Exercise #12

- You don't need to turn in your homework, but you should practice all problems because they may probably appear in the later exam. 作業自己練習不用交，之後考試可能會出現類似題目

☐ Problem 1. *Input an email address string, determine whether it is a valid YZU email. A valid YZU email address must be in the form of username@xxx.yzu.edu.tw username and xxx are combinations of any character. For example,*

- *Invalid YZU email address: s91110@yzu.edu.tw abc@yzu.edu.com*
- *Valid YZU email address: s91110@mail.yzu.edu.tw catdog@iii.yzu.edu.tw*
- *You should check …*
- *Does it contain the parts of username@xxx?*
- *Are the last 11 characters '.yzu.edu.tw'?*
- *輸入email address 判斷是否為有效的yzu email，並需檢查前面是否含有username@xxx，以及後面11個字元是否為'.yzu.edu.tw'*

☐ Problem 2. Write a function **get_fname(pathname)** to return the filename without the file extension. 寫一個function, 傳檔名路徑，提取檔案名稱，不含副檔名

- **For example,**
- char * p = get_fname("d:\\vc\\abc.cpp");
- printf("%s", p);
- Output: abc
- Input and output in main() and function processes the string.

☐ Problem 3. Displaying a Sentence with Its Words Reversed.

- Ex. Today is hot ➔hot is Today
- Write a program that inputs a line of text, tokenizes the line with function strtok and outputs the tokens in reverse order.
- void reverse_word(char *s1, char *s2);
- reverse words of s1 and store in s2. initialize s2 to 0 in main()
- Input and output in main() and function processes the string.
- Hint: use a char* pointer array to store the token pointers
- 使用指標陣列接收token指標

☐ Problem 4. Given a string, you need to reverse the order of characters in each word within a sentence while still preserving whitespace and initial word order.

- Ex. Today is hot ➔ yadoT si toh
- **Note:** In the string, each word is separated by single space and there will not be any extra space in the string.

- Problem 5. Uncommon Words from Two Sentences
  - We are given two sentences A and B. (A sentence is a string of space separated words. Each word consists only of lowercase letters.)
  - A word is uncommon if it appears exactly once in one of the sentences, and does not appear in the other sentence.
  - Return a list of all uncommon words. You may return the list in any order.
  - Note:
    - 0 <= A.length <= 200
    - 0 <= B.length <= 200
    - A and B both contain only spaces and lowercase letters.
  - **Example 1**:
    - Input: A = "this apple is sweet", B = "this apple is sour"
    - Output: ["sweet","sour"]
  - **Example 2**:
    - Input: A = "apple apple", B = "banana"
    - Output: ["banana"]

- Problem 6. Word Pattern
  - Given a pattern and a string str, find if str follows the same pattern.
  - Here follow means a full match, such that there is a bijection between a letter in pattern and a non-empty word in str.
  - Notes: You may assume pattern contains only lowercase letters, and str contains lowercase letters that may be separated by a single space.
  - **Example 1:**
  - Input: pattern = "abba", str = "dog cat cat dog"
  - Output: true
  - **Example 2:**
  - Input:pattern = "abba", str = "dog cat cat fish"
  - Output: false
  - **Example 3:**
  - Input: pattern = "aaaa", str = "dog cat cat dog"
  - Output: false
  - **Example 4:**
  - Input: pattern = "abba", str = "dog dog dog dog"
  - Output: false

- Problem 7. Integer to English Words
  - Convert a non-negative integer to its English words representation. Given input is guaranteed to be less than 2^{31} - 1.

- Ref. https://leetcode.com/problems/integer-to-english-words/discuss/286027/C%2B%2B-4ms-100-Concise-solution-using-3-digit-chunks-no-recursion

- **Example 1:**
  - Input: 123
  - Output: "One Hundred Twenty Three"
- **Example 2:**
  - Input: 12345
  - Output: "Twelve Thousand Three Hundred Forty Five"
- **Example 3:**
  - Input: 1234567
  - Output: "One Million Two Hundred Thirty Four Thousand Five Hundred Sixty Seven"
- **Example 4:**
  - Input: 1234567891
  - Output: "One Billion Two Hundred Thirty Four Million Five Hundred Sixty Seven Thousand Eight Hundred Ninety One"