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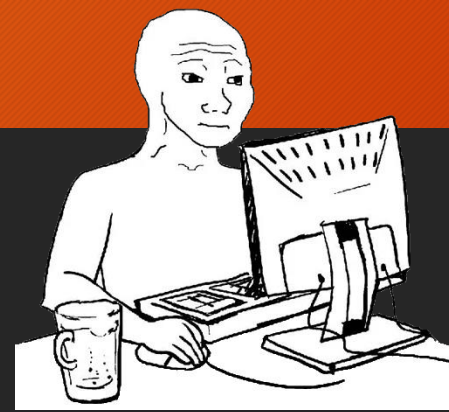
SCICOMP301 Topics: Operating Systems

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Project 3-Threads: a Mice & Cheese problem

Technology Platform/ Specs

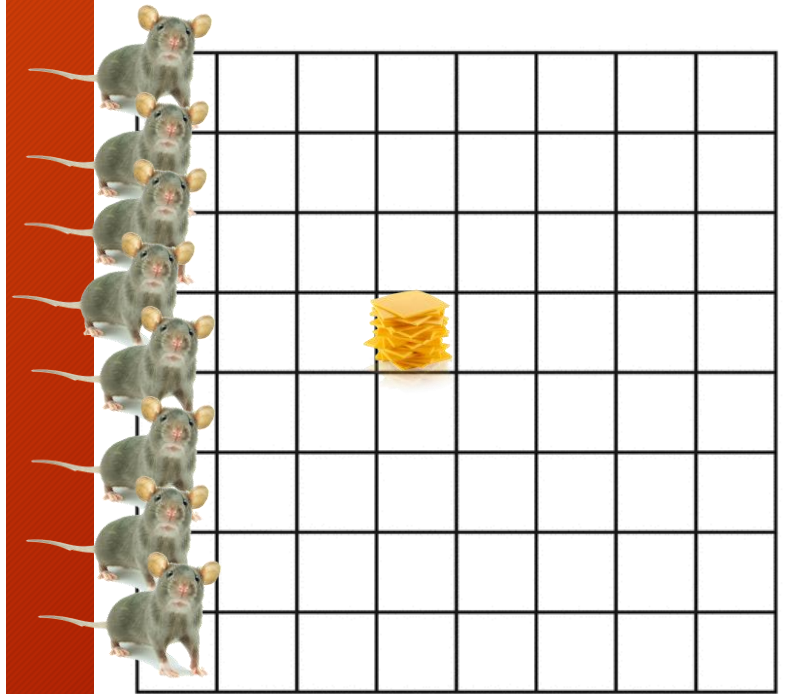
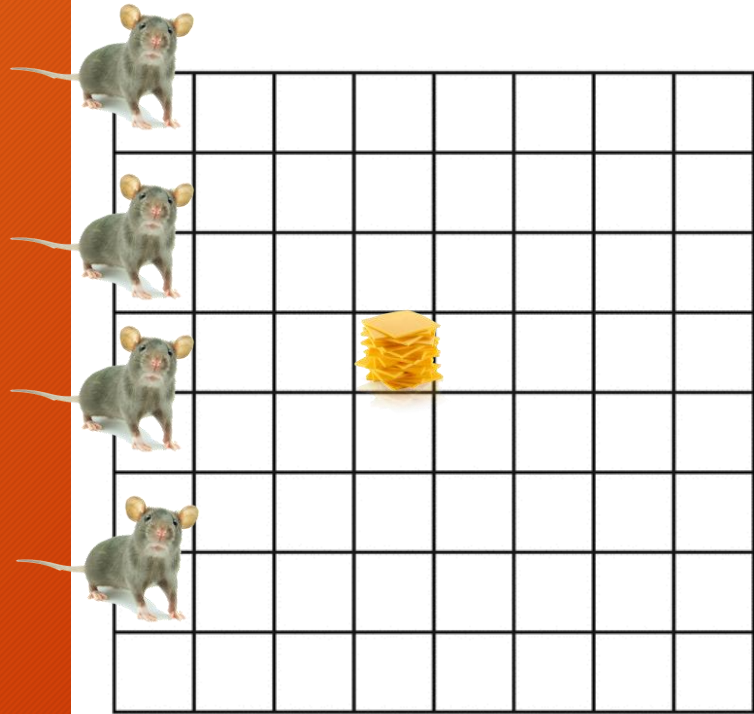
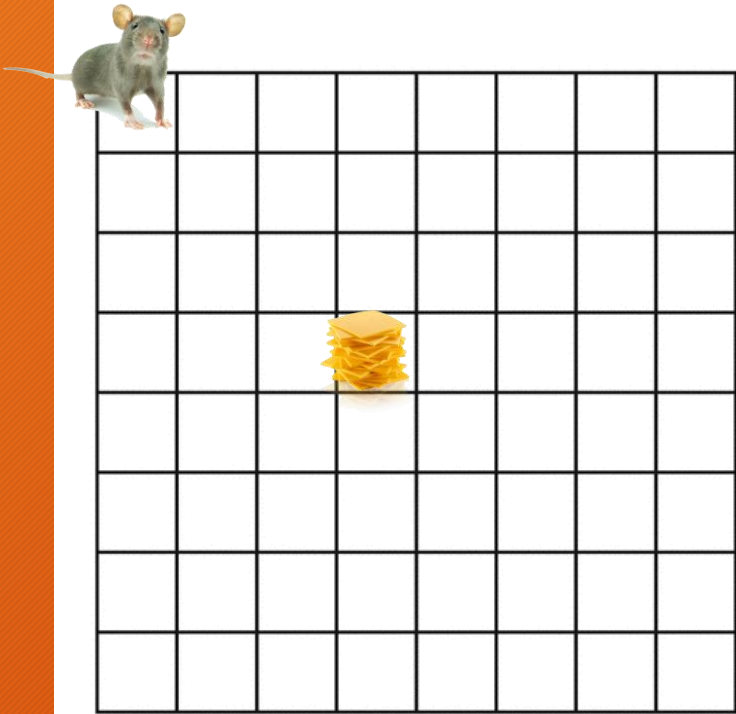


