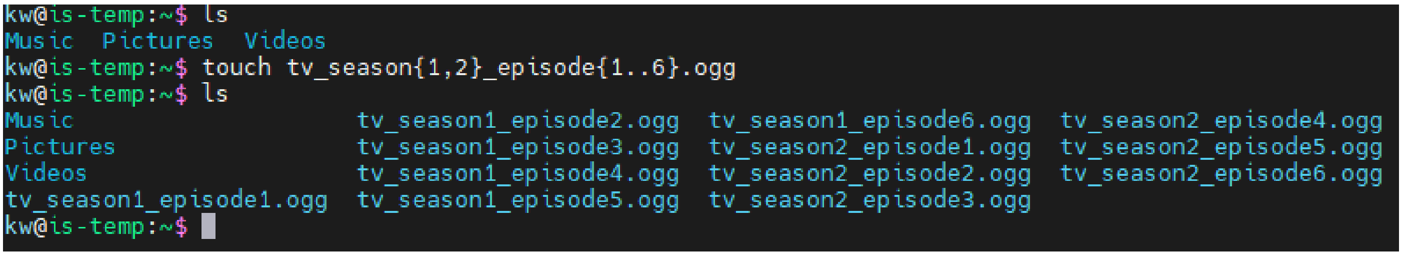
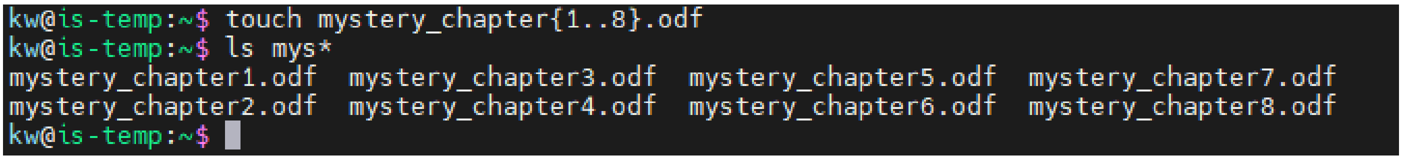
Assignment 2: Managing Files with Shell Expansion

1. Create an initial set of empty practice files to use in this lab. This should consist of 12 "recorded video files" with names of the form tv_seasonX_episodeY.ogg. Replace X with the season number (1 or 2). Replace Y with an episode number (1 through 6). This should result in two "seasons" of six "episodes" each. Use the ls command with a wildcard to check your work by listing all the files with names that start with tv.



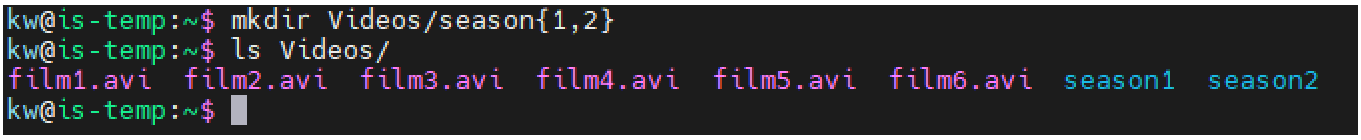
```
kw@is-temp:~$ ls
Music  Pictures  Videos
kw@is-temp:~$ touch tv_season{1,2}_episode{1..6}.ogg
kw@is-temp:~$ ls
Music                      tv_season1_episode2.ogg  tv_season1_episode6.ogg  tv_season2_episode4.ogg
Pictures                   tv_season1_episode3.ogg  tv_season2_episode1.ogg  tv_season2_episode5.ogg
Videos                     tv_season1_episode4.ogg  tv_season2_episode2.ogg  tv_season2_episode6.ogg
tv_season1_episode1.ogg  tv_season1_episode5.ogg  tv_season2_episode3.ogg
kw@is-temp:~$ 
```

2. As the author of a successful series of mystery novels, your next bestseller's chapters are being edited for publishing. Create a total of eight files with names mystery_chapterX.odf. Replace X with the numbers 1 through 8. Check your work by listing all the files with names that start with mys.



