

Assignment 1

- create MergeSort
 - e.g. for an array of `ints`
- create parallel MergeSort
 - use threads
 - the number of threads is set as a program parameter
 - or use `Runtime.availableProcessor()`
 - implement directly via threads, and also via `ForkJoinPool`

Assignment 2

- create the class RoundBuffer
 - implements a round buffer with a given capacity (set in the constructor), to which Strings can be stored
 - has at least methods
 - void put(String msg)
 - String get()
 - the buffer can be used by several threads concurrently
 - if there is no space in the buffer resp. no item, then put() resp. get() are blocked
- create a program in which several threads read and write from/to buffer
 - threads sleep randomly between reading/writing
 - for random values see `java.util.Random`)

Tests...

Test 1

- What is printed out

```
public class Test01 {  
    public static synchronized void main(String[] a) {  
        Thread t = new Thread() {  
            public void run() {  
                pong();  
            }  
        };  
        t.start();  
        System.out.println("Ping");  
    }  
    static synchronized void pong() {  
        System.out.println("Pong");  
    }  
}
```

- A Ping Pong
- B Pong Ping
- C nothing – result in a deadlock
- D throws an exception
- E order of Ping and Pong can be different every time the program is run

Test 2

- What is printed out

```
public class SelfInterruption {
    public static void main(String[] args) {

        Thread.currentThread().interrupt();

        if (Thread.interrupted()) {
            System.out.println("Interrupted: " +
                               Thread.interrupted());
        } else {
            System.out.println("Not interrupted: " +
                               Thread.interrupted());
        }
    }
}
```

- A Interrupted: true
- B Not interrupted: false
- C something else



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