CSI 402 – Systems Programming

Programming Assignment 0

Date given: Sept. 26, 2017 **Due date:** Sept. 28, 2016
Total grade for this assignment: 0 points **Weightage:** 0%
Notes: The deadline for this assignment is 11 : 59 PM, Thursday, September 28, 2017.
All students should familiarize themselves with submitting their solutions on the ITSUnix server.

A. Purpose. Each programming assignment in this course must be tested and submitted on the school's ITSUnix server. Thus, you **must ensure that your code compiles and works correctly on ITSUnix**. Additionally, you must submit your code using the turnin-csi402 command. The purpose of this assignment is therefore to ensure that:

- You know how to access and use the UAlbany ITSUnix server.
- You can create directories and files in your home folder.
- You understand how to use the turnin-csi402 command to submit your programming assignment solutions.

Connecting to ITSUnix If you are using a Unix-like system (i.e. Linux, Mac OSX, etc.), then the easiest way is to connect via `ssh` (secure shell connection) in your terminal. Open your terminal program (called 'Terminal' on Mac and on Ubuntu) and type the following command: `ssh YourNetID@itsunix.albany.edu`, where `YourNetID` is your Net ID (the same ID you use to log in to MyUAlbany). You will then be prompted for a password. The password is the same as your NetID password. If you see a message that says `Terminal type (vt100)?`, simply hit enter. You should see a Unix command–line prompt. If you type `ls`, you will see all of the files in your home directory. Now, you can create directories and create/edit files.

Alternatively, if you are using Windows, you will need to install an ssh client such as PuTTY. You can find and download PuTTY with a quick Google search (it's free and very easy to use). The PuTTY GUI looks like Fig. 1. PuTTY should default to ssh. If not, select ssh under Connection Type. For the hostname, type in `itsunix.albany.edu` and hit Open at the bottom. You will be prompted for your NetID and then a password. These are the same that you use for MyUAlbany. You should now see a Unix prompt. If you type ls, you will see all of the files in your home directory.

Creating Directories and Files You can create a directory by typing `mkdir foldername`. You can create a file by typing `touch filename`. You can move into a directory by typing `cd foldername`. You can edit a file by typing the name of the editor program, followed by the filename. For example: `emacs main.c` or `vim functions.h`.

If you want to browse/manage your ITSUnix folder in a graphical way, you will find tools such as FileZilla (for Windows, Mac, and Linux) or Cyberduck (for Windows and Mac) quite handy. Cyberduck in particular enables you to browse files on ITSUnix, and edit them using a program on your local machine. Alternatively, you can use online software development platforms such as

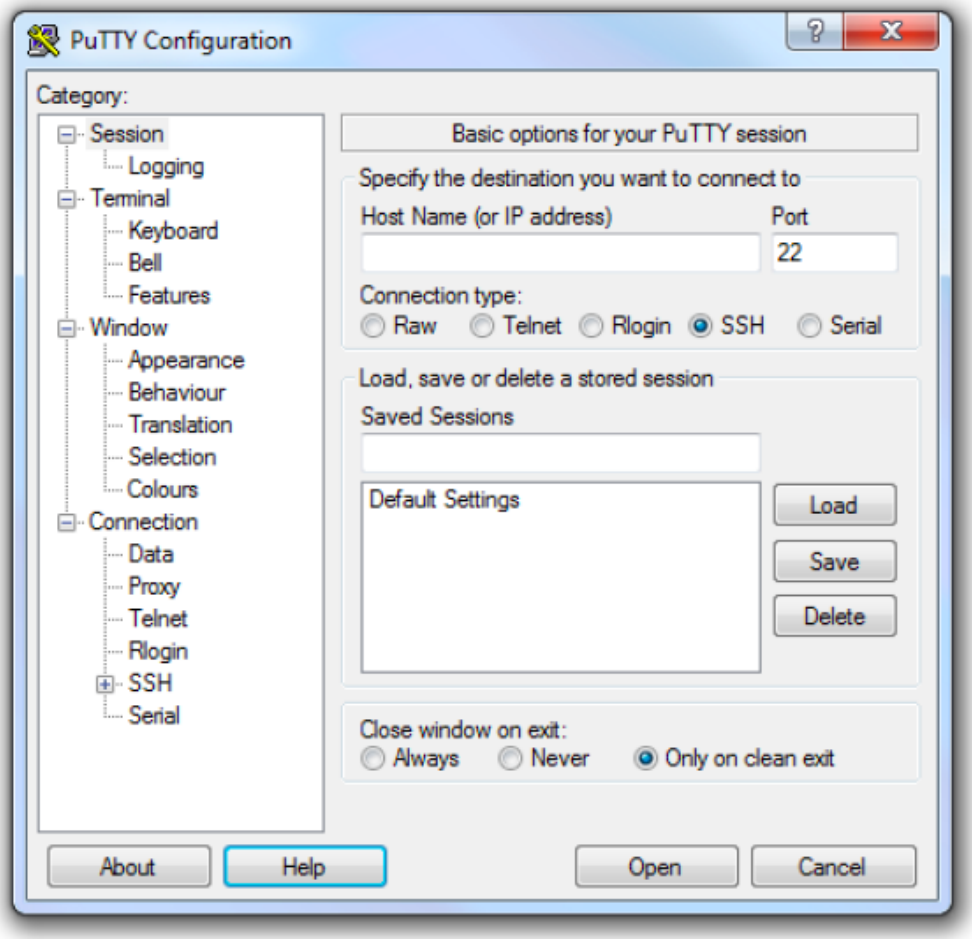

Figure 1: PuTTY configuration screen.

