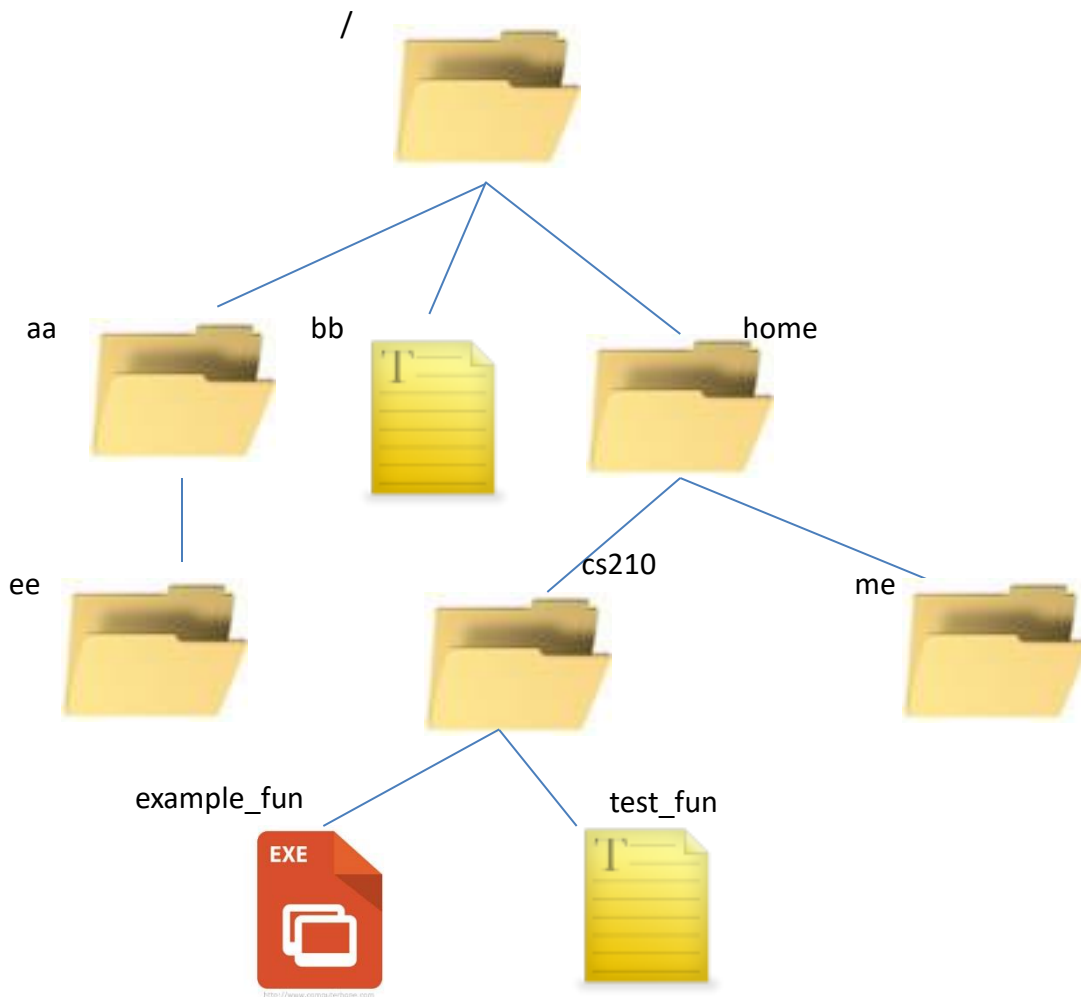**Name**_____          **Section**_____

# CsC 210, Fall 2017 Exam 1

This is a closed book, closed note exam. Please have nothing on your desk except this test and something to write with. DON'T look at your fellow student's exam.

Good luck.

1. (6 pts) Suppose the file tree is as illustrated above. And the current directory is me.

    a. Write a **relative** path to the file example_fun.

    **../cs210/example_fun**

    b. Write an **absolute** path to the file test_fun
    **/home/cs210/test.fun**

    c. Write a command to make cs210 the working directory. (i.e. Write a command to "goto" cs210). You may use either an absolute path or a relative path).

    **cd ../cs210**

    **or**
    **cd /home/cs210**

2. (3 pts) What is a command line interface?
   a. A program that reads a file and prints out the lines containing the indicated string
   b. A method of drawing lines on the terminal
   c. A program that changes java files to class files
   d. An interpolated model of an underlying command paradigm shift.
   e. A program that lets you interact with the Operating System through the keyboard.

3. (3 pts) What is the difference between a command line interface and a shell?
   a. A command line interface is an interpolated model while a shell is nonlinear
   b. A command line interface lets you issue commands but a shell does not
   c. A command line interface is a GUI and a shell is not
   d. Nothing, a shell is a command line interface
   e. A shell draws general shapes, while a command line interface only draws lines.

