SCHOOL OF COMPUTER SCIENCES
UNIVERSITI SAINS MALAYSIA
ACADEMIC SESSION: 2023/2024

CPT 111 – PRINCIPLES OF PROGRAMMING
Report-based Programming Assessment 1

Building Simple Dictionary

Develop a program that constructs a special dictionary from a file. The input file only contains words and their meanings, with each word and its meaning separated by a tab on a single line. You are required to create a system to facilitate both reading from a file and then searching within the data constructed in the output file.

For instance, consider the following input format:

```
Place   A specific location or area, often with a particular significance.
Thing   An inanimate object or item.
Think   To have a particular opinion, belief, or idea.
```

Design a program with a menu that allows users to read from the input file and rearranged the file for better search capabilities. The menu should also provide an option to search for a specific word's meaning. The output file should include an index number, the word's initials, the word itself, and its meaning. This information can be used in searching for specific words. If a word is not found, the program should offer suitable feedback and prompt the user to search for more words until they choose the option to stop. Menu should also include displaying the content of the output file to the terminal.

Additionally, functions such as sorting the list without using arrays, adding new words and their meanings, and providing word suggestions to expand the dictionary can be a bonus. It is compulsory to produce at least one output file as the dictionary file and additional files are allowed for other functionalities based on your creativity.

An example of an output file is as follows:

```
30 tell t to communicate information or facts to someone.
31 thing t an inanimate object or item.
32 think t to have a particular opinion, belief, or idea.
```

You program must have the following features:

i. Interactive – menu to aid user, easy to follow and to control the program
ii. Meaningful comments in the source codes

Your documentation need to include everything in your Google Collab. This include:

i. Your information
ii. Description of the question requirements
    a. Analysis of the problem
    b. Identify the specification of the requirements
    c. Design of the program in pseudocode **and** flowchart
    d. Make sure you include inputs, outputs, process and your own constraints and assumptions
iii. The code
iv. Sample of cases tested on your program (use print file instruction)

Restriction for this Report-bases Programming Assessment 1:

- You **must not** use array, function, pointers or any other topics which only covered after week 8.
- You **must not** use global variable **unless** it is a constant variable.
- You **must not** use vector, list, queue, or any possible data structure provided by the built-in C++ library.
- **You may use all the directives** in your programme's pre-processor which you have been exposed to during your class and lab sessions.

How to Submit:

i. Upload your .ipynb file in the submission link provided in the e-Learning.
ii. Name the file with your **name and matric number**.
iii. There is not specific writing font to use. If you need a relative or comparable size, you may use **Times New Roman** or **Calibri** with **size 11 or 12** for the main content. You may use other font size for sub-title / sub-heading. Please do reporting and the code in Google Collab to ease the checking process.
iv. Submit with shell cases that showed the breadth of your program.
v. Make sure the images and documents are saved in **ONE** .ipynb file

Report-based Assessment Duration

i. This question is released at 00:00 on 15th December 2023 and is due to be submitted at 00:00 midnight on 25th December 2023.
ii. Failure to submit within the timeframe will render you not getting any marks.
iii. No submission outside e-Learning platform will be accepted.

Additional Notes

i. **The student(s) allowing their program or report to be copied** by another student will also get '**F**' **together with the student/group they shared their program or report** with.
ii. You may use the Collab reference in here as a guide: https://colab.research.google.com/drive/1jgvndp6VRhh7TC4t3tclJXe2UV9PNgG1?usp=sharing