

Assignment #1: The Finger Protocol

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1 Overview

The purpose of this assignment is to give you some experience implementing application-layer protocols using the services provided by the transport layer. After completing this assignment, you will understand how to implement a TCP client using the standard Java API.

Your task is to develop the file: `FingerTcp.java` This file will contain a complete client-side implementation of the *finger* protocol (RFC 1288). `FingerTcp` will implement the protocol using the Transmission Control Protocol (TCP) provided by the transport layer. However, the server running on `polaris` may return data of many different types, not just plain finger text, so you should be able to print out a large amount of data. **The server on `polaris` will terminate the connection after 90 seconds!**

The application should take one mandatory command line argument; namely, the domain name (or IP address) of the end host running a finger server. (Our departmental server `polaris.cs.wcu.edu` is running such a server.¹

Additionally, your application should accept two optional command line arguments specifying the IP port to use for the message exchange and a query about the user whom you wish to get information. If the port argument is not specified, your application should default to the “well-known” finger port. If a query is not supplied your client should default to the behavior of finger when no query is supplied.

Example runs of your programs might look like:

```
> java FingerTcp polaris
```

```
Welcome to Linux version 2.6.39-gentoo-r3 at polaris.cs.wcu.edu !
```

```
13:41:30 up 32 days, 15:17,  3 users,  load average: 0.00, 0.06, 0.08
```

Login	Name	Tty	Idle	Login Time	Office	Office Phone
wck	Bill Krehling	*pts/2		Aug 22 15:05	(152.30.175.39)	
wck	Bill Krehling	*pts/4	21	Sep 7 08:24	(152.30.175.39)	
wck	Bill Krehling	*pts/8	23	Sep 7 08:24	(152.30.175.39)	

¹Polaris will only accept finger requests originating from `agora` (for security reasons), thus you must run the client on `agora`.

```
>
> java FingerTcp polaris holliday

Hello agora.cs.wcu.edu,this is our dear user holliday:
Login: holliday                               Name: Mark Holliday
Directory: /home/holliday                     Shell: /bin/bash
Office: 432, x3951
Last login Tue Jun 24 20:40 2014 (EDT) on pts/0 from 50.55.192.150
No mail.
Plan:
Learn more about Linux

a FingerTcp polaris barlowe 100
usage: finger <hostname> [<port>] [<query>]

>
>
> java FingerTcp polaris 100 barlowe
I/O Exception while trying to connect to localhost:100
Connection refused
```

2 Suggestions

The following classes in the standard Java API will help you complete this assignment:

- `java.net.InetAddress`
- `java.net.Socket`

3 Hand-In Instructions

The assignment is due Monday, October 3rd. Make sure your submission is formatted according to Google's style guidelines. Your program should be object oriented and must be written in Java.

Use `handin` to submit this assignment. `handin.465.1 <asg #> <list of files>`

4 Notes on Collaboration

You are required to work individually on this assignment. Please do not consult *anyone* other than me on *any* aspect of this assignment.