University of Central Lancashire — School of Psychology and Computer Science	**UCLan Coursework Assessment Brief**	2021-2022
	Module Title: Introduction to Programming	
	Module Code: CO1404	Level 4
	Word Filter	This assessment is worth **50%** of the overall module mark

THE BRIEF/INSTRUCTIONS

This assignment was inspired by a report by the BBC about an "overzealous profanity checker' on Virgin Media. Your assignment is to produce a program **using C++** which will read in a list of banned words from a file, as well as an additional text file which will then be filtered using these banned words.

The original BBC article can be found here: http://www.bbc.co.uk/news/technology-16255972

This is an individual project and no group work is permitted.

You will be assessed on your implementation of the solution which **must be produced using C++**.

Do not diverge from the assignment specification. If you do not conform to the assignment specification then you will **lose marks**.

You may conduct your own research into topics which have not been explicitly taught within the module (this will be required for higher marks) however, you should include a justification for its use along side links to any sources in your program comments. **Failure to do so may result in a plagiarism investigation. Only use concepts that you are confident you understand.**

You must upload your code and attend your demonstration (see below), failure to do so will result in a mark of 0.

If you are unable to explain your code sufficiently you will need to attend an interview with the module leader and may lead to a plagiarism investigation.

Learning Outcomes
This assessment has been designed to assess the following learning outcomes:
- Apply the principles of programming.
- Design an appropriate solution for a given problem.
- Implement a readable and maintainable software solution of their own design.
- Evaluate the quality of his or her developed software.

Marking Scheme
Use the marking criteria provided to guide your design for your solution. Please follow this carefully.
Marking bands are indicative and can be overridden at the marker's discretion with justification.

Pass Criteria:
- **10 marks:** The files 'banned.txt' and 'text1.txt' are successfully read into the program.

- **20 marks:** Perform a comparison between the words from 'banned.txt' and the words from 'text1.txt'.
  Hint: it will be easiest to read the banned words from the file into an array.
  You can then read the words from 'text1.txt' and compare them with the words in the array.

- **10 marks:** Display how many times each banned word has been found in 'text1.txt' on the screen.
  i.e.
  'dog' found 0 times
  'cat' found 3 times

  Continued on next page…

3ʳᵈ Criteria:
- Up to **10 marks** will be given for following good programming practices:
- Your code must be properly indented and laid out so that it is readable.
    - Brackets must line up (and should normally be on a line of their own).
    - Indentation must be consistent.
    - Appropriate use of white space should be made.
    - Over-long lines of code or comments should be split up.
- You should have no 'magic numbers' but instead make proper use of constants.
- Variable names should be meaningful and no excessively long.
- Your code should be commented appropriated.

2:2 Criteria:
- **3 marks:** Filter the text from 'text1.txt' by comparing every word with the list of banned words. If you find any word from the banned list then you must replace it with *** (3 asterisks**).**

- **2 marks:** Write the filtered text to an output file: 'text1Filtered.txt'.

- **5 marks:** Use functions to sperate your code into sensible, reusable parts. Comment these functions appropriately.

2:1 Criteria:
- **5 marks:** Read in 'text2.txt', 'text3.txt' and 'text4.txt'. You should extend your text filtration to these files - this will be more difficult as they contain punctuation and upper case characters. Write your filtered text to separate output files so 'text1.txt' is written to 'text1Filtered.txt', 'text2.txt' is written to 'text2Filtered.txt' etc.

- **3 marks:** Filter all instances of the banned words, including instances where the banned word occurs inside another word, e.g. one of the banned words is 'cat' so 'catalogue' is banned because 'cat' occurs inside the word 'catalogue'. For this level it is acceptable to replace the whole word (i.e. catalogue) with *** (3 asterisk).

- **2 marks:** Update your filtration function so it is able to handle both uppercase and lowercase letters. i.e. 'Cat' is banned as well as 'cat'.

1ˢᵗ Criteria:
- **5 marks:** Replace all occurrences of banned word with the correct number of asterisk, e.g. "cat" becomes "***", whilst "classification" becomes "classifi***ion".

- **3 marks:** Display the 10 most frequent words from each file, and for all files combined on the screen.

- **2 marks:** Sort the top 10 words lists into alphabetical order.

