1. Homework 12

Posted: November/12/2018
Due: November/20/2018 24.00

All homework solutions are due November/20/2018 24.00. I recommend to submit at least one version of all homework solutions long before due date.

Note: Modified Deadline

1.1. Homework 12.1 (10 Points)

Objective: Working with Lambda Expression

Grading:
Correctness: You can lose up to 40% if your solution is not correct
Quality: You can lose up to 80% if your solution is poorly designed
Testing: You can lose up to 50% if your solution is not well tested
Explanation: You can lose up to 100% if your solution if you can not explain your solution during the grading session

Homework Description:

You have to modify homework 8.2 (Grep) using lambda expressions. Understanding LE.jave/11.2 might help with this task.

Explanation:

Your program must be able to read from stdin and files. The follow:

```
% grep -w -c -s one input.txt - input2.txt -
```

means that your program reads first *input.txt*, then from stdin, and then from *input2.txt* and then from stdin.

Your Work:

In the manual page, the line

```
grep [OPTIONS] PATTERN [FILE...]
```

describes how grep can be used. More than one argument might be used for a particular call.

You have to implement the following arguments:

- -c
- -l
- -w
- -q

Requirements:

You have to name your file *Grep.java*.

Example:

An example of a solution execution:

```
% cat input.txt
one one one one
one
two
two
oneoneoneone
% grep -c one input.txt
```

```
3
% grep -w -c one input.txt # -w specifies words
2
% grep -w -c -s one input.txt
2
% grep -q one input.txt
echo $?
0
% grep -q three input.txt
% echo $?
1
% grep -l one input.txt
input.txt
% grep one input.txt - input.txt
input.txt:one one one one
input.txt:one
input.txt:oneoneoneone
one
(standard input):one
input.txt:one one one one
input.txt:one
input.txt:oneoneoneone
```

Submission:

```
% ssh glados.cs.rit.edu # or use queeg.cs.rit.edu if glados is down
# password
# go to the directory where your solution is ...
% try hpb-grd lab12-1 ’All files required’
```

1.2. Homework 12.2 (10 Points)

Objective: Working with a distributed System using UDP

Grading:
Correctness: You can lose up to 40% if your solution is not correct
Quality: You can lose up to 80% if your solution is poorly designed
Testing: You can lose up to 50% if your solution is not well tested
Explanation: You can lose up to 100% if your solution if you can not explain your solution during the grading session

Homework Description:

You have to write a server and a client. The server will return a *quote of the day* each time a client connects to the server.

Explanation:
Make sure you know that you connect to your server. I would create a server which the client can ask for identification. This allows to ensure that you connect to the correct server.

You have to start your server **by hand**. Your client can only connect to the server after the server is ready for communication. Your client does not need to take care of this.

Your Work:

You have to implement a server which reads a set of quotes from a file. A client can connect to the server only after the file has been read. A client connection to the server will be either successful or failing. A randomly selected quote will be returned if the connection was successful.

Requirements:

You have to use UDP for the network communication. You have to name your files: *qClientUdp.java* and *qServerUdp.java*

Example:

An example of a solution execution:

An example of an execution (line 1 is executed before line 2 and so on, the name of the computer on which the program is executed is indicate in the shell prompt).

```
%glados java  qServerUdp
                            %glados qClientUdp -port 1234 -server glados.cs.rit.edu
                            This suspense is terrible. I hope it will last. Oscar Wilde
                            %glados qClientUdp -port 1234 -server glados.cs.rit.edu
                            The difference between stupidity and genius is that genius has
                            %queeg qClientTcp -port 1234 -server glados.cs.rit.edu
                            A lie gets halfway around the world before the truth has a cha
```

(The quotes are copied and there is no way of knowing if they have been saif by the person)

Submission:

```
% ssh glados.cs.rit.edu # or use queeg.cs.rit.edu if glados is down
# password
# go to the directory where your solution is ...
% try hpb-grd lab12-2 'All files required'
```

1.3. Homework 12.3 (10 Points)

Objective: Working with a distributed System using TCP/IP

Grading:

Correctness: You can lose up to 40% if your solution is not correct
Quality: You can lose up to 80% if your solution is poorly designed
Testing: You can lose up to 50% if your solution is not well tested
Explanation: You can lose up to 100% if your solution if you can not explain your solution during the grading session

Homework Description:

You have to modify homework 12.2 (Producer Consumer). In your modified version it must be possible to run the producer, client, and storage unit on different machines. In other words the producer can run on glados, the consumer on queeg, and the storage unit on your computer. You have to use TCP/IP for the network communication.

Submission:

```
% ssh glados.cs.rit.edu # or use queeg.cs.rit.edu if glados is down
# password
# go to the directory where your solution is ...
% try hpb-grd lab12-3 ’All files required’
```