HW2 Programming Assignment Setup Instructions

Following are the steps on how to set up the environment required for the programming question in HW2 for CSC505-Design and Analysis of Algorithms course. Below are the steps:

1) Create a VCL (Virtual Computing Lab) reservation on vcl.ncsu.edu .

a. Log in with your unity ID and password, click on Reservations tab.

b. Click on 'New Reservation' and create an Ubuntu 16.04 LTS Base image for your assignment.

c. Select the duration for which the reservation should be active for. (**Note: If the reservation expires, the image assigned to you is withdrawn and reset. So, save your work before the expiration**)

d. After the reservation is successful, click on Connect. This gives an IP address which is used to SSH into.

e. Open a new terminal in your local machine to SSH into the reserved system.

f. ssh <unity-id>@<IP-address> ..... {IP address copied in step 1d.} Eg: ssh pmallya@152.46.18.253 Enter your campus password when requested. After successful authentication, you'll be logged into Ubuntu 16.04 LTS Base image with your present working directory as: /home/<unity-id>.

2) Copy the contents of the framework folder to and from the newly reserved system. The following instructions will help you to do so: (Note: **The following commands have to be executed in local machine terminal**.)

a. 'scp' command to copy the contents from your local machine to the reserved system on VCL

Syntax: scp -r source destination

Example: scp -r /Users/prashanthm/framework pmallya@152.46.18.253:~/.

Note: '~/.' after ':' copies the source folder to '/home/<unity-id>' directory.

The above command copies the entire folder framework to the reserved system on

VCL (pmallya@152.46.18.253) to /home/pmallya directory.

b. To copy folders and files from the reserved system to local machine example:

scp -r pmallya@152.46.18.253:/home/pmallya/framework/ /Users/prashanthm/HW2

3) For students who are developing their programming assignment in JAVA, execute the following commands in the reserved system:

a. cd framework/java

b. To setup the necessary environment for the java program and for testing it: (when prompted for

Y/n, press Y)

source ./setup_junit.sh

c. Develop your program in the java file: Solution.java

To compile and run your java programs (you can also do it manually if you prefer so):

bash ./exec.sh

Note: If while developing your program if you intend to use more than one terminal (logged into the same reserved system), all the commands from step a, b and c have to be executed in the same terminal you start with and in the given order. This is because the environment set by the above scripts are dedicated to that terminal session only in which it was created, and the other terminal sessions doesn't not see the environment set.

d. The output of the java program would be something like:

- testSolution1(SortingTest): expected:<4> but was:<3>

This kind of output indicates that some of the given test cases haven't passed. - All test cases passed

This type of output indicates all the given test cases (6 of them) have been passed.

4) For students who are developing their programming assignment in PYTHON 2.7, execute the following commands in the reserved system:

a. python SortingTest.py

This executes your developed program in "Solution.py" and runs 3 test cases on it.

b. The output would be like:

```
======================================================================
FAIL: test_heap_sort (__main__.SortingTest)
----------------------------------------------------------------------
Traceback (most recent call last):
  File "SortingTest.py", line 42, in test_heap_sort
    self.assertEqual(solution.sorting_array,[1, 2, 3, 4, 5, 6, 7])
```

```
AssertionError: Lists differ: [7, 4, 2, 6, 5, 3, 1] != [1, 2, 3, 4, 5, 6, 7]

First differing element 0:
7
1

- [7, 4, 2, 6, 5, 3, 1]
+ [1, 2, 3, 4, 5, 6, 7]

----------------------------------------------------------------------
Ran 3 tests in 0.001s

FAILED (failures=1)
```