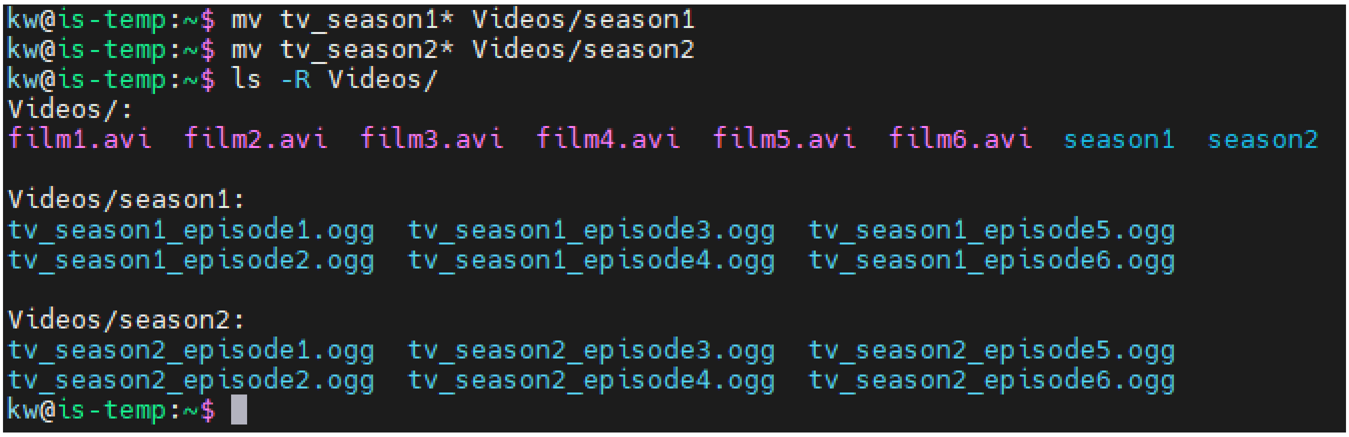
```
kw@is-temp:~$ touch mystery_chapter{1..8}.odf
kw@is-temp:~$ ls mys*
mystery_chapter1.odf  mystery_chapter3.odf  mystery_chapter5.odf  mystery_chapter7.odf
mystery_chapter2.odf  mystery_chapter4.odf  mystery_chapter6.odf  mystery_chapter8.odf
kw@is-temp:~$ 
```

3. From the home directory, create two subdirectories named season1 and season2 under the Videos directory. Use one command. (Hint: if Videos does not exist from an earlier exercise, the -p option for mkdir will create any missing parent directories if necessary.)



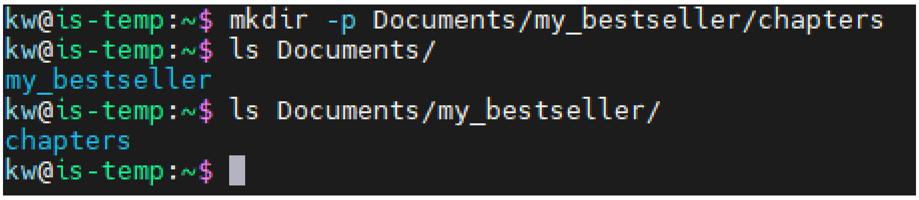
```
kw@is-temp:~$ mkdir Videos/season{1,2}
kw@is-temp:~$ ls Videos/
film1.avi  film2.avi  film3.avi  film4.avi  film5.avi  film6.avi  season1  season2
kw@is-temp:~$ 
```

4. Move the appropriate tv_seasonX_episodeY.ogg files into the season1 and season2 subdirectories. Use only two commands, specifying destinations using relative paths.



