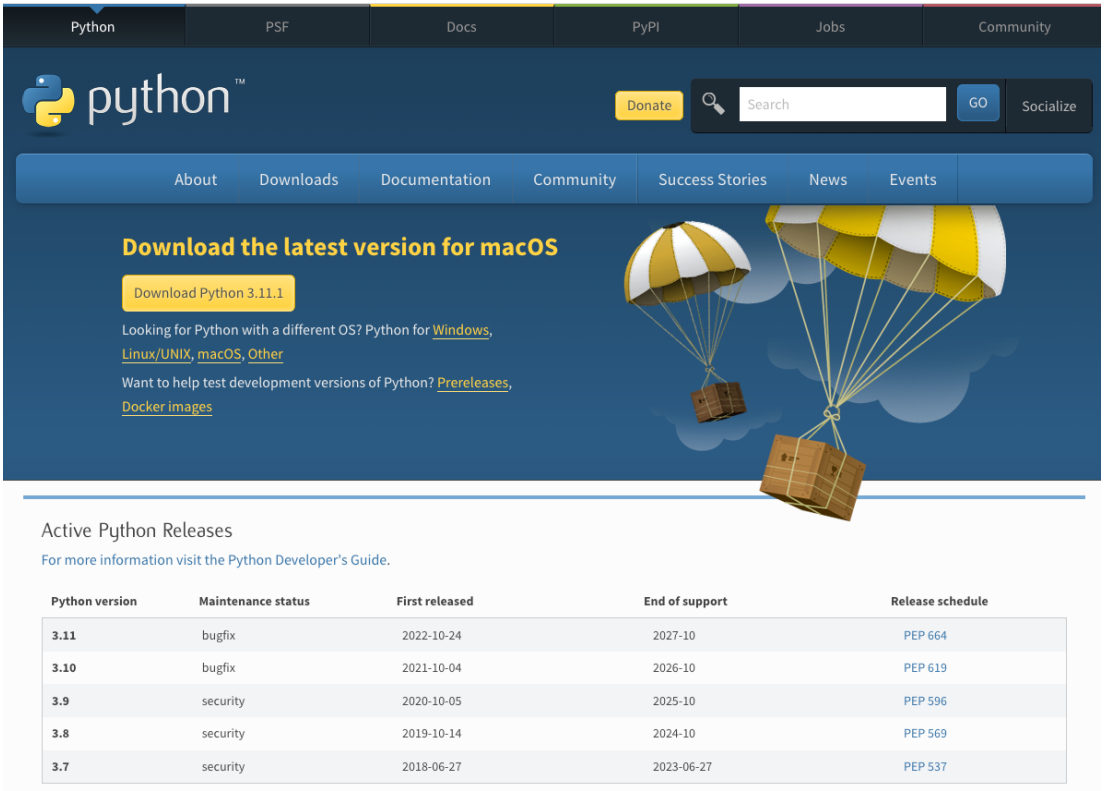
Tutorial participation:

- t1_vpl_1
- Submission period: **within your OWN tutorial period**

Tutorial/take-home exercises:

- Remaining problems in the worksheet
- Submission deadline: **noon, 8-FEB-2023 (Wednesday)**

0. You should have downloaded and installed Python 3 (any version released after 2020 is okay). Otherwise, go to Python home page: https://www.python.org and download the version that matches your OS.

