

1.

```
int double_fork()
{
    int pid_1, pid_2;
    int pfd[2];
    pipe (pfd);
    if ( ( pid_1= vfork( ) ) == 0 ) {
        if ( ( pid_2=fork( ) ) != 0 ) {
            exit (0);
        }
        else{
            read (pfd[0]);
            close (pfd);
            //grandchildren process
        }
    }
    waitpid (pid_1);
    write (pfd[1]);
    close (pfd);
    return pid_2;
}
```

2.

- (a) It make it easier to synchronize the file.
- (b) Hard link. It has the advantage that when Output Box delete or change a related directory, the file in the Input Box won't be affected. In addition, when using symbolic link, one will have to give 'x' access right of all the directories in the path to the other.
- (c) (1) - w x (2) - - - (3) - - x
- (d) Yes, he can. Because removing a file from a directory only needs the access right of the directory.