Assignment 3

Note: submit assignment to [javapec2016@gmail.com](mailto:javapec2016@gmail.com) in one zip file (name of the file should be assignment3\_sid)

1. [Optional] Write a bash/python script called photo-rename.sh or photo-rename .py to rename, in a given directory, all files of the form ddmmyyyyANY.jpg to yyyy-mm-dd-ANY.jpg  
   Here, 'dd', 'mm', 'yyyy' correspond to the two digit date, two digit month, and four digit year when the photo was taken, and 'ANY' corresponds to any string (including the empty string, it may include spaces). The first three fields consist only of digits 0 to 9.  
   Your script should ignore jpg files which are not of the form ddmmyyyyANY.jpg  
   your script should take the directory name as argument; if no argument is given, it must print the usage and exit with exit value 1. If the given argument does not correspond to a directory, the script must exit with exit value 2.

Above script should be executed in your java program using ProcessBuilder (or any other libraries)

1. Write a bash/python script to print only the IP address of your machine.

Above script should be executed in your java program using ProcessBuilder (or any other libraries)

Hint: you can use grep/sed/awk etc..

1. Set up a string variable to hold the following results:

String results = "Manchester United 1 Chelsea 0, Arsenal 1 Manchester United 1, Manchester United 3 Fulham 1, Liverpool 2 Manchester United 1, Swansea 2 Manchester United 4";

Write a programme to work out how many wins Manchester United had, how many games they drew, and how many Manchester United lost.

Extend the programme to work out how many goals Manchester United scored and how many they conceded.

Suppose a win gains you 3 points, a draw 1 point, and a loss no points. Have your programme work out how many points in total Manchester United have acquired.

Hint: You can use HashMap or ArrayList

1. [Optional] Often times, when I run my automated correction scripts on code submitted by students, there's an infinite loop bug in some student's code which halts progress in correction. For such cases, I wish to have a scheme where the student code is executed for not more than X seconds. In this exercise, you have to implement a script timed.sh or timed.py. It should execute the command given to it as argument, for a maximum of 5 seconds, after which the command, if still executing, should be killed with a '-9' signal.  
   For instance, the command "./timed5.sh gedit" will spawn gedit, and kill the gedit instance (if still running) after 5 seconds (it should kill only that specific instance spawned not any other gedit).

Above script should be executed in your java program using ProcessBuilder (or any other libraries)

*Hint:* Figure out the special bash/python variable for getting the PID of a child process.

1. Create a java project having at least 3 .java files (in some dependency order, for example you can create xyz.java file and use xyz class objects or methods in some other abc.java file). Your job is to create a makefile and execute all .java files using make command.

Resources: http://profesores.elo.utfsm.cl/~agv/elo329/Java/javamakefile.html

1. Given a dictionary that contains mapping of employee and his manager as a number of (employee, manager) pairs like below

{A,C}, {B,C},{C,F}, {D,E},{E,F},{F,F}

In above example C is a manger of A, B. F is a manger of C….and so on.

Write a function to get no of employees under each manager in the hierarchy not just their direct reports. It may be assumed that an employee directly reports to only one manager. In the above dictionary the root node is listed as reporting to himself.

Output should be a Dictionary that contains following.

A-0, B-0, C-2, D-0, E-1, F-5 (why F is 5 because F is a manger of E, C which are further manager of others

Hint: use HashMap