Assignment Summary

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1. Solution summary

In this assignment, we need to simulate a mini shell. So we need to start from what is the shell and how does shell works.

1) What is shell?

The shell is a program that takes your commands from the keyboard and gives them to the operating system to perform

2) How does shell works?

The job shell do is start a process in kernel or itself. In Unix, to start a process we need to create a process which is done by fork() and then let the child process replace the parent process which is done by exec().

So, this is the basic logic of shell, fork() to create a child process and let child process execute the command through execvp().

3) How does this assignment do?

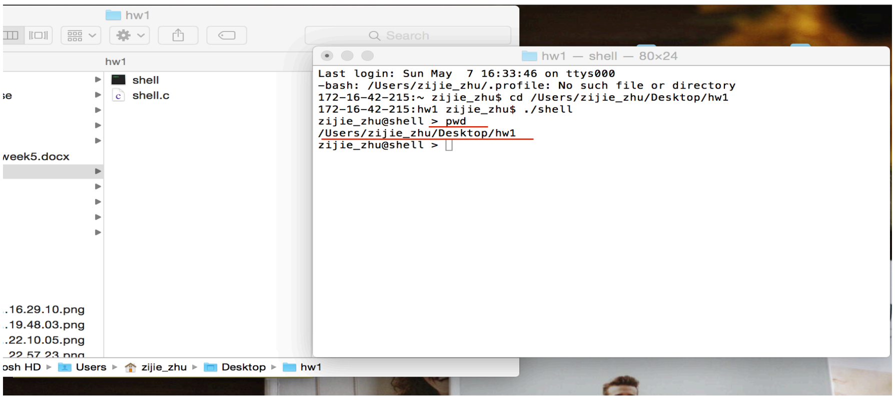
Now , we are clear about the logic of shell, so the job our assignment is:

1. read user commend
2. format user commend to be the parameters to execute
3. execute the commend with simulating the shell logic: 1) fork() 2) execvp()

2. Test Screenshot

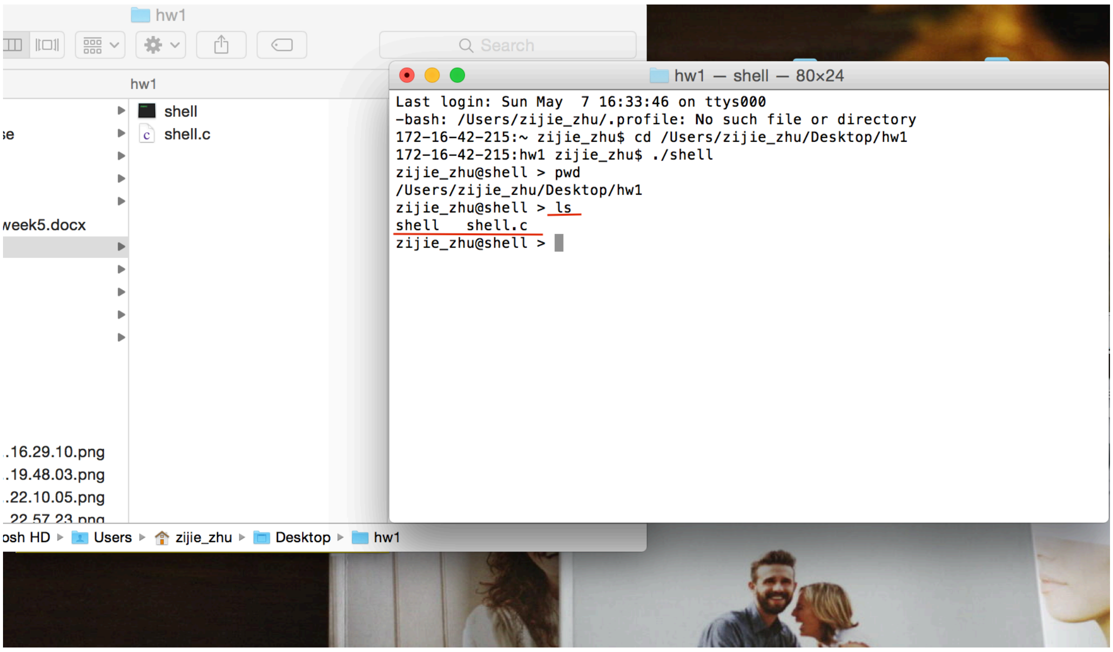
As I didn't add commands to the shell as build-ins, this mini shell can't support cd or pipeline. Here are some of functions it supports:

1) pwd



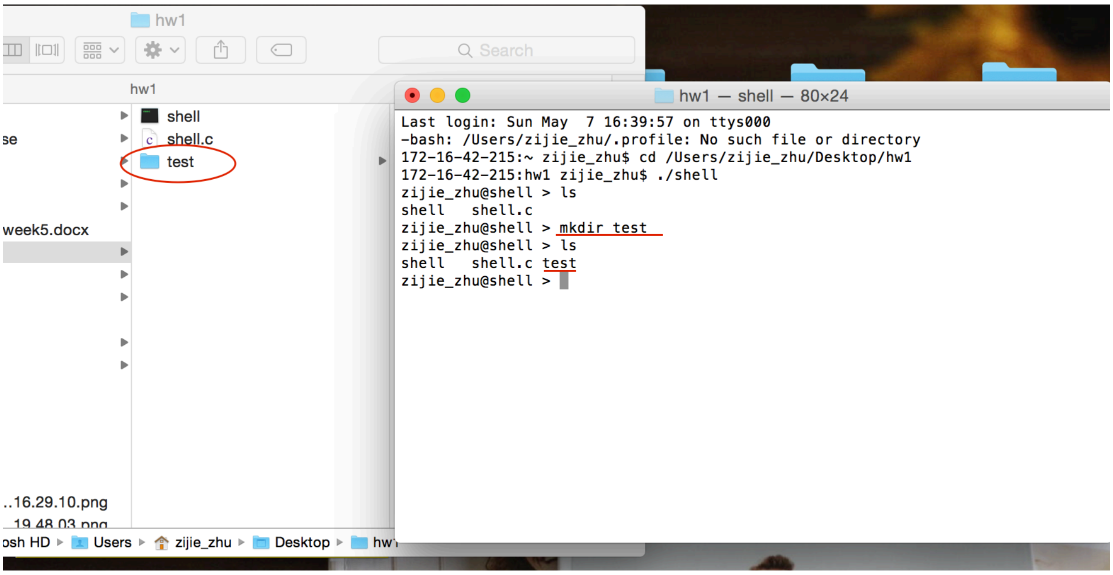
```
Last login: Sun May  7 16:33:46 on ttys000
-bash: /Users/zijie_zhu/.profile: No such file or directory
172-16-42-215:~ zijie_zhu$ cd /Users/zijie_zhu/Desktop/hw1
172-16-42-215:hw1 zijie_zhu$ ./shell
zijie_zhu@shell > pwd
/Users/zijie_zhu/Desktop/hw1
zijie_zhu@shell > 
```

2) ls



```
Last login: Sun May  7 16:33:46 on ttys000
-bash: /Users/zijie_zhu/.profile: No such file or directory
172-16-42-215:~ zijie_zhu$ cd /Users/zijie_zhu/Desktop/hw1
172-16-42-215:hw1 zijie_zhu$ ./shell
zijie_zhu@shell > pwd
/Users/zijie_zhu/Desktop/hw1
zijie_zhu@shell > ls
shell    shell.c
zijie_zhu@shell >
```