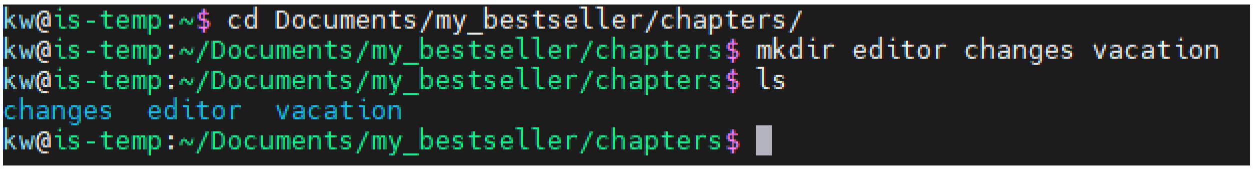
```
kw@is-temp:~$ mv tv_season1* Videos/season1
kw@is-temp:~$ mv tv_season2* Videos/season2
kw@is-temp:~$ ls -R Videos/
Videos/:
film1.avi  film2.avi  film3.avi  film4.avi  film5.avi  film6.avi  season1  season2

Videos/season1:
tv_season1_episode1.ogg  tv_season1_episode3.ogg  tv_season1_episode5.ogg
tv_season1_episode2.ogg  tv_season1_episode4.ogg  tv_season1_episode6.ogg

Videos/season2:
tv_season2_episode1.ogg  tv_season2_episode3.ogg  tv_season2_episode5.ogg
tv_season2_episode2.ogg  tv_season2_episode4.ogg  tv_season2_episode6.ogg
kw@is-temp:~$ 
```

5. To organize the mystery book chapters, create a two-level directory hierarchy with one command. Create the directory my_bestseller under the Documents directory, and the directory chapters beneath the new my_bestseller directory



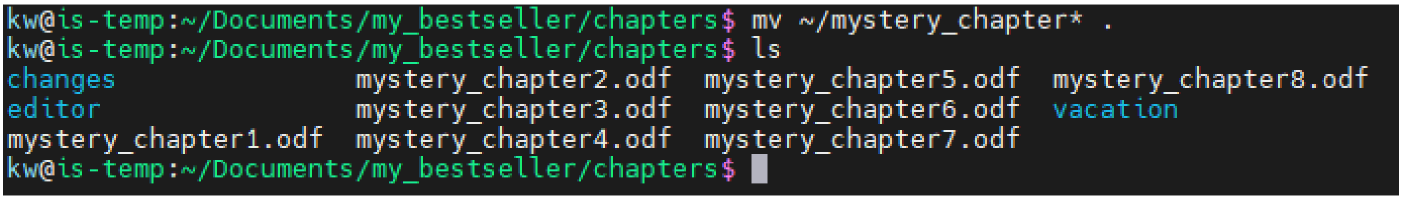
```
kw@is-temp:~$ mkdir -p Documents/my_bestseller/chapters
kw@is-temp:~$ ls Documents/
my_bestseller
kw@is-temp:~$ ls Documents/my_bestseller/
chapters
kw@is-temp:~$ 
```

6. Using one command, create three more subdirectories directly under the my_bestseller directory. Name these subdirectories editor, changes, and vacation. The create parent (-p) option is not needed since the my_bestseller parent directory already exists.



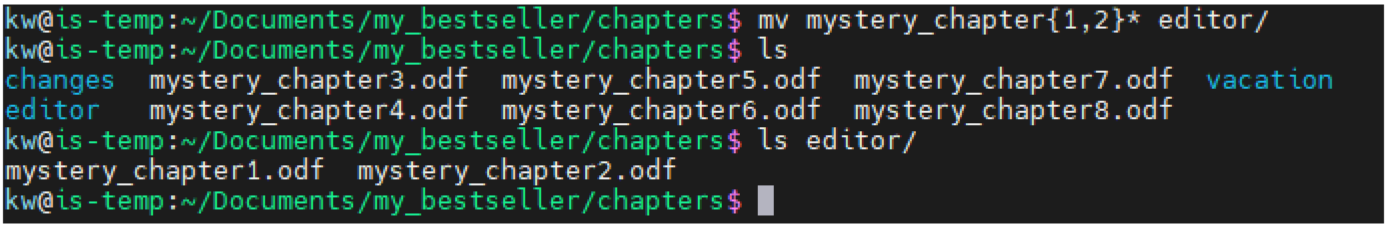
```
kw@is-temp:~$ cd Documents/my_bestseller/chapters/
kw@is-temp:~/Documents/my_bestseller/chapters$ mkdir editor changes vacation
kw@is-temp:~/Documents/my_bestseller/chapters$ ls
changes   editor   vacation
kw@is-temp:~/Documents/my_bestseller/chapters$ 
```

