

[Problem 3] Visit the website <http://tutorials.jenkov.com/java-util-concurrent/index.html> that introduces and describes JAVA concurrency utilities: `java.util.concurrent` package.

1. You are supposed to study and summarize following classes that are important and useful for concurrent programming in JAVA. What you need to do in this problem is to write a document that includes:

(i)-a. Explain the interface/class **BlockingQueue** and **ArrayBlockingQueue** with your own English sentences. (Don't copy&paste)

(i)-b. Create and include (in your document) your example of multithreaded JAVA code (**ex1.java**) that is simple and executable. Your example code should use **put()** and **take()** methods. Also, include example execution results in your document.

(ii)-a. Do the things similar to (i)-a for the class **Semaphore**.

(ii)-b. Do the things similar to (i)-b for **acquire()** and **release()** methods of **Semaphore**. (**ex2.java**)

(iii)-a. Do the things similar to (i)-a for the class **ReadWriteLock**.

(iii)-b. Do the things similar to (i)-b for **lock()**, **unlock()**, **readLock()** and **writeLock()** of **ReadWriteLock**. (**ex3.java**)

(iv)-a. Do the things similar to (i)-a for the class **AtomicInteger**.

(iv)-b. Do the things similar to (i)-b for **get()**, **set()**, **getAndAdd()**, and **addAndGet()** methods of **AtomicInteger**. (**ex4.java**)

2. Submit **ex1.java**, **ex2.java**, **ex3.java**, and **ex4.java** as well as the document describe above.