Parallel and Distributed Computing HW#2

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NOTES  
- use run-all.sh to run all programs and see their results  
- i use custom StopWatch because the provided version was not compatible. it uses same interface as the provided StopWatch.  
  
DISCUSSION  
- the data for this homework can be stored in many different ways and optimal data layout may have big impact on performance  
- i designed experiments to compare different configurations:  
  
100 runs each with N = 10, 50, 100, 200, 500, 1000, 2000, 5000  
  
I compared time since initialization of array with spheres until the colissions were fully detected  
  
My configuration:  
Ubuntu 11.10 running on VirtualBox  
Intel Core i3 CPU 3.2 GHz  
1.5GB memory  
  
The configurations I tested:  
1.XYZ,R with simulated array + row major - good data layout but very similar performance to say it's best  
2.XYZR with simulated array + row major - good data layout but very similar performance to say it's best  
3.X,Y,Z,R with simulated array + row major - very similar performance  
4.XYZ,R with look-alike array + row major  
5.XYZ,R with simulated array + column major - didn't perform well because row data were fetched into cache but not used  
6.XYZ,R with look-alike array + column major - didn't perform well because row data were fetched into cache but not used