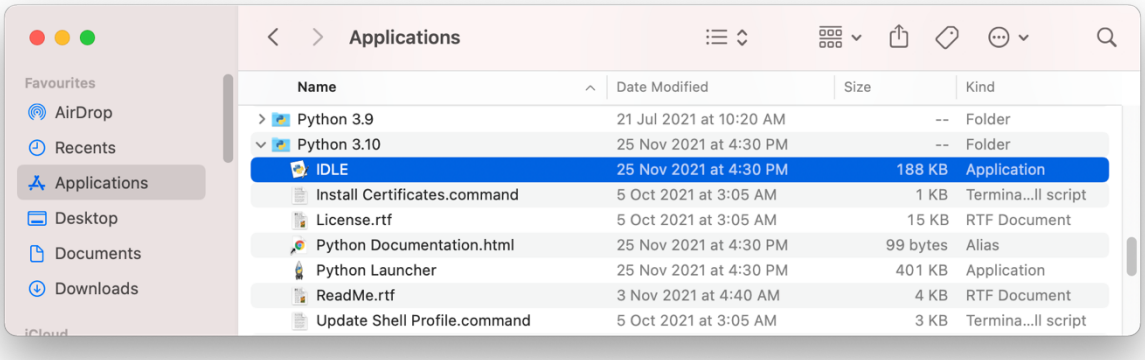


t1_vpl_1. Familiarize with Python IDLE and Moodle VPL

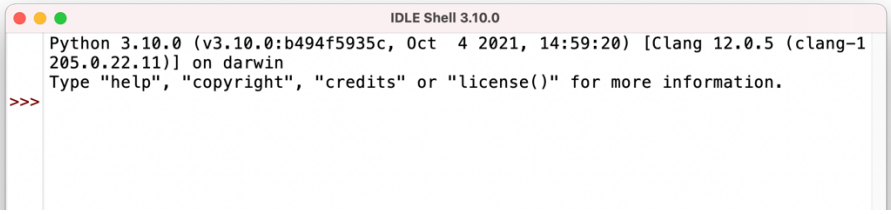
Write and execute a simple program on Python IDLE (Integrated Development and Learning Environment). Upload the program to VPL for testing and submission.

Interactive Mode

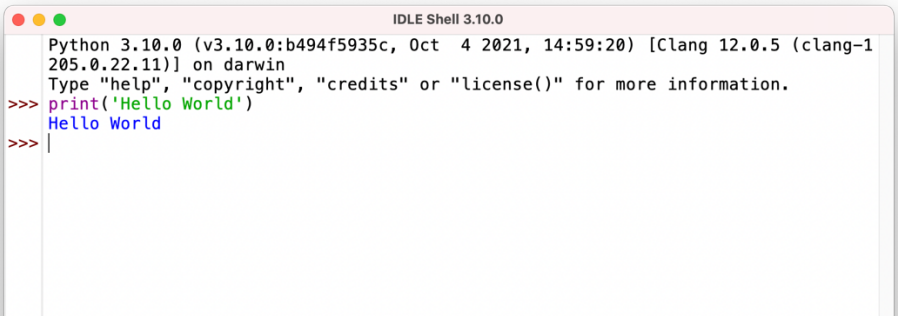
a. Double-click IDLE to start Python.



b. The Python IDLE should be launched in Interactive Mode.



c. Type `print('Hello World')` and you should see the output 'Hello World'.



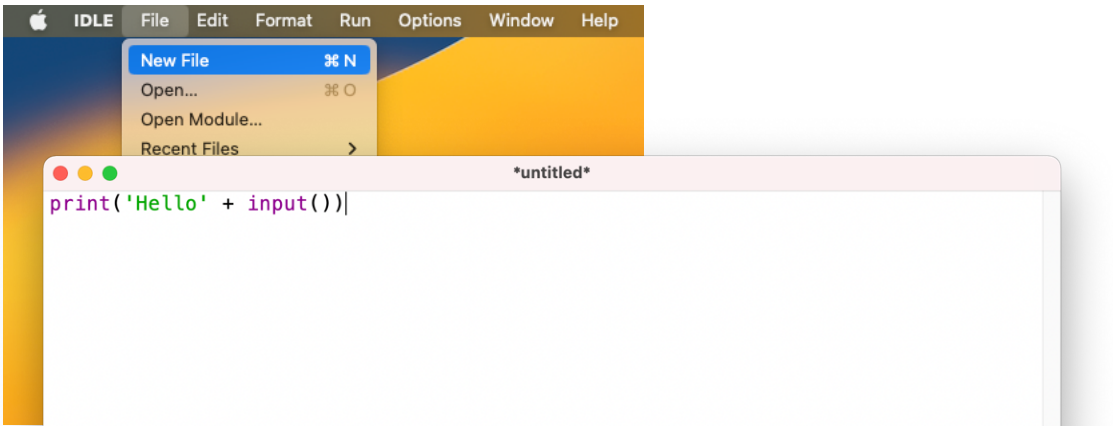
d. Try to Make Mistakes

It is a good idea to learn something new by making mistakes. Try to make the following mistakes to see what happens. This can help you remember the new knowledge. Particularly for learning programming, this can help you know what the error messages mean.

