

CSCD467/567 Lab5

Show the solution to your instructor before you leave the laboratory. Also please zip up all your source files and your **answers** to the questions below in a readme.txt file, Please turn in the zip file on canvas. Name you zip file with the naming convention we used in this class please.

What is provided?

A zip file Lab5.zip contains a **RandomCharacters**.java file and this description file.

What you should do?

- 1, Read and understand the provided RandomCharacters.java program. The RandomCharacters class is a Java Applet. You are required to add a main method into this class, so that RandomCharacters could also be run as a Java Application. (hint: in main method you could add a JFrame in which you run the applet.)
- 2, Three threads are created in the program, what does each thread do? How each thread is associated with certain group of GUI components?
- 3, When(under what condition) does a thread go sleep? When (under what condition) does it wake up?
- 4, Run the program as Java application. You must identify at least one defect (the program does not behave as we expected at one point.) for this program. Please describe the defect and fix it by modifying the program.
- 5, Add a JButton in your GUI window (may be a JFrame) which shows a text of "Stop". When we click the button, all threads are stopped then terminated. You are required to use the existing stop() method in RandomCharacters class.
- 6, Please explain why the stop() method you used could terminate all threads? In what ways this approach of terminating threads differs from what we learned before? Describe the pros and cons when using this approach to terminate threads. Under what circumstances we could use this approach, and sometimes we could not?

Test Cases

Your complete program should show a GUI window that looks like the

following.