High 1ˢᵗ Criteria:
- **10 marks:** Appropriate use of classes within the context of Object Oriented Programming. **Note:** This may require some additional independent research.

- **5 marks:** Instead of replacing the whole of the banned words with asterisks you should only replace the middle character with an asterisk. i.e. end characters left unchanged, e.g.. "cat" becomes "c*t" whilst "classification" becomes "classific*tion".

- **5 marks:** Sort all words from each text file into a single file called 'sorted.txt'

PREPARATION FOR THE ASSESSMENT

Before attempting this assessment, it is highly recommended that you revisit the "**Four L's**":

- **Lectures** – This includes the slides, notes and recording.
- **Lecture notes** – Any notes you took during the lectures.
- **Lab worksheets** – Read over all lab worksheets.
- **Lab projects** – Ensure all projects have at least stage one implemented.

Combined these provide all the necessary information for you to successfully complete this assessment. All resources are available on the CO1404 Blackboard area under *Module Materials.*

RELEASE DATES AND HAND IN DEADLINE

Assessment Release date: 07/03/2022   Assessment Upload Deadline Date and time: **15/04/2022 23:59**

Please note that this is the <u>final</u> time you can submit – not <u>the</u> time to submit!
Any assignments uploaded after this time will be counted as late.

You must attend and demonstrate your assignment in your timetabled lab for either w/c 18/04 or 25/04. Failure to do so will result in a mark of 0.

Your feedback and mark for this assessment will be provided on **23/05/2022**

SUBMISSION DETAILS

Please take your time when reading this section, as this contains specific information on how you should submit your coursework.

- **You must use C++ to develop your solution.**

- Ensure your name and Student ID number (located on the back of your UCLan card) is stated at the top of your code.

- You should submit your **entire** project folder as a zip folder.

- **Do not only submit the .sln file as your code will not be included in your submission.**

- You **must** demonstrate and explain your submission to your tutor in the lab sessions.

    o If you do not attend your demonstration you will receive a mark of 0.

    o If you are unable to explain your code sufficiently you will need to attend an interview with the module leader and may lead to a plagiarism investigation.

- **Late submissions**: Except where an extension of the hand-in deadline date has been approved, work that is handed in within 5 working days late will receive a maximum mark of 40%. Work handed in later than this will receive 0%.

- **Academic Malpractice**: The consequences of academic malpractice in assessments are serious. This includes plagiarism, collusion and allowing other students to access your work. This will not be tolerated. Details surrounding the coursework regulations can be found in the University's "Assessment Handbook" located [here](#).

Below are tips that you may find useful when working on this assessment:

- Do not leave this assessment to the last minute.
- If you have any questions regarding this coursework, ask the module leader or module tutors.
- Give yourself plenty of time to submit prior to the submission deadline.
- Use pen/cil and paper to work out the flow of your application.

HELP AND SUPPORT

- Revisit the "**Four L's**": **L**ectures, **L**ecture notes, **L**ab worksheets and **L**ab projects.

- Support will be provided via Microsoft Teams (CO1404 channel), and email. You will also have the opportunity to ask questions during lectures / labs.
- For support with using library resources, please contact our subject librarian Bob Frost RSFrost@uclan.ac.uk. You will find links to lots of useful resources in the My Library tab on Blackboard.
- If you have not yet made the university aware of any disability, specific learning difficulty, long-term health or mental health condition, please complete a Disclosure Form. The Inclusive Support team will then contact to discuss reasonable adjustments and support relating to any disability. For more information, visit the Inclusive Support site.
- To access mental health and wellbeing support, please complete our online referral form. Alternatively, you can email wellbeing@uclan.ac.uk, call 01772 893020 or visit our UCLan Wellbeing Service pages for more information.
- If you have any other query or require further support you can contact The <i>, The Student Information and Support Centre. Speak with us for advice on accessing all the University services as well as the Library services. Whatever your query, our expert staff will be able to help and support you. For more information, how to contact us and our opening hours visit Student Information and Support Centre.
- If you have any valid mitigating circumstances that mean you cannot meet an assessment submission deadline and you wish to request an extension, you will need to apply online prior to the deadline.

| Disclaimer: The information provided in this assessment brief is correct at time of publication. In the unlikely event that any changes are deemed necessary, they will be communicated clearly via e-mail and a new version of this assessment brief will be circulated. | Version: 1.2 |