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CSE 179

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Lab 4: Pthreads

Task 1:  
Monte Carlo Estimation of PI  
Sources: (Feb10\_pthreads: Slides 19 – 22)

Using both the given equation: PI =4 \* (total\_hits) / (number\_of\_threads \* sample\_points\_per\_thread) and the Monte Carlo principle that pi can be estimated through the generation of points within a circle against the amount of points generated outside of a circle we can create a rough estimation of pi.

|  |  |  |
| --- | --- | --- |
| Thread count | Estimation of Pi | Runtime |
| 2 | 3.130400 | 476 |
| 4 | 3.239900 | 969 |
| 8 | 4.771200 | 1302 |
| 16 | 3.139475 | 2586 |

Task 2:  
Bank account simulation:   
Attached revised bankaccount.c and bankaccount.h

Prior to editing the bankAccount files, all outputs would be -$100000.

After edit:

|  |  |
| --- | --- |
| Thread count | Final Bank Balance: |
| 2 | 0.00 |
| 4 | 0.00 |
| 8 | 0.00 |
| 16 | 0.00 |

Task 3: Read/Write Block based on Pthread mutex and condition variables

The provided files from IBM including test03.c and check.h as well as its own respective makeFile, we will attempt to create a read/write lock program using pthread\_rwlock.