Moveo Home Assigment - My Thread Pool

Made by: Daniel Bar-Kedem

**Classes:**

**Class MatrixCalculator implements Observer**  
main class for matrix multiplication.,

Create and multiply matrices according to the user’s input.

Major Members:  
- UIManager m\_UIManager – UI manager for display msg to user and get data from user.

*. int [][] m\_ResultMat – Multipication result matrix.*

*-MyThreadPool m\_ThreadPool – my Thread Pool for tasks*

Major methods:  
- void **run**() – project entry point.  
- startCalculator() – starts new calculator

- handleUserInput()

- createThreadPool()

- CalcMultResult (**int**[][] mat1, **int**[][] mat2) – mulitiply 2 matrices

-void update(Observable observer, Object arg)- Observer’s update implementaion

- void onSingleMultDone(ObservableResultMat resultMat)- called in update execusion

**Class MyThreadPool – My imp of the pattern:**  
Class that create and manage the thread pool and the tasks queue.  
  
Major Members:  
- BlockingQueue m\_TaskQueue – Task queue

- List<PoolThread> m\_Threads – Thread pool

Major methods:  
- synchronized void execute(Callable<Integer> task) – execute task

- synchronized void stopThreadPool() – stop all threads in pool

**Class UIManager**  
class for handle I/O from/to user.  
  
Major Members:  
- Scanner m\_Scanner

Major methods:  
- int GetInputFromUser(String strToUser)

- void Print(String s)

**Class PoolThread extends Thread**  
class for single thread in pool.  
  
Major Members:  
- BlockingQueue m\_Taskqueue – pool tasks queue

- ObservableResultMat m\_ResultMat – reference to result matrix

- int m\_TaskCalcResult – the value of single row-col multipication

Major methods:  
- public void run() – base class method – get next task from queue

-void updateReusltMat(int rowNum, int colNum)- update result matrix with single row-col calc

**Class ObservableResultMat extends Observable**  
class observable result mat  
  
Major Members:  
- int[][] m\_resultMat – result matrix reference

int m\_NumOfMult – current multiplication number

Major methods:  
- void SetResult(int row, int col, int val)- set result and fire an event on calc end