GitHub that enables you to host and review code, manage projects, and build software alongside your teammates. Once ready, you can test and submit your code through ITSUnix.

B. Submission Instructions. You must use the `turnin-csi402` command to submit your assignments. I strongly recommend that you create a dedicated directory (folder) on ITSUnix to store the files for each assignment. To practice doing this, you will create and submit Programming Assignment 0.

Make sure you are logged in to ITSUnix, and your present working directory contains only the files you wish to submit. Assuming you are logged on to ITSUnix and are currently in your home folder, issue the following commands: First, create a directory for Program Assignment 0 by typing `mkdir Prog0` (in Fig. 2 below I created a folder named prog0tst). Now, move into that directory by typing `cd Prog0`. If you type `pwd`, you should see the path to the directory you are currently in. Now, create some files by typing `touch main.c functions.c header.h makefile`. This single command will create four files. To confirm that the (empty) files have been created, type `ls`. You can leave these files blank for now, but usually, you would want to edit them to write your program. As long as you are in the dedicated directory for your program, the turnin command should be very similar for each assignment (with some slight differences). It will always be of the form:

`turnin-csi402 -c csi402=235 -p [assignment name] [filenames]`.

For Programming Assignment 0, it will look like this: `turnin-csi402 -c csi402=235 -p prog0 main.c functions.c header.h makefile`. Alternatively, you can simply turn in ALL files matching a certain pattern, like so `turnin-csi402 -c csi402=235 -p prog0 *.c *.h makefile`. In the latter case, make sure there are no extra .c or .h files in the current directory. If your makefile is called 'Makefile' (with a capital M), then make sure you use a capital M in the turnin command. When you submit, you should see a message that says **'Your files have been submitted to csi402, prog0 for grading.'** If you want to check and see what you submitted, you can type: `turnin-csi402 -v -c csi402=235 -p prog0`. If you made a mistake, you can simply submit again. Each submission for a project will overwrite previous submissions. Fig. 2 shows a screenshot of my terminal while creating and submitting source file in prog0tst following the steps above.

```
[unix1% pwd                                                                    ]
 /home2/[redacted]/prog0tst
[unix1% touch main.c functions.c headers.h makefile                            ]
[unix1% ls                                                                     ]
             functions.c  headers.h    main.c       makefile     tst.c
[unix1% turnin-csi402 -c csi402=235 -p prog0 *.c *.h makefile                  ]
 Your files have been submitted to csi402, prog0 for grading.
[unix1% turnin-csi402 -v -c csi402=235 -p prog0                                ]
 tar: blocksize = 8
 -rw------- 22870/972      0 Sep 26 11:04 2017 functions.c
 -rw------- 22870/972      0 Sep 26 11:04 2017 main.c
 -rw------- 22870/972     67 Sep 25 11:22 2017 tst.c
 -rw------- 22870/972      0 Sep 26 11:04 2017 headers.h
 -rw------- 22870/972      0 Sep 26 11:04 2017 makefile
[unix1% turnin-csi402 -c csi402=235 -p prog2 *.c                               ]
 turnin-csi402: submissions for -prog2 have been turned off.
[unix1% turnin-csi402 -c csi402=235 -p prog6 *.c                               ]
 turnin-csi402: "prog6" is not a current project for submission in csi402.  Use
 "project -l" for a list of projects in this course.
[unix1% turnin-csi402 -c csi402=235 -p prog1 *.c                               ]
 Your files have been submitted to csi402, prog1 for grading.
 unix1%
```

Figure 2: Sample process of creating and submitting prog0.

C. Remarks. Note the following:

- Using the turnin command after a deadline may result in the following message: **'submissions for prog0 have been turned off'**. That means you missed the deadline and your assignment will be marked **incomplete**.
- If you try to submit an 'unknown' programming assignment (e.g., prog6), you should get the following message **'prog6 is not a current progect for submission in csi402'**. Nonetheless, you should always check to ensure the correct submission of your files.
- If you submit once before a deadline, and then again after the deadline, your first submission will be lost and your assignment will be marked **late**.
- I strongly recommend that you create a dedicated directory (folder) on ITSUnix to store your files for each assignment. That will ensure that you do not unintentionally submit additional files unless you absolutely intent to submit such files as part of your program.
- We will be using a script to grade your code using your makefile. If make doesn't work, we will brute force compile using all files in your submission. You will get a **zero** if your program doesn't run.