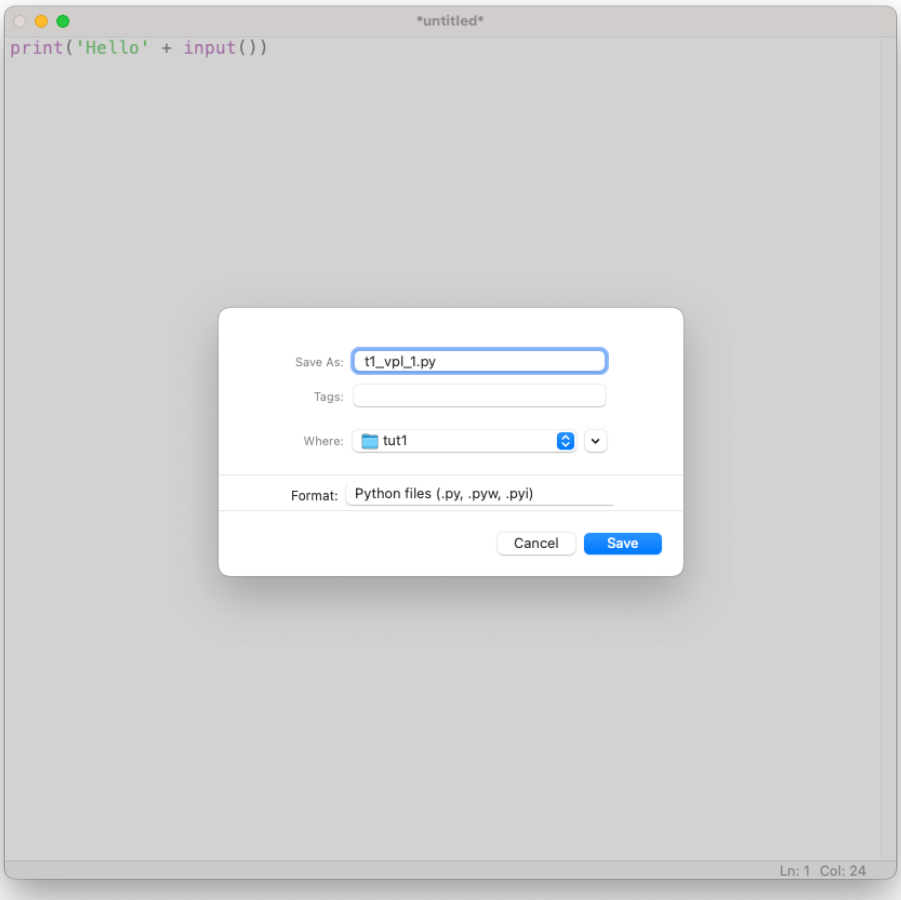
- Leave out one or both quotation marks in the statement `print('Hello World')`
- Replace the single quotation marks by double quotation marks in the statement `print('Hello World')`
- Spell `print` wrongly in the statement `print('Hello World')`
- Leave out one or both parentheses in the statement `print('Hello World')`
- Which of the following give you the expected outcome when you enter them in interactive mode?
  - 3 + 2
  - 3 - 2
  - 3 + -2
  - 3 + +2
  - 3 - -2
  - 3 - +2
  - 3 + 02

Script Mode

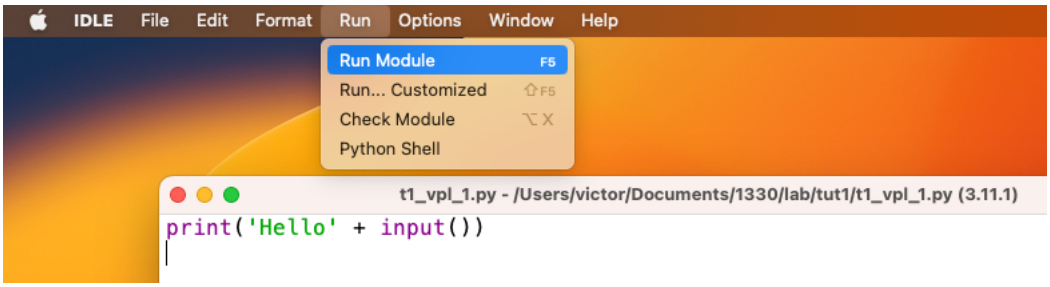
a. To write code in script mode, select File → New File and type the following code in the window just opened. This program is similar to the "Second Program" in Lecture 1. It simply gets a user input (string) and prints 'Hello' with the input string.