4. (3 pts) What is the UNIX command that tells you how to use other commands?

   **man**

5. (3 pts) Write a command to go to your home directory in Bash.

   **cd**          *or*          **cd ~**

6. (3 pts) Write a command to list all the java source files (the files that end
   in .java) in your current directory.
   **ls *.java**


7. (3 pts) What is the output when the following command is entered?
   **echo cat man do**

   **cat man do**


8. (3 pts) Suppose my current directory contains both the files **foo** and **bar**. What
   will be the result of the following command?
   **mv foo bar**

   **foo is renamed bar. The contents of the old file bar are lost.**


9. (3 pts) What does the following command do?
   **rm -R ***

   **deletes all files (other than hidden) from the current directory and all
   subdirectories recursively.**

10.   (3 pts) What does the following command do?
   **cat *.java | grep class | wc -l >classes**

   **Counts all the lines that contain the string "class" from all the java source
   files in the current directory. It puts the count in a file called classes.**


11.   (6 pts) Suppose the command
   **alias ll="ls -l"**
   is entered at the keyboard.

        a. What happens when the user next enters **ll** ?


           **The command ls -l is executed.**


        b. Suppose the user logs out and then opens a new Bash shell. What
           happens now when she enters **ll**  ?  Briefly, why does this happen?

           **Bash would try to run a command ll, which gives an error. This happens
           because the alias only lasts in the current Bash session. To make it
           permanent you would need to add the alias to a configuration file.**

12. (4 pts) What does the command
**which javac**
do? Be sure to include the PATH variable in your explanation.

**It searches the paths listed in the PATH variable from left to right for the program javac. It prints out the first one it finds that contains it. (This is the program that will run if the command javac is entered.)**

13. (3 pts) The program **git** is a:
   a. Shell
   b. Version control system
   c. Command line interface
   d. Compiler
   e. Interpreter

14. (3 pts) I've written a Python program and saved it in the file **myProg.py**. To run this program I can't just enter
**myProg.py**
instead I have to enter
**python3 myProg.py**
why?
   a. A pipe needs to be set up to run **myProg.py**
   b. **python3** is a keyword which tells the computer which CPU to use.
   c. **python3** is a machine language file that interprets the human readable text in **myProg.py**
   d. **myPython.py** is a machine code file, but it will use **python2** if you don't specify **python3**

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15.  (18 pts) Briefly describe what each of these commands do:

    **a. git clone https://github.com/cs210/assgn1-vader.git**

       copies the repository from the web to the current directory

    **b. git add myProg.java**

       adds the file myProg.java to the staged snapshot

    **c. git status**

       gets information about the staged snapshot and files that have changed
       since the last commit

    **d. git commit**

       Saves a snapshot of the staged files.

    **e. git log**

       shows a history of the commits

    **f. git push**

       saves the repository back to the web address it was cloned from

**16.** (7 pts) Consider the following part of a program:

```
String s1 = "Wonder Woman";
String s2 = "Wonder";
s2 = s2 + ' ' + "Woman";
```

     **a.** What would be output by the following line:

        `System.out.println(s2);`

        **Wonder Woman**

     **b.** Would the following expression always evaluate to **true**?

        `s1 == s2`

        Explain your answer.

        **No. Because s1 and s2 refer to objects that are likely to be different even though they have the same values. == only returns true if they point to the same object.**

**17.** (12 pts) To what value would the following expressions evaluate. (Be sure to show all your work to get partial credit and to avoid making mistakes.) Be sure to put quotes around strings or add .0 to floats/doubles to indicate what they are.

     **a.** `3 + 7 + "Susan"`

        `10 + "Susan"`

        **"10Susan"**

     **b.** `7 + 5 / 2 - 1`

        `7 + 2 -1`

        **8**

     **c.** `6.0 + 2 / 6 * 6.5 - 8 / 3`

        `6.0 + 0 * 6.5 - 2`

        `6.0 + 0.0 -2`

        **4.0**

**18.** (11 pts) Suppose I have just finished writing the following Java program:

```java
public class Exam1 {

  public static void main (String[] args) {

    String bestMovie = "Star Wars";

    int i = bestMovie.indexOf('a');

    String str = bestMovie.substring(i+1, 6);

    System.out.println("The best movie is " + bestMovie);

    System.out.print("length = " + bestMovie.length());

    System.out.printf(" index = %5d\n", i);

    System.out.println("str = " + str);

  }

}
```

**a.** What should be the file name I use to save this program?

**Exam1.java**

**b.** What commands do I need to issue to run this program?

**javac Exam1.java**

**java Exam1**

**c.** What will be the output when this program is run?

**The best movie is Star Wars**

**length = 9 index =     2**

**str = r W**