

## Programming Languages Homework 4-1

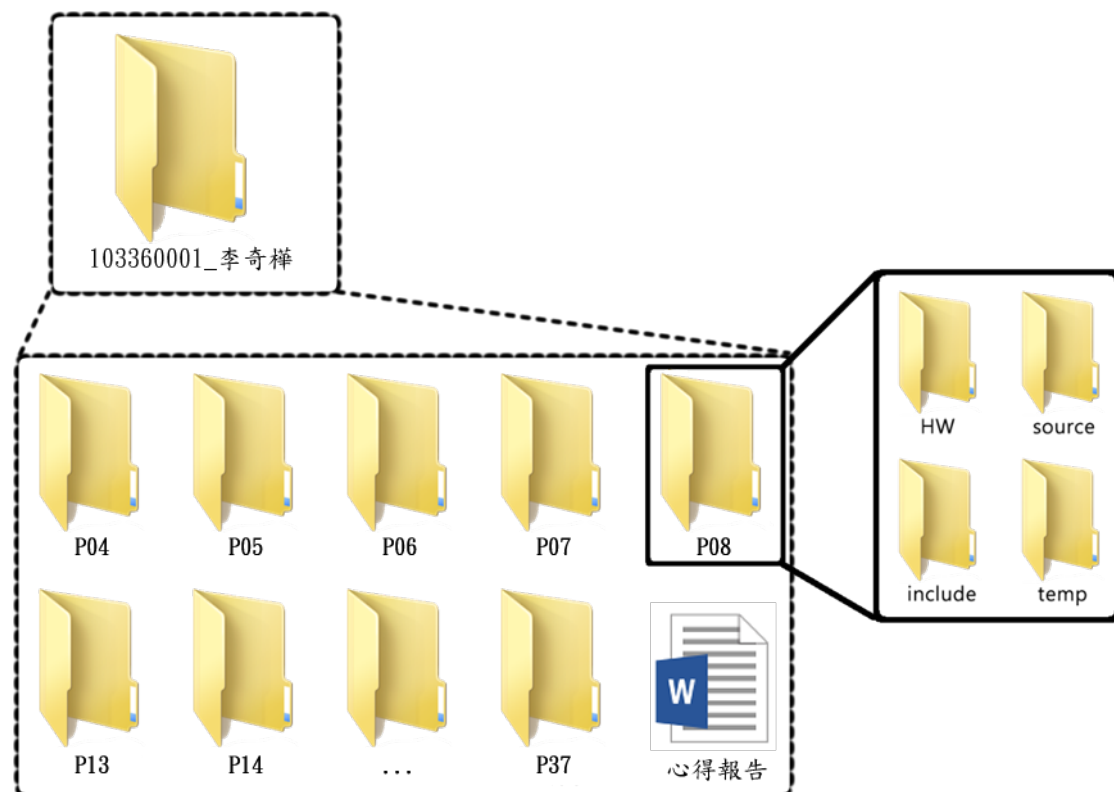
功課習題：[第四章投影片]

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|--------|---------|
| 1. P04 | 8. P19  |
| 2. P05 | 9. P21  |
| 3. P06 | 10. P25 |
| 4. P07 | 11. P26 |
| 5. P08 | 12. P28 |
| 6. P13 | 13. P30 |
| 7. P14 | 14. P37 |

繳交期限：11/14 (一) 晚上 11:59 前

繳交格式：103360001\_李奇樺.zip

繳交內容：心得報告(包含:上傳到 GitHub 的截圖)和 Lab 所檢查之程式檔案，如下圖



上傳位置：Homework\Upload

帳號、密碼：CC

如無法上傳可 Mail 繳交的作業檔案(zip)至

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## Programming Languages Homework 4-2