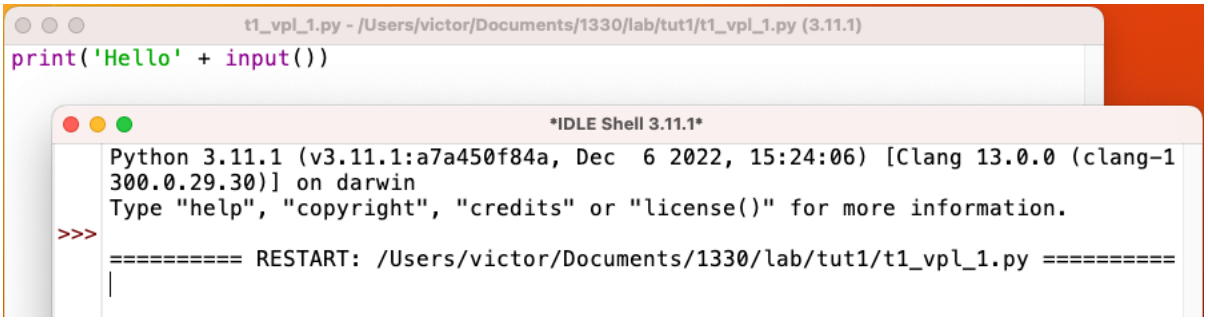
b. Save the file (File → Save As…) to your local folder with the filename "t1_vpl_1.py". This file will be used for submission to VPL later.

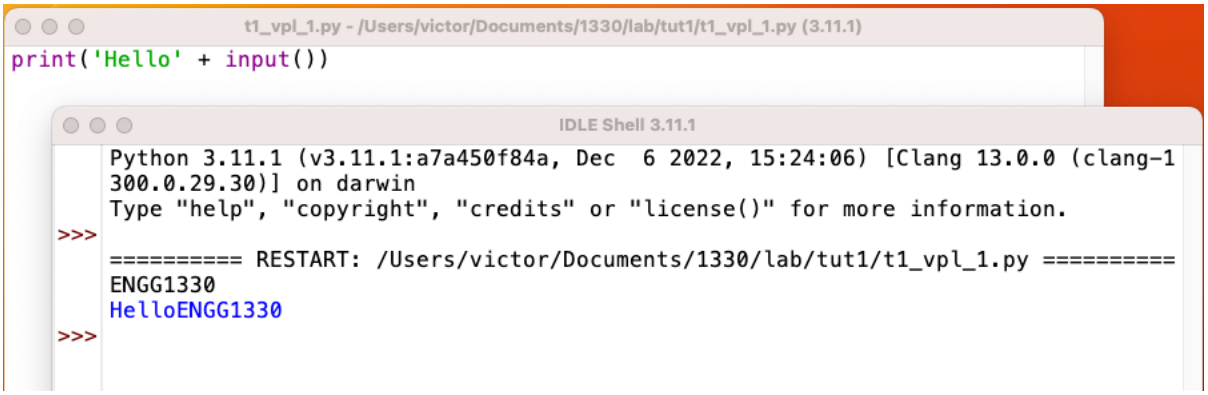


c. After saving the file, you should be able to run your code by selecting Run → Run Module.



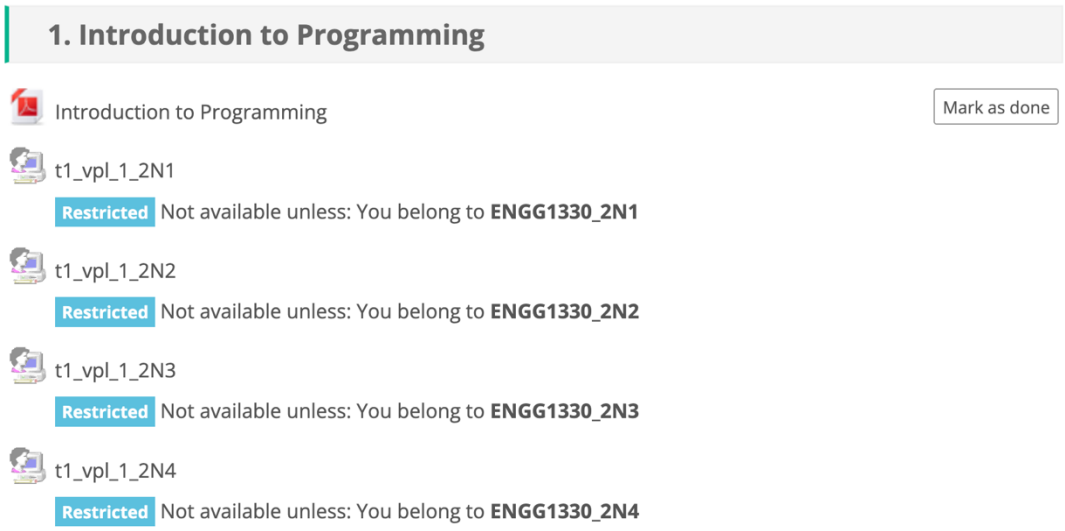
d. The console (IDLE Shell) will stop and wait for your input, enter “ENGG1330” and you should see the output of your program.



