VINUNIVERSITY

Lab Practice № 4: Strings and Testing

COMP1010 Introduction to Programming **Week 04**

Lab Practice Submission Instructions:

- This is an individual lab practice and will typically be assigned in the laboratory (computer lab).
- Your program should work correctly on all inputs. If there are any specifications about how the program should be written (or how the output should appear), those specifications should be followed.
- Your code and functions/modules should be appropriately commented. However, try to avoid making your code overly busy (e.g., include a comment on every line).
- Variables and functions should have meaningful names, and code should be organized into functions/methods where appropriate.
- Academic honesty is required in all work you submit to be graded. You should **NOT** copy or share your code with other students to avoid plagiarism issues.
- Use the template provided to prepare your solutions.
- You should upload your .py file(s) to the Canvas **before the end of the laboratory session** unless the instructor gave a specified deadline.
- Submit your .py file for each Lab with the following naming format: YourStudentID_Lab4.py. For example: **V202000999_Lab4.py**. **Note:** If you are working on Jupiter Notebook, you need to download/convert it to Python .py file for submission.
- Late submission of lab practice without an approved extension will incur the following penalties:

  (a) No submission by the deadline will incur 0.25 point deduction for each problem (most of the problems are due at the end of the lab session).

  (b) The instructor will deduct an additional 0.25 point per problem for each day past the deadline.

  (c) The penalty will be deducted until the maximum possible score for the lab practice reaches zero (0%) unless otherwise specified by the instructor.

Problem 1 – Create a long multi-line string in Python

Display the following email using a single `print()`. Submit your program to CMS, note that your program should have exactly output as described below.

```
Dear Alice,

How have you been? I am fine. There is a container in the fridge
that is labeled "Milk Experiment". Please do not drink it.

Sincerely,
Bob
```

Problem 2 – String slicing

Use only string slicing to make the sentence "**Everyone Should Learn to Code**" from the following strings:

```
a = "Everyone Should"
b = " Lea"
c = " tC"
```

Submit your code to CMS. Be sure that the output follows the exact sentence: `Everyone Should Learn to Code`

Problem 3 – String methods

Given the following strings:

```
str1 = "Everyone should know how to program a computer"
str2 = "because it teaches you how to think!"
```

(a) Concatenate the above strings into a single string with a "," in between.

(b) Split `str2` into three partitions → "because it teaches ", "you", " how to think!"

(c) Use a string slicing to access "how to think!" in Part (b).

(d) Count the length of the string in Part (c).

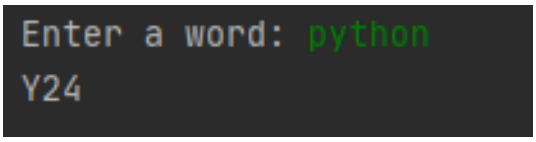
(e) Replace "**program a computer**" in `str1` with a word (or a phrase) input by the user.

NOTE: For this problem, submit the solution of part (e) to CMS only. In this case, using `use Python` as input provided by the user.

Problem 4 – Combine the character

Write a program to get a random character from the word input by the user and a random number between 10 and 30 inclusive. Combine the character (in an uppercase) with the random number. *Hint*: use the `random.choice()` function for random selection. Sample input and output are as follows:

This problem is not required to submit the solution to CMS.



Problem 5 – Debugging

You are assisting your professor with Python code that computes the Body Mass Index (BMI) of patients. The professor is concerned because all patients seemingly have unusual. BMI is calculated as weight in kilograms divided by the square of height in metres.

Use the debugging principles you have learn from the lecture and locate problems with the code. Submit the correct program to CMS using the following test case:

```
height = 1.7
weight = 65
Patient's BMI is:  22.491349
```

Listing 1: Python code that computes the Body Mass Index (BMI) of patients.

```
1 height = float(input("Enter your height in cm: "))
2 weight = float(input("Enter your weight in kg: "))
3
4 def calculate_bmi(weight, height):
5     return weight / (height ** 2)
6
7 bmi = calculate_bmi(height, weight)
8
9 print("Patient's BMI is: %f" % bmi)
```

Problem 6 – Identifying Variable Name Errors

1. Read the code below, and (without running it) try to identify what the errors are.

2. Run the code, and read the error message. What type of NameError do you think this is? In other words, is it a string with no quotes, a misspelled variable, or a variable that should have been defined but was not?

3. Fix the error.

4. Repeat steps 2 and 3, until you have fixed all the errors.

Listing 2: Python code that adds a or b to message.

```
1 for number in range(10):
2     # use a if the number is a multiple of 3, otherwise use b
3     if (Number % 3) == 0:
4         message = message + a
5     else:
6         message = message + 'b'
7 print(message)
```

Submit the fixed version to CMS with `message = ''`