



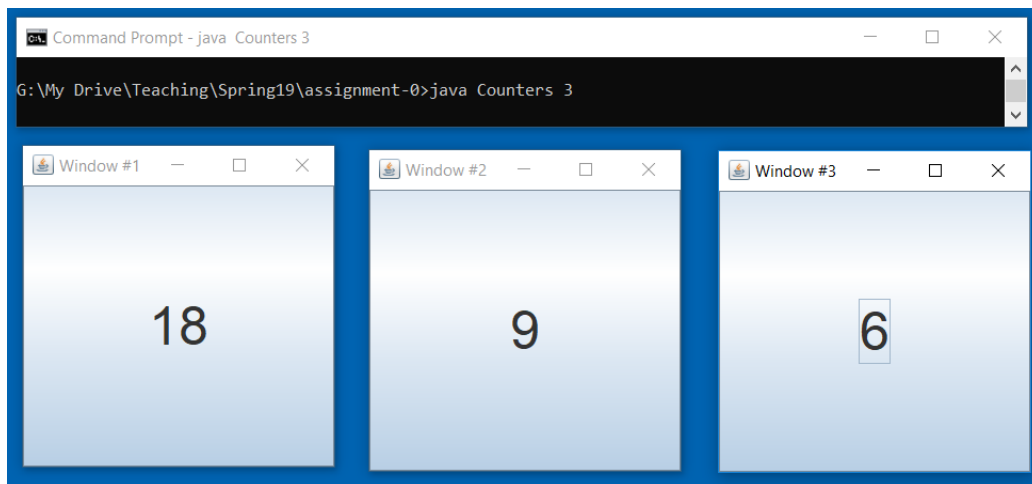
# Programming Assignment – 0

Topic: Basic Java Programming

Due: Jan 17, 2019 (late submissions are not allowed)

## 1. Multiple Counters

Write a program in Java that takes a number, N as the input from the command line (console) and shows N windows. Each window will contain a button that shows a number as its text, which is initialized to zero. Upon clicking the button of window #K, a thread will start for that particular button, and it will increment the number of that particular button by one every K seconds.



**Fig 1.** Screenshot after running the program.

Figure 1 shows a screenshot of the desktop when the program is run to create three counters by issuing the command: `java Counters 3`. After 18 seconds, the values of the three windows are 18, 9, and 6, respectively, as these windows update their counters every 1, 2, and 3 seconds, respectively.

## 2. Special Instructions

- Use a plain text editor (e.g., notepad or similar) to write your code.
- Use the command line interface to compile and run your code. Do not use any fancy Java IDE.
- Feel free to lookup online resources, but do your own design and write your own code.
- You will have to use Java concepts like GUI programming, Event Handling, Multithreading, and Exception Handling for this assignment.

## 3. Submission

- Zip and submit your source code as an attachment through Sakai by the deadline.
- There are no points for this assignment. But it is strongly recommended that every student completes and submits it. A student who completes this comfortably is considered ready for COMP 433.