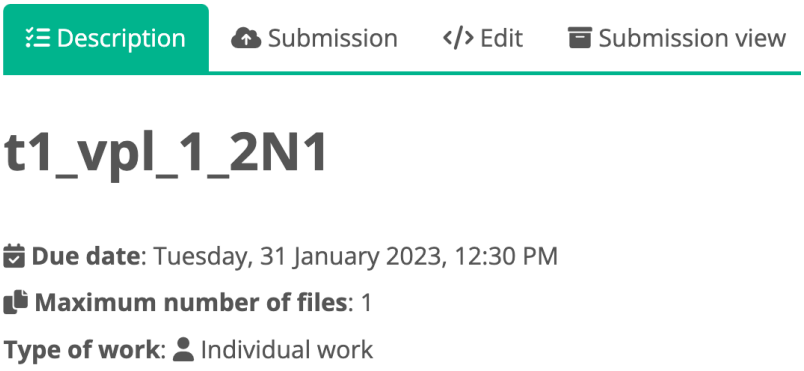


Submit your file to VPL

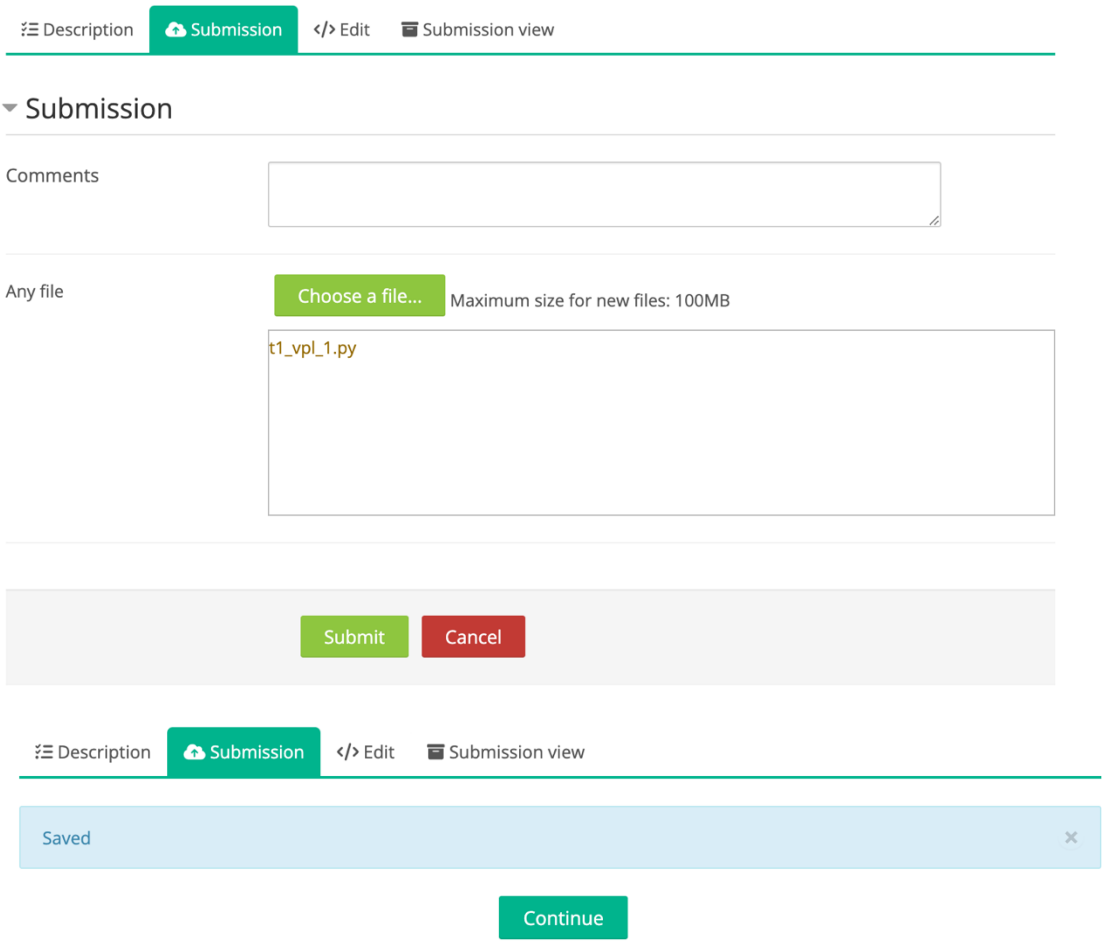
a. Go to the course Moodle of ENGG1330 and click the activity icon “t1_vpl_1_2NX”, where X is your group number.



b. Click the "Submission" tab and read the submission information.

