Computational Thinking

Lab Homeworks (Individual)

*The goal of this exercise is to help students become familiar with **Python**, the main programming language that will be used to complete the upcoming course project.*

1. Introduction

Wordle is a very popular English word-guessing game created by Josh Wardle in 2021[1]. The game became a social media phenomenon because it's simple yet highly addictive.

Figure 1. A Wordle Gameplay Screenshot.

You can try it via these links below:

- Wordle - The New York Times: https://www.nytimes.com/games/wordle/index.html
- Wordle Game - Play Unlimited: https://wordly.org/

In the *New York Times* version, each day, the game gives you **one secret 5-letter word** (for example: *"REBUS"*). You have **6 attempts** to guess the word, the fewer, the better. After each guess, the game shows **color hints**:

- **Green** (🟩): the letter is correct and in the right position.

[1] https://en.wikipedia.org/wiki/Wordle

- **Yellow** (🟨): the letter is in the word, but in the wrong position.
- **Gray** (⬜): the letter is not in the word.

For example:

If the secret word is *"REBUS"* and you guess *"RULES"*, you will see 🟩🟨⬜🟨🟩, meaning that *"R"* and *"S"* is correct and in the right position, *"U"* and *"E"* are in the word but not in the right positions, and *"L"* is not in the word.

2. Homework 1

Requirements

Students are required to recreate the Wordle game (Unlimited version) using **Python**. Here is the detailed requirements:

- The program **MUST HAVE** a **Graphical User Interface (GUI)**, either a web application or a desktop application is acceptable.
- The Unlimited version should allow the players to play multiple rounds (not restricted to one game per day).
- Write a short report describing the features you implemented, export as **.pdf** file.

Submission

Your **source code** and **report** must be contributed in the form of a compressed file (.zip) and named according to the format **StudentID.zip**.

Example details of the directory organization:

```
|-- Source
|---- main.py
|---- README.md (how to run source code)
|---- requirements.txt (libraries to be installed)
|---- …
|-- Report.pdf (included demo video URLs)
```

Note that, you should not include resource files within the submitted folder (icons, logos, images, dictionaries, .etc are considered as resources). The submission should only contain source code, thus it should not be larger than 25MB and can be uploaded to Moodle. The resource files shall be uploaded to online drive(s), instructions on how to download and use it

MUST be clarified in the `README.md` file. No modifications on the drive are allowed after the deadline.

3. Homework 2

In this Homework 2, you will **upgrade** your Wordle project (or create a new variant) to make it more creative and impressive, something that makes your lab instructor say “Wow! 😮”. Here are some ideas you can consider or invent your own:

- Vietnamese Wordle (e.g., Wordle Tiếng Việt): use 5-letter Vietnamese words.
- Nerdle: guess math equations instead of words.
- Heardle: guess a song from short audio clips.
- Quordle: guess 4 words at once.
- Hexle!: guess the hex code of the color.

Follow the same submission instructions as in Homework 1. Note that if you use the idea provided in the above list, you must implement at least 2 of them in combination.

The end.