7. Change to the chapters directory. Using the tilde (~) home directory shortcut to specify the source files, move all book chapters into the chapters directory, which is now your current directory. What is the simplest syntax to specify the destination directory?



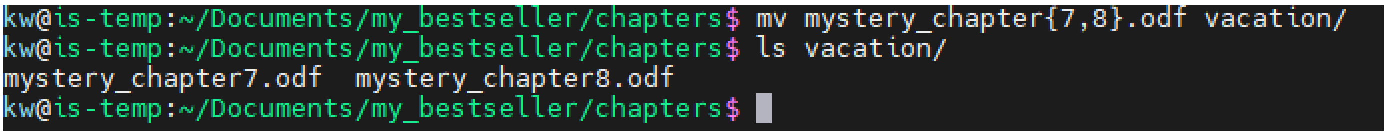
```
kw@is-temp:~/Documents/my_bestseller/chapters$ mv ~/mystery_chapter* .
kw@is-temp:~/Documents/my_bestseller/chapters$ ls
changes               mystery_chapter2.odf  mystery_chapter5.odf  mystery_chapter8.odf
editor                mystery_chapter3.odf  mystery_chapter6.odf  vacation
mystery_chapter1.odf  mystery_chapter4.odf  mystery_chapter7.odf
kw@is-temp:~/Documents/my_bestseller/chapters$ 
```

8. The first two chapters are sent to the editor for review. To remember to not modify these chapters during the review, move those two chapters only to the editor directory. Starting from the chapters subdirectory, use brace expansion with a range to specify the chapter file names to copy and a relative path for the destination directory.



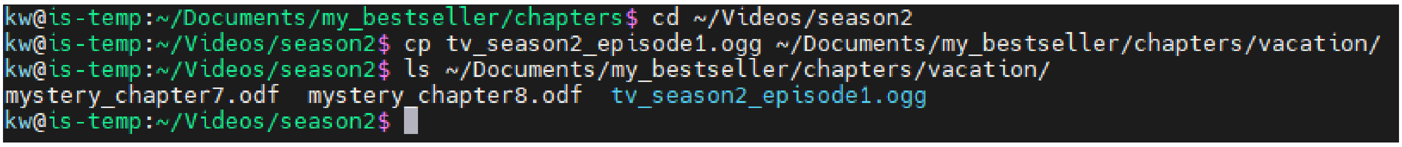
```
kw@is-temp:~/Documents/my_bestseller/chapters$ mv mystery_chapter{1,2}* editor/
kw@is-temp:~/Documents/my_bestseller/chapters$ ls
changes   mystery_chapter3.odf  mystery_chapter5.odf  mystery_chapter7.odf  vacation
editor    mystery_chapter4.odf  mystery_chapter6.odf  mystery_chapter8.odf
kw@is-temp:~/Documents/my_bestseller/chapters$ ls editor/
mystery_chapter1.odf  mystery_chapter2.odf
kw@is-temp:~/Documents/my_bestseller/chapters$ 
```

9. Chapters 7 and 8 will be written while on vacation. Move the files from chapters to vacation. Use one command, specifying the chapter file names using brace expansion with a list of strings and without using wildcard characters.