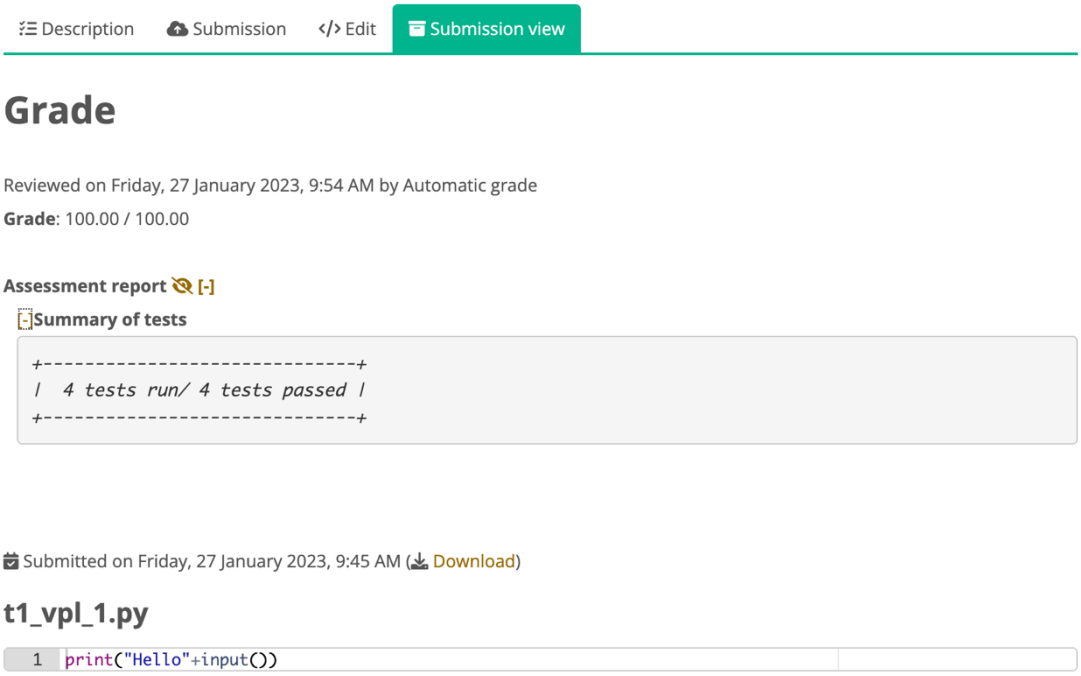


c. Click "Choose a file..." to select your program (t1_vpl_1.py) or drag your program to the file box, and then click “Submit” button to save the file and "Continue" button to evaluate your program.

