CPT111: PRINCIPLES OF PROGRAMMING
SEM II 2023/24
ASSIGNMENT 2

Document Checking Application (DCA App)

Nowadays, thanks to the Internet, people have many opportunities to study anytime and anywhere, with easier access to an abundance of information without leaving their homes. However, while this has been a huge benefit to the eLearning industry, it also made it easier for learners to copy content they find online. As students of all ages are expected to write a variety of academic papers, their teachers also expect those papers to be unique and free of plagiarism.

The reality is many students don't want to use a plagiarism checker because they believe that their research is original and don't need to prove anything. However, having plagiarized work can easily get them in serious trouble.

Thus, it is important for instructors to check for plagiarism, to appreciate genuine content and mark students based on their true merit. The detection is also necessary to promote fair education, which can ultimately improve the quality of a country's professional "

[https://studentscholarships.org/articles/267/why-plagiarism-checker-is-important-for-students]

You are required to write C++ program to develop an application called Document Checking Application (DCA App) using C++ program to determine the similarity of the documents. The DCA app is supposed to read both the original text files and the input text files. Then the app should compare the content of the text files to determine if they are identical or not. If the content of both text files is identical, then the apps should print out "**Reject - Both documents are identical**". However, if the content of both text files is not identical, the app is supposed to calculate and display the percentage of similar content and the acceptability status. The status of document acceptability is determined as follows:

- **Accepted** if the percentage of similarity is less than 15%.
- **Accept with a condition to improve the content** if the percentage of similarity is between 15% to 25%.
- **Reject** if the percentage of similarity is above 25%.

The app should list the similar words between the files for the case of **Accepted** and **Accepted with a condition to improve the content**. Furthermore, the application should be capable of showing line numbers that have similar words. The app should ignore the empty space.

The program must at least be able to do the following.

- Read text file (original document) as input.
- Read another text file (to compare document) as input.
- Compare the similarities of the two documents.
- Provide appropriate information as described above.
- A program should continue until a user asks to stop.

The design of the program should meet the following requirements:

General requirements:
- Input validation.
- Interactive menu
- Good Interface Design (i.e. Presentable manner and easy to use and understand)
- Meaningful comments in the source codes

Specific requirements:
- Modular program that consists of several functions to perform a specific task.
- Your program should demonstrate the use of: **2D arrays**, **user defined functions** and passing parameters by **value**, **arrays**, and **reference** as well as **return a value**.
- Read data only once from a text file and store them into appropriate array(s)
- Data must be retrieved and processed from the array(s)

The program must **NOT**:
- Use pointer of array
- Use build in library <vector>
- Open the same file more than once and close it more than once.
- Allow the program to be terminated without the consent of the user.
- Use global variables.

INSTRUCTIONS

- Please submit your assignment individually

- Name your program as follows: **matricNo_assgn2** E.g. `12345_assign2`

- Upload your program to el earning. Deadline: **21 June 2024 11.59 PM**

You must design your own solution and write the program on your own. DO NOT ask GPT!!!