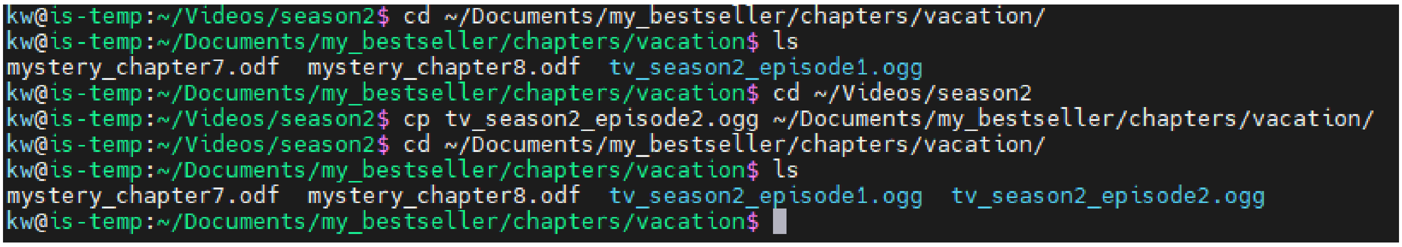
```
kw@is-temp:~/Documents/my_bestseller/chapters$ mv mystery_chapter{7,8}.odf vacation/
kw@is-temp:~/Documents/my_bestseller/chapters$ ls vacation/
mystery_chapter7.odf  mystery_chapter8.odf
kw@is-temp:~/Documents/my_bestseller/chapters$ 
```

10. Change your working directory to ~/Videos/season2, then copy the first episode of the season to the vacation directory.



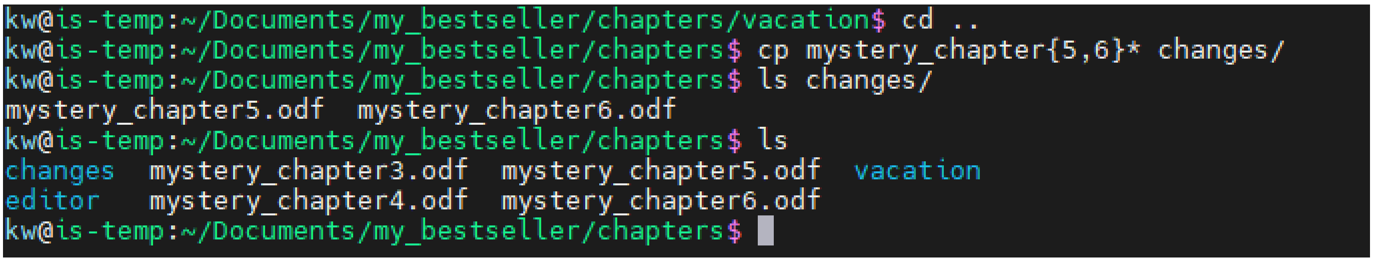
```
kw@is-temp:~/Documents/my_bestseller/chapters$ cd ~/Videos/season2
kw@is-temp:~/Videos/season2$ cp tv_season2_episode1.ogg ~/Documents/my_bestseller/chapters/vacation/
kw@is-temp:~/Videos/season2$ ls ~/Documents/my_bestseller/chapters/vacation/
mystery_chapter7.odf  mystery_chapter8.odf  tv_season2_episode1.ogg
kw@is-temp:~/Videos/season2$ 
```

11. With one cd command, change your working directory to ~/Documents/my_bestseller/vacation. List its files. Return to the season2 directory using cd with its previous working directory argument. (This will succeed if the last directory change with cd was accomplished with one command rather than several cd commands.) Copy the episode 2 file into vacation. Return to vacation using the cd shortcut again.



```
kw@is-temp:~/Videos/season2$ cd ~/Documents/my_bestseller/chapters/vacation/
kw@is-temp:~/Documents/my_bestseller/chapters/vacation$ ls
mystery_chapter7.odf  mystery_chapter8.odf  tv_season2_episode1.ogg
kw@is-temp:~/Documents/my_bestseller/chapters/vacation$ cd ~/Videos/season2
kw@is-temp:~/Videos/season2$ cp tv_season2_episode2.ogg ~/Documents/my_bestseller/chapters/vacation/
kw@is-temp:~/Videos/season2$ cd ~/Documents/my_bestseller/chapters/vacation/
kw@is-temp:~/Documents/my_bestseller/chapters/vacation$ ls
mystery_chapter7.odf  mystery_chapter8.odf  tv_season2_episode1.ogg  tv_season2_episode2.ogg
kw@is-temp:~/Documents/my_bestseller/chapters/vacation$ 
```