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- OS: Windows 11 Version 22H2;
- RAM-Main Memory: 16GB;
- Processor: Intel® Core™ i7-1065G7 Processor;
- Number of cores: 4;
- Number of hyper threads: Total Threads 8;
- Java version: Version 8 (build 1.8.0);
- Eclipse Version: Version: 2021-06 (4.20.0);

Result Table A

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Result Table A

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box with cheese @	1 mouse		4 mice		8 mice	
	Expected	Observed	Expected	Observed	Expected	Observed
(0,0)	10	16	10	15	10	20
(1,1)	100	153	100	160	20	32
(2,2)	190	267	30	47	30	48
(3,3)	280	397	120	191	40	64
(4,4)	370	520	50	80	50	80
(5,5)	460	645	140	218	60	94
(6,6)	550	765	70	111	70	112
(7,7)	640	876	160	253	80	128
Average	330	454,9	85	134,4	45	72,3

Result Table B

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box with cheese @	8 mice condition			
	observed time taken		observed counts of box openings	
	unsynchronized	Re-run (synch.)	unsynchronized	Re-run (synch.)
(0,0)	20	14	1	1
(1,1)	32	30	10	10
(2,2)	48	46	27	27
(3,3)	64	62	60	60
(4,4)	80	78	125	125
(5,5)	94	92	254	254
(6,6)	112	111	511	511
(7,7)	128	122	1024	1024
Average	72,3	69,4	251,5	251,5

DISCLAIMER: BOX OPENINGS ARE CALCULATED INCORECTLY, I WILL EXPLAIN.

Conclusions

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- Due to us using threads we can utilize parallelism, thus we can run multiple instances of the mice with the same start time.
- Because of this more mice would equal to faster cheese finding.
- We can confirm that all the threads start at the same time by looking at the start time(ms).
- Synchronized proved to be slightly faster but the box count remained the same.