Farnaz Tabrizi Software Engineering Assignment 3

The program contains 2 main classes, BigIntegerArrayAggregator and Aggregator and a Test class which will run and test the program. The program will calculate the sum of a very big Array, containing random integers. We also have some threads, which each of them try to calculate the sum of a part of the big Array. The threads are locating in a pool, when a thread complete its task of calculation it will return and start to calculate another part of the big Array. Threads will repeat this task until the calculation is finished.

**How to run the program:**

To run the program we need to go to the jar file’s path with command line and run the following command:

Java -Xmx4094m -jar thread-pool-project.jar ARRAY\_SIZE THREAD\_POOL\_SIZE BUFFER\_SIZE

Xmx4094m: this command will deal with the Heap Size to avoid OutOfMemoryError.

Array\_Size: the size of the input array, which is filled with random integers.

THREAD\_POOL\_SIZE: the number of existing threads in the pool.

BUFFER\_SIZE: to calculate the sum of the numbers in the array, we break it to the smaller arrays and then we connect each subarray to a thread from the existing threads in the pool to process them.

If we don’t set the values in the command line and just run this command: Java -Xmx4094m -jar thread-pool-project.jar, the program will run with the default values which are shown below:

|  |  |
| --- | --- |
| Parameter | Defaults |
| ARRAY\_SIZE | 200,000,000 |
| THREAD\_POOL\_SIZE | 10 |
| BUFFER\_SIZE | 2,000,000 |