3) mkdir



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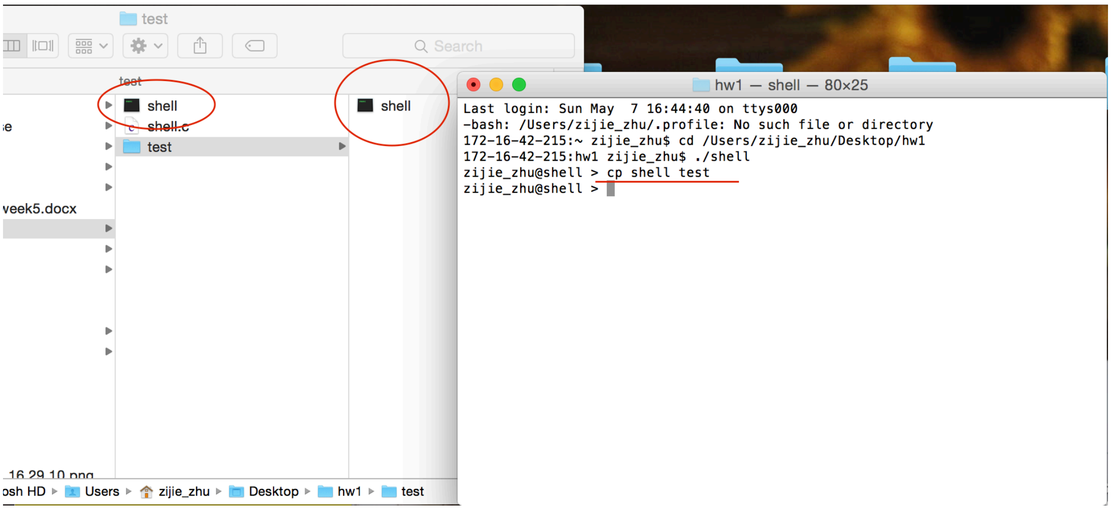
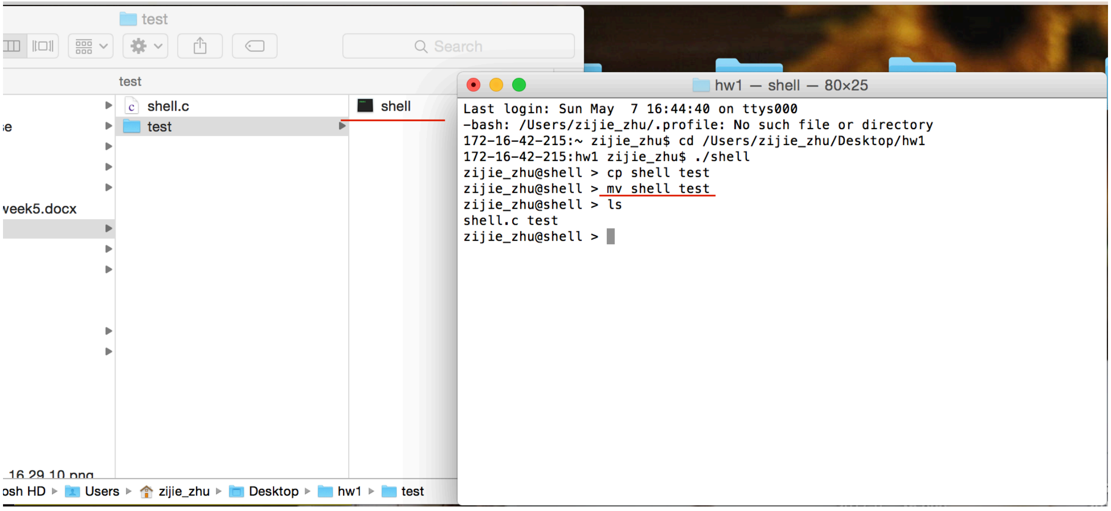
Last login: Sun May  7 16:39:57 on ttys000
-bash: /Users/zijie_zhu/.profile: No such file or directory
172-16-42-215:~ zijie_zhu$ cd /Users/zijie_zhu/Desktop/hw1
172-16-42-215:hw1 zijie_zhu$ ./shell
zijie_zhu@shell > ls
shell    shell.c
zijie_zhu@shell > mkdir test
zijie_zhu@shell > ls
shell    shell.c test
zijie_zhu@shell >
```

4) cp



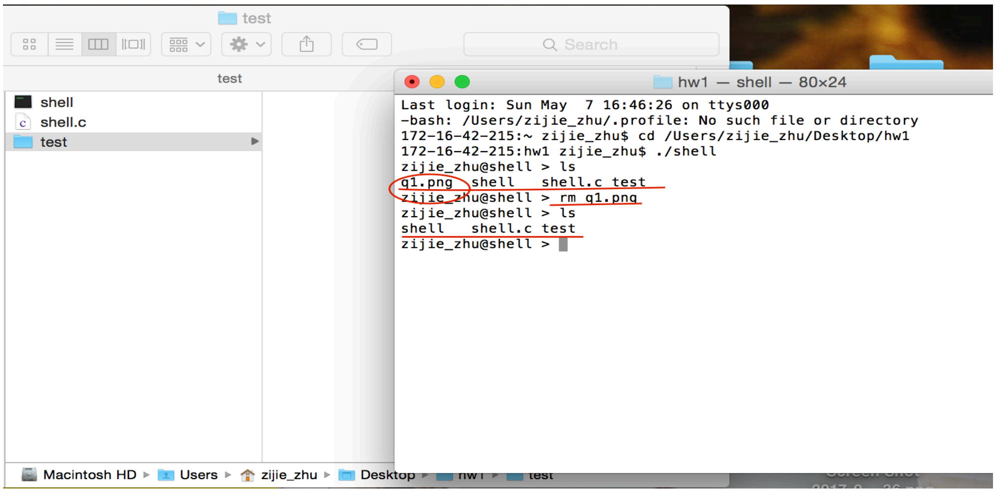
```
Last login: Sun May  7 16:44:40 on ttys000
-bash: /Users/zijie_zhu/.profile: No such file or directory
172-16-42-215:~ zijie_zhu$ cd /Users/zijie_zhu/Desktop/hw1
172-16-42-215:hw1 zijie_zhu$ ./shell
zijie_zhu@shell > cp shell test
zijie_zhu@shell > 
```

5) mv



```
Last login: Sun May  7 16:44:40 on ttys000
-bash: /Users/zijie_zhu/.profile: No such file or directory
172-16-42-215:~ zijie_zhu$ cd /Users/zijie_zhu/Desktop/hw1
172-16-42-215:hw1 zijie_zhu$ ./shell
zijie_zhu@shell > cp shell test
zijie_zhu@shell > mv shell test
zijie_zhu@shell > ls
shell.c test
zijie_zhu@shell > 
```

6) rm



```
Last login: Sun May  7 16:46:26 on ttys000
-bash: /Users/zijie_zhu/.profile: No such file or directory
172-16-42-215:~ zijie_zhu$ cd /Users/zijie_zhu/Desktop/hw1
172-16-42-215:hw1 zijie_zhu$ ./shell
zijie_zhu@shell > ls
q1.png  shell   shell.c test
zijie_zhu@shell > rm q1.png
zijie_zhu@shell > ls
shell   shell.c test
zijie_zhu@shell > 
```

Reference:

1) **https://brennan.io/2015/01/16/write-a-shell-in-c/**

2) **http://blog.csdn.net/u011915301/article/details/39211053**(About why need apply fork() before execvp())

3) **http://blog.csdn.net/u011915301/article/details/39211053**

4) **http://www.cnblogs.com/lenomirei/p/5616797.html** (About why this method can't support cd)