功課習題：

1. 6.11

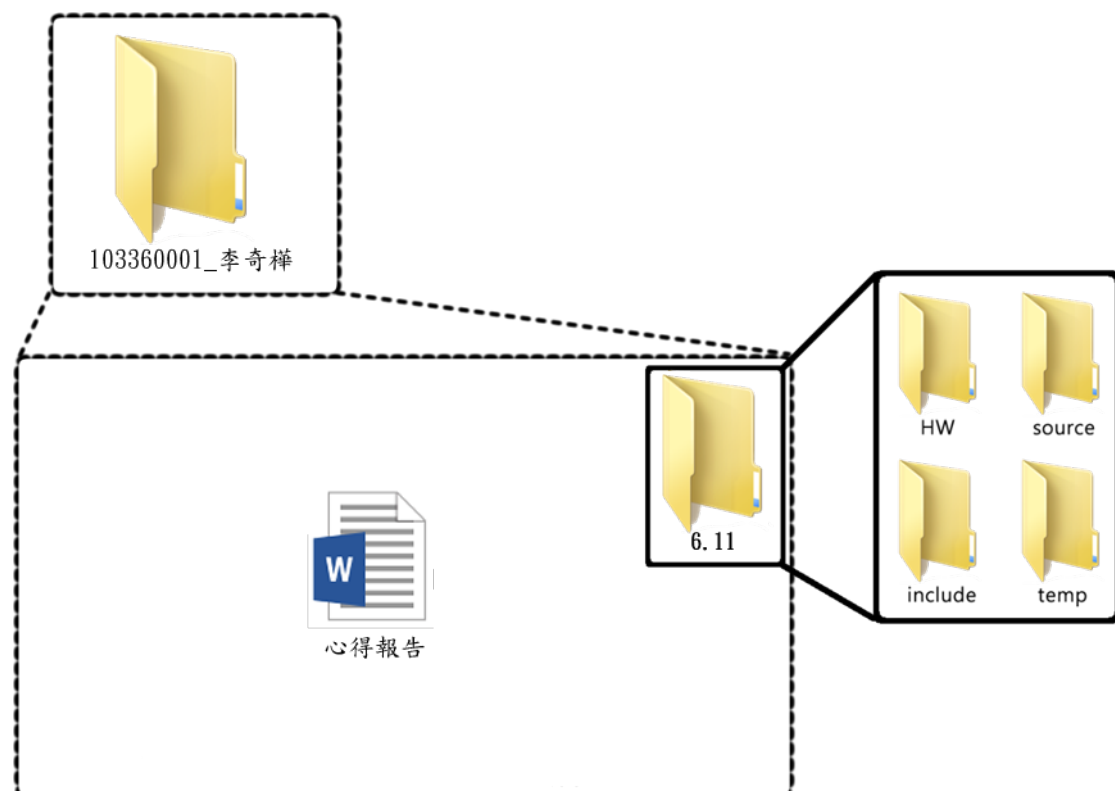
備註：

1.) 未購買課本者請參閱此頁後面，將附上功課習題的掃描圖片(第七版)。

繳交期限：11/21 (一) 晚上 11:59 前

繳交格式：103360001\_李奇樺.zip

繳交內容：心得報告(包含:上傳到 GitHub 的截圖)和 Lab 所檢查之程式檔案，  
如下圖



上傳位置：<http://140.124.73.33/CPL/Homework/HW4-2/Upload/>

帳號、密碼：CC

上傳位置：Homework\Upload

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如無法上傳可 Mail 繳交的作業檔案(zip)至

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**6.11** (*Bubble Sort*) The bubble sort presented in Fig. 6.15 is inefficient for large arrays. Make the following simple modifications to improve its performance.

- a) After the first pass, the largest number is guaranteed to be in the highest-numbered element of the array; after the second pass, the two highest numbers are "in place," and so on. Instead of making nine comparisons on every pass, modify the bubble sort to make eight comparisons on the second pass, seven on the third pass and so on.
- b) The data in the array may already be in the proper or near-proper order, so why make nine passes if fewer will suffice? Modify the sort to check at the end of each pass whether any swaps have been made. If none has been made, then the data must already be in the proper order, so the program should terminate. If swaps have been made, then at least one more pass is needed.