

Threads Exercises

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1 Exercise 3: primes

Java Code: MainWithThreads

```
public class MainWithThreads {
    public static void main(String[] args) {
        try {
            int lower = 1900000000;
            int range = 5000000;
            int numberOfThreads = 4;
            int threadRange = range / numberOfThreads - 1;
            long start = System.currentTimeMillis();
            PrimeFinderThread[] threads = new
                PrimeFinderThread[numberOfThreads-1];
            for (int i=0; i < numberOfThreads -1; i++){
                threads[i] = new PrimeFinderThread(lower + i
                    * threadRange, threadRange);
                threads[i].start();
            }
            List<Integer> primes = Primes.findPrimes(lower +
                (numberOfThreads-1) * threadRange - 1,
                threadRange);
            for (int i=0; i < numberOfThreads -1; i++){
                threads[i].join();
            }
            long end = System.currentTimeMillis();
            System.out.println("Time needed with threads "+
                ((end - start)) + " msec");
            int sum = primes.size();
            for (int i=0; i < numberOfThreads -1; i++){
                sum += threads[i].getPrimes().size();
            }
            System.out.println("Primes found: " + sum);
        } catch (InterruptedException ex) {
            Logger.getLogger(MainWithThreads.class.getName())
                .log(Level.SEVERE, null, ex);
        }
    }
}
```

```
    }  
}  
}
```

Java Code: PrimeFinderThread

```
public class PrimeFinderThread extends Thread{  
    private List<Integer> primes;  
    private final int lower;  
    private final int range;  
  
    public PrimeFinderThread(int lower, int range) {  
        this.lower = lower;  
        this.range = range;  
        primes = new ArrayList<>();  
    }  
  
    @Override  
    public void run(){  
        primes = Primes.findPrimes(lower, range);  
    }  
  
    public List<Integer> getPrimes() {  
        return primes;  
    }  
}
```