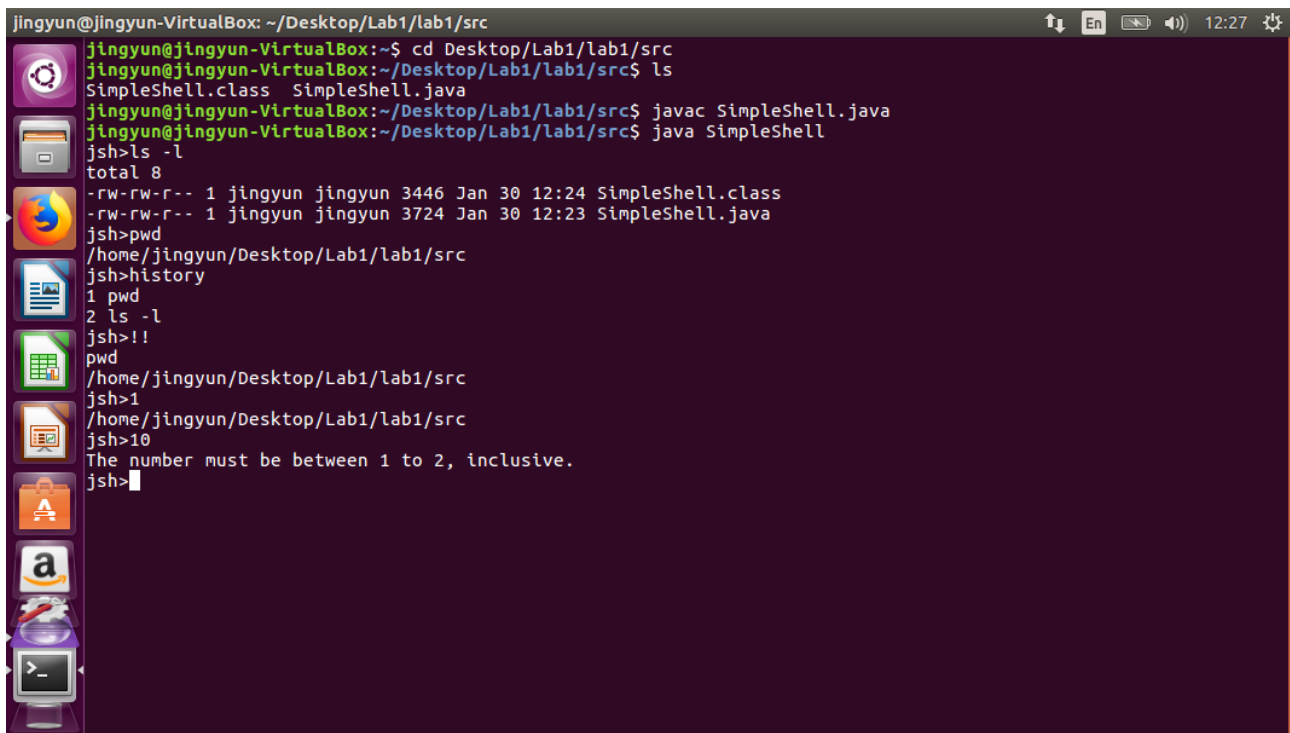


```
jingyun@jingyun-VirtualBox: ~/Desktop/Lab1/lab1/src
jingyun@jingyun-VirtualBox:~/Desktop/Lab1/lab1/src$ java SimpleShell
jsh>ls -l
total 8
-rw-rw-r-- 1 jingyun jingyun 3429 Jan 30 12:30 SimpleShell.class
-rw-rw-r-- 1 jingyun jingyun 3728 Jan 30 12:29 SimpleShell.java
jsh>mkdir sampleFolder
jsh>ls
sampleFolder
SimpleShell.class
SimpleShell.java
jsh>wronginput
Cannot run program "wronginput": error=2, No such file or directory
jsh>
```

(1) external process created by using Java 8 ProcessBuilder

```
jingyun@jingyun-VirtualBox: ~/Desktop/Lab1/lab1/src
jingyun@jingyun-VirtualBox:~/Desktop/Lab1/lab1/src$ java SimpleShell
jsh>pwd
/home/jingyun/Desktop/Lab1/lab1/src
jsh>cd ..
jsh>ls
bin
src
jsh>cd bin
jsh>pwd
/home/jingyun/Desktop/Lab1/lab1/bin
jsh>cd unknowfolder
error new directory is invlid /home/jingyun/Desktop/Lab1/lab1/bin/unkownfolder
jsh>
```

(2) Changing directory. Changing directory was acheived by using Java ProcessBuilder.directory function



```
jingyun@jingyun-VirtualBox: ~/Desktop/Lab1/lab1/src
jingyun@jingyun-VirtualBox:~$ cd Desktop/Lab1/lab1/src
jingyun@jingyun-VirtualBox:~/Desktop/Lab1/lab1/src$ ls
SimpleShell.class  SimpleShell.java
jingyun@jingyun-VirtualBox:~/Desktop/Lab1/lab1/src$ javac SimpleShell.java
jingyun@jingyun-VirtualBox:~/Desktop/Lab1/lab1/src$ java SimpleShell
jsh>ls -l
total 8
-rw-rw-r-- 1 jingyun jingyun 3446 Jan 30 12:24 SimpleShell.class
-rw-rw-r-- 1 jingyun jingyun 3724 Jan 30 12:23 SimpleShell.java
jsh>pwd
/home/jingyun/Desktop/Lab1/lab1/src
jsh>history
1 pwd
2 ls -l
jsh>!!
pwd
/home/jingyun/Desktop/Lab1/lab1/src
jsh>1
/home/jingyun/Desktop/Lab1/lab1/src
jsh>10
The number must be between 1 to 2, inclusive.
jsh>
```

(3) History. For the history function, LinkedList was used. LinkedList.addFirst function was used to ensure the latest functions were at the front of the LinkedList.

Only relevant commands were stored in history. Command received is checked, if it is 'history', '!!' or a number, it is not recorded in history

When an integer is entered, it is checked. If the integer is >0 and if it is smaller or equal to the size of the history linked list, the relevant command is then executed.

If the integer is not valid, the error message is generated, it tells the user the appropriate numbers that can be accepted. Relevant integers accept are 1 till the size of the history linked list, inclusive.