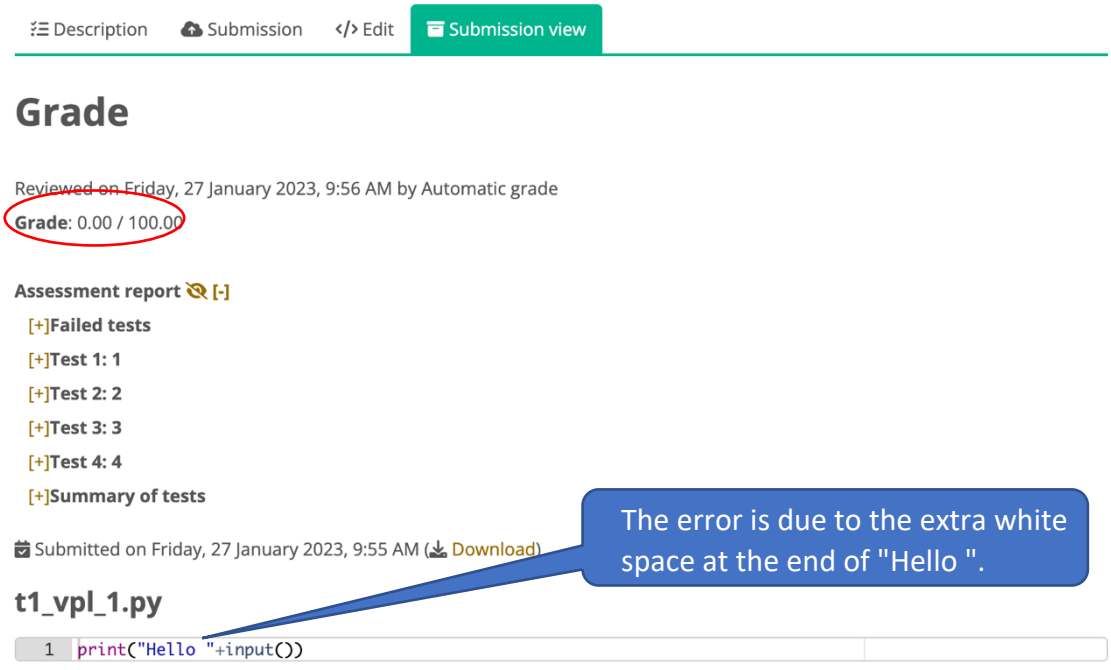


The file name must not contain any space or special characters such as ‘(‘, ‘*’, ‘)’ and must be ended with ".py".

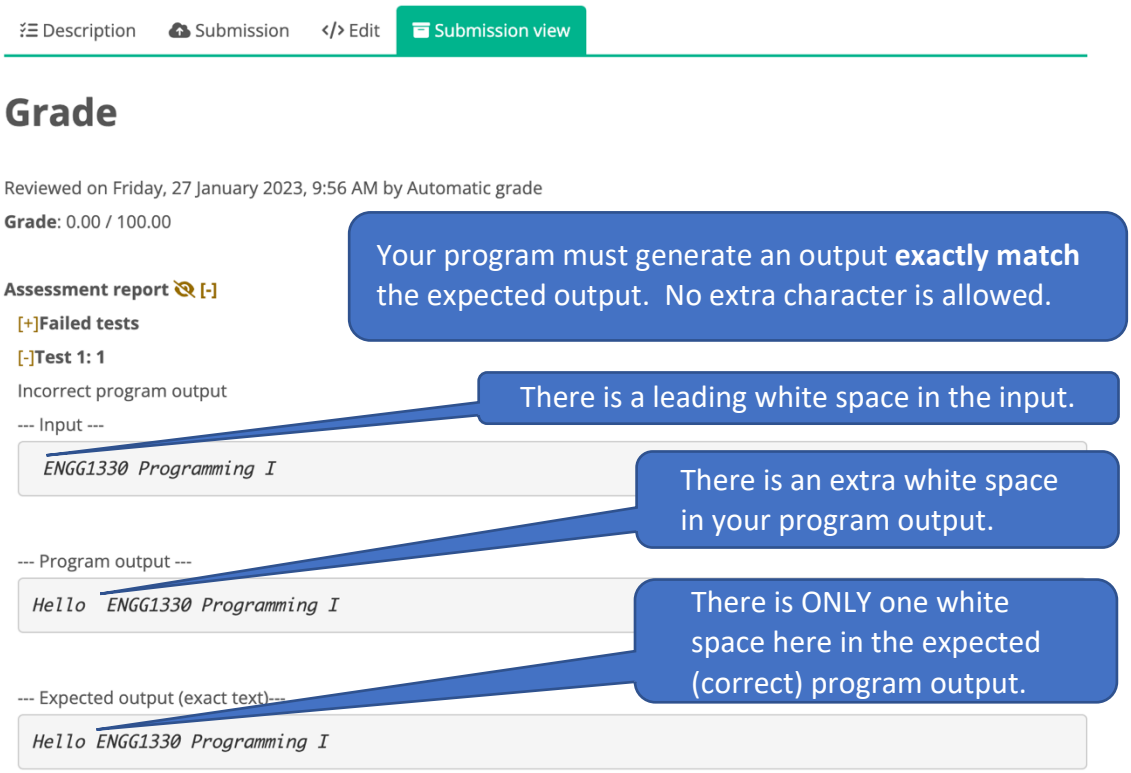
d. Select the “Submission view” tab and check the grade of your program, which has been evaluated against the test cases.



