COMP10120 Practical Set 7: Random-Access File Processing and the C Pre-processor

Please read the questions carefully. Name each program based on your student number, the practical set number and question number. For this set (set7), question 1 should be named 1234567s7q1.c where your student number replaces 1234567. All questions that you are submitting can be zipped into a single file called 1234567s7.zip, where 1234567 is your student number and s7 refers to set 7. Please also include a readme.txt file which says which compiler you used to test your implementation. This zipped file can be submitted via Moodle for grading.

1. Write a C Program that **defines and uses a macro** which calculates the minimum of 2 integers. Extend this program with another macro to calculate the minimum of 4 integers. This extended program **must** use the macro which calculates the minimum of 2 integers. Submit the extended program. The program should get the input from the user from the console and print the result to the console.

2. Write a C Program that **defines and uses 2 macros;** one macro should print the elements of an integer array and the other macro should print the elements in reverse order. The array can be defined in the program as follows:

```
int myArray[5] = {1, 4, 8, 16, 32};
```

3. Consider the 12 words below. Write a C Program which has functions to do the following:

   - Jumble the order of words
   - Print the words
   - Select a random word

```
"COMP10120" "is" "my" "favourite" "module" "and" "I" "learn" "lots" "of" "interesting"
"things"
```

   NOTE: The program **must demonstrate** the use an array of pointers.

4. You have a large collection of 1000 computer games. Your friends like to borrow games from you. While you are happy to do this, you find it difficult to remember who has borrowed what games. Write a sequence of C Programs which will allow you to set up a system to record/catalogue the books that you have in a file. It should be possible to record details such as, the title, the platform, the developer and the year, but also detail if the book has been borrowed and by whom and when. One program should provide functionality to update these borrower details. Use **Structs** and **Random Access Files** to achieve this.