12. Chapters 5 and 6 may need a plot change. To prevent these changes from modifying original files, copy both files into changes. Move up one directory to the parent directory of vacation, then use one command from there. Try using square bracket pattern matching to specify which chapter numbers to match in the file name with the copy command.

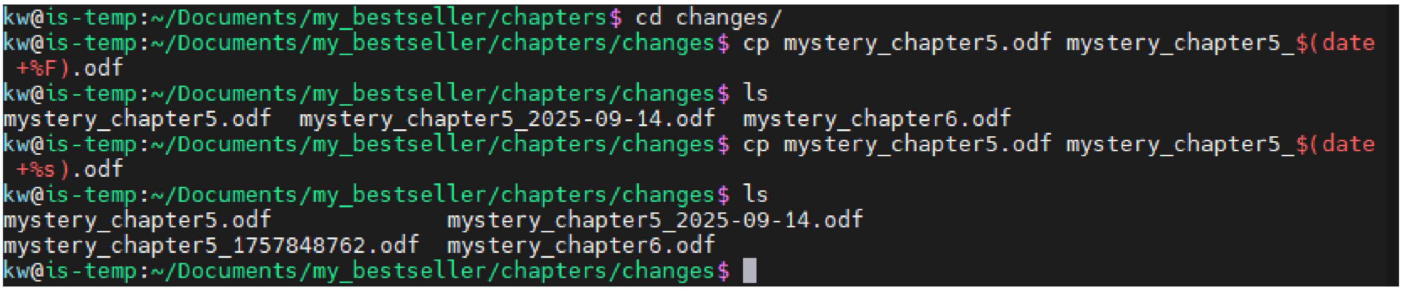


```
kw@is-temp:~/Documents/my_bestseller/chapters/vacation$ cd ..
kw@is-temp:~/Documents/my_bestseller/chapters$ cp mystery_chapter{5,6}* changes/
kw@is-temp:~/Documents/my_bestseller/chapters$ ls changes/
mystery_chapter5.odf  mystery_chapter6.odf
kw@is-temp:~/Documents/my_bestseller/chapters$ ls
changes  mystery_chapter3.odf  mystery_chapter5.odf  vacation
editor   mystery_chapter4.odf  mystery_chapter6.odf
kw@is-temp:~/Documents/my_bestseller/chapters$ 
```

13. Change your current directory to the changes directory.

Use the date +%F command with command substitution to copy mystery_chapter5.odf to a new file name which includes the full date. The name should have the form mystery_chapter5_YYYY-MM-DD.odf.