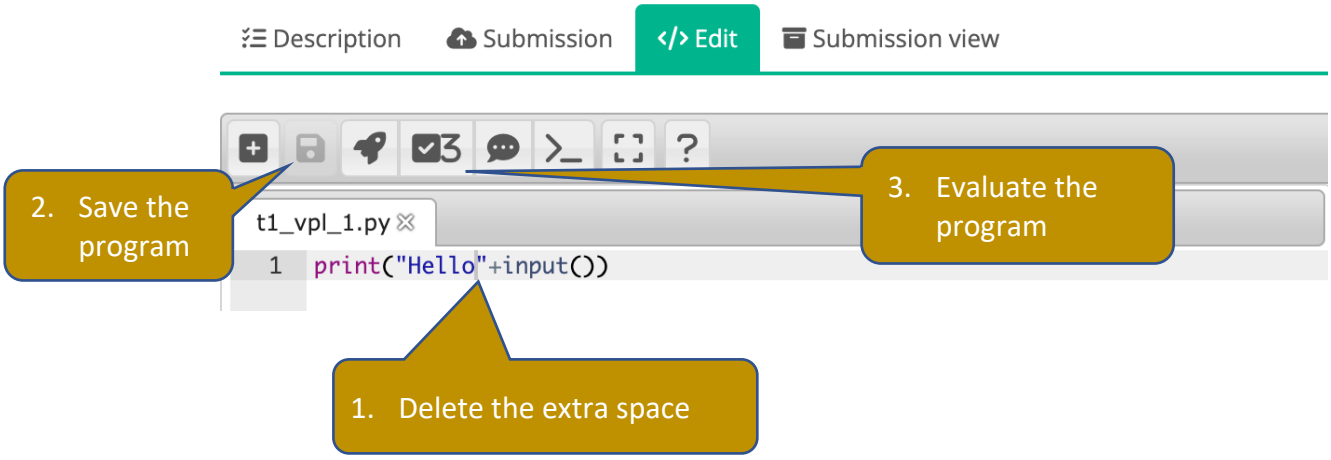
e. In case the grade is not 100, it means one or more of your program outputs is incorrect.



f. Expand the "Failed tests" and "Test X:X" to find out the problems of your program outputs.



g. Select the “Edit” tab, edit your program to fix the bug, if any, save and evaluate the program until it passes all the test cases. Or you may revise the program in IDLE and resubmit to Moodle.



t1_vpl_2. Currency Converter (static exchange rate)

Write a program that converts HK dollar to Japanese yen, you may assume the exchange rate is 1 HK dollar equal to 16.5 Japanese yen.

The program reads a floating-point number from user input and output the amount in Japanese yen as integer (truncated towards zero). To truncate a floating-point number to integer, you may use `int()`. For example, `int(1.65)` → `1`.

Sample Input / output

Case	Input	Output
1	25	412
2	300	4950
3	56.8	937

Submission

Upload your program to t1_vpl_2 for testing and submission.

Hint

The default user input is a string. You need to convert it to float before doing calculation.

t1_vpl_3. Calculate BMI

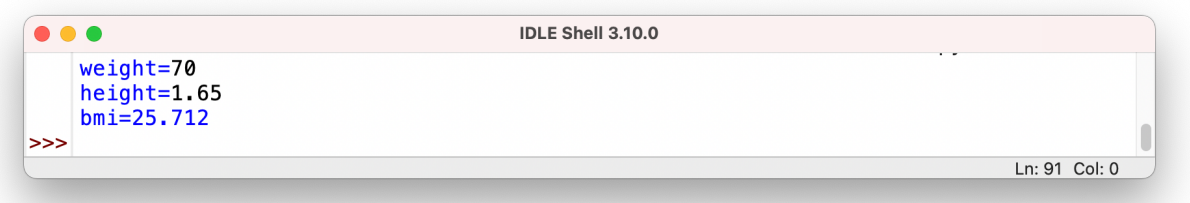
Revise the sample program used in the lecture that calculates and prints the BMI. Instead of hardcoding the weight in kg and height in m, your program reads the floating-point numbers from user input. To limit the number of decimal places to three in the output, you may use the following print statement.

```
print(f'bmi={bmi:.3f}')
```

Sample Input / output (values only)

Case	weight	height	bmi
1	70	1.65	25.712
2	60	1.7	20.761
3	55.5	1.55	23.101

Sample screenshot (characters in **blue** are displayed by the program and characters in **black** are inputted by user)



Submission

Upload your program to t1_vpl_3 for testing and submission.

Hints

Try the following to see which way to read user input can pass the test cases.

- `print('weight=')`
  `weight=float(input())`
- `weight=float(input('weight='))`

In this tutorial, we have written programs in Python IDLE and submit them to Moodle for testing and grading. This is very important because most of the continuous assessment in this course will be graded by VPL. Wrong submissions will result in zero mark in the corresponding coursework.