

T-444-USTY

3. Febrúar 2017

Lab 3

Thread Assignment

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Spring 2017

# **Requirements**

The program was suppose to be able to do the following three requirements when running the function Solve.findAndPrintSolution() thirty times:

**Requirement 1**

,,Sequentially: Don’t run the next instance until the one before has returned”

**Requirement 2**

,,All at once in separate threads. A new thread is created for each instance. “

**Requirement 3**  
,,A certain number at a time. Threads are run through a thread pool of a certain size (students can try different sizes). New instances aren’t run until a thread is free in the thread pool.”

# **Given with assignment**

Five classes were given with this assignment as base program, named:

* Problem.java
* Problematic.java
* Solver.java
* ThreadAssignment01Main.java
* Tile.java

# **Implemented**

As suggested in the project description a class was created, SomeRunnableThing.java which created a new instance of Thread. Inside this class the function public void run() was implemented which is executed when the start() function is called with a some thread. For each requirement a for-loop was created were three different functions was suppose to run NUMBER\_OF\_PROBLEMS times.

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| System.***out***.println("Requirement 1");  **for**(**int** i = 0; i < ***NUMBER\_OF\_PROBLEMS***; i++){  Solver.*findAndPrintSolution*(Problematic.*nextProblem*());  } |

## **Code snippet 1 – Requirement 1**

Here you can see a code snippet for a requirement 1, where Solver.findAndPrintSolution takes in some problem, solves it and returns the solution. Below you can find sample output for this part which always gave us the same result when testing.

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| Requirement 1  Problem: (557,160) - (110,177) - length: 464 - iterations: 217040  Problem: (461,73) - (99,155) - length: 444 - iterations: 204752  Problem: (615,254) - (394,470) - length: 437 - iterations: 188783  Problem: (296,109) - (34,279) - length: 432 - iterations: 243092  Problem: (85,493) - (61,440) - length: 77 - iterations: 11811  Problem: (263,29) - (336,608) - length: 652 - iterations: 329093  Problem: (279,152) - (618,465) - length: 652 - iterations: 383761  Problem: (276,214) - (2,334) - length: 394 - iterations: 263061  Problem: (113,34) - (489,423) - length: 765 - iterations: 342223  Problem: (60,307) - (350,354) - length: 337 - iterations: 149614  Problem: (393,490) - (64,8) - length: 811 - iterations: 406964  Problem: (493,167) - (222,265) - length: 369 - iterations: 183582  Problem: (422,584) - (107,589) - length: 320 - iterations: 125153  Problem: (216,64) - (525,344) - length: 589 - iterations: 304957  Problem: (626,79) - (148,152) - length: 551 - iterations: 200691  Problem: (303,611) - (328,206) - length: 430 - iterations: 191063  Problem: (313,267) - (603,279) - length: 302 - iterations: 181243  Problem: (232,148) - (381,22) - length: 275 - iterations: 133651  Problem: (423,194) - (398,320) - length: 151 - iterations: 45554  Problem: (119,429) - (111,580) - length: 159 - iterations: 48948  Problem: (13,309) - (113,149) - length: 260 - iterations: 74511  Problem: (279,35) - (623,21) - length: 358 - iterations: 147055  Problem: (413,605) - (248,223) - length: 547 - iterations: 260947  Problem: (130,454) - (548,561) - length: 525 - iterations: 296899  Problem: (297,432) - (392,501) - length: 164 - iterations: 53931  Problem: (436,382) - (324,618) - length: 348 - iterations: 213150  Problem: (359,475) - (441,372) - length: 185 - iterations: 68236  Problem: (299,273) - (344,252) - length: 66 - iterations: 8754  Problem: (431,263) - (150,389) - length: 407 - iterations: 270185  Problem: (553,90) - (379,333) - length: 417 - iterations: 160783 |

## **Code snippet 2 – Requirement 2**

## **Code snippet 3 – Requirement 3**