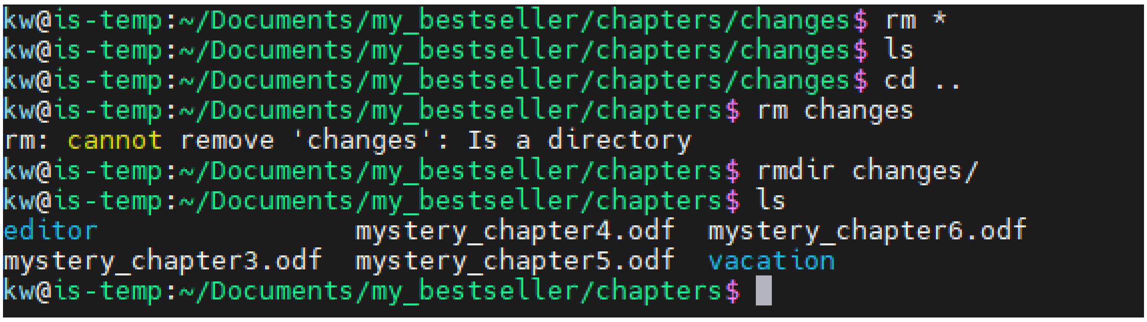
Make another copy of mystery_chapter5.odf, appending the current timestamp (as the number of seconds since the epoch, 1970-01-01 00:00 UTC) to ensure a unique file name. Use command substitution with the date +%s command to accomplish this.



```
kw@is-temp:~/Documents/my_bestseller/chapters$ cd changes/
kw@is-temp:~/Documents/my_bestseller/chapters/changes$ cp mystery_chapter5.odf mystery_chapter5_$(date
 +%F).odf
kw@is-temp:~/Documents/my_bestseller/chapters/changes$ ls
mystery_chapter5.odf  mystery_chapter5_2025-09-14.odf  mystery_chapter6.odf
kw@is-temp:~/Documents/my_bestseller/chapters/changes$ cp mystery_chapter5.odf mystery_chapter5_$(date
 +%s).odf
kw@is-temp:~/Documents/my_bestseller/chapters/changes$ ls
mystery_chapter5.odf             mystery_chapter5_2025-09-14.odf
mystery_chapter5_1757848762.odf  mystery_chapter6.odf
kw@is-temp:~/Documents/my_bestseller/chapters/changes$ 
```

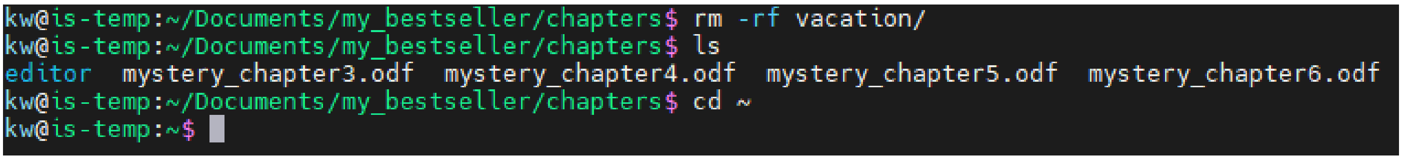
14. Delete the changes directory in the following way.

First, delete all of the files in the changes directory. The current working directory should be changes at this point. Change to its parent directory, because a directory cannot be deleted while it is the current working directory. Try to delete the empty directory using the rm command without the recursive option. This attempt should fail. (If you had used the option, it would succeed.) Finally, use the rmdir command to delete the empty directory, which will succeed.



```
kw@is-temp:~/Documents/my_bestseller/chapters/changes$ rm *
kw@is-temp:~/Documents/my_bestseller/chapters/changes$ ls
kw@is-temp:~/Documents/my_bestseller/chapters/changes$ cd ..
kw@is-temp:~/Documents/my_bestseller/chapters$ rm changes
rm: cannot remove 'changes': Is a directory
kw@is-temp:~/Documents/my_bestseller/chapters$ rmdir changes/
kw@is-temp:~/Documents/my_bestseller/chapters$ ls
editor                mystery_chapter4.odf  mystery_chapter6.odf
mystery_chapter3.odf  mystery_chapter5.odf  vacation
kw@is-temp:~/Documents/my_bestseller/chapters$
```

15. When the vacation is over, the vacation directory is no longer needed. Delete it using the rm command with the recursive option. When finished, return to the ec2-user home directory.



```
kw@is-temp:~/Documents/my_bestseller/chapters$ rm -rf vacation/
kw@is-temp:~/Documents/my_bestseller/chapters$ ls
editor  mystery_chapter3.odf  mystery_chapter4.odf  mystery_chapter5.odf  mystery_chapter6.odf
kw@is-temp:~/Documents/my_bestseller/chapters$ cd ~
kw@is-temp:~$
```

16. This concludes this exercise. Log out and stop your Amazon EC2 instance.