**Assignment 2 Report D1262015張宇呈**

1. **Initialize buffer capacity:** Let the capacity be the size of a data buffer with an initial value of 512. Declare a pointer to a character as **char \*buffer;** and dynamically allocate 512 characters as the initial memory space of **buffer[]**.
2. **Read input text file:** Open the input text file "Gift\_of\_Magi.txt" and read the file character by character using **fgetc()** until reaching the end of the file. a. If the input character is an English letter, convert it to uppercase and store it in **buffer[]** starting from index 0. When the memory space of **buffer[]** becomes full, extend the size of **buffer** by 512 bytes. b. Ignore the input character if it is not an English letter.
3. **Insert end-of-string:** Insert the end-of-string '\0' following the last input character. Print the number of input English letters, i.e., the length of the string.
4. **Write output text file:** Open an output text file "result.txt" and write the file using **fwrite()**.
5. **Print first 800 characters:** Print the first 800 characters of the input text on the console, with 80 characters in each line.
6. **Count contiguous characters:** Count and report the number of one-character letters, two contiguous character letters, three contiguous character letters, and four or more contiguous character letters.
7. **Count and report vowels:** Count and report the number of occurrences of each vowel: 'A', 'E', 'I', 'O', and 'U'. Print the total vowel count.
8. **Release memory space:** Release the memory space of **buffer[]** using **free(buffer)**.