**NCTU OS HW1 report 2018**

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| Name |  | Student Id |  |

**Q1. hw1\_1**

Run your code and show the difference between osh> ps –f and osh>ps –f &. You also need to explain and how to implement “&”.

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| First check if & was in the argument. Then parent won’t wait if & was in the argument. But according to spec, all zombie processes will be reaped if background wasn’t happened. So wait(NULL) until no child process first, then fork a new child process to execute the shell program not backgrounded. |

**Q2. hw1\_2**

Tree format(according OS\_hw1.pdf/p.12):

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**Q3. hw1-3**

Please put your result(screen shot).

Also write down the problems you met and solutions.

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| Result |
| Problems & solutions   1. In order to print Fork process in the asked order, some adjest should be made. Because the child process should end earlier for parent to exit waiting state, single printf can’t solve. So I print it right after every fork. 2. The getpid() must be used to get the Main process pid, I’ve tried to do it just with fork, but it seems to be impossible unless I make the first child the main process. |