CSCE 313 PA4 report Arthur Chen

All time has a unit of second.

n = 15,000 p = 15 b = 1024

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| h & w | 50 | 100 | 200 | 500 |
| 5 | 14.416255 | 7.943582 | 6.387361 | 7.603413 |
| 10 | 14.511441 | 7.987226 | 6.220495 | 7.957072 |
| 20 | 14.507226 | 8.010090 | 7.387831 | 9.988706 |
| 50 | 14.556800 | 7.989943 | 7.620527 | 8.784076 |

*Table 1: time taken with varying number of histogram and worker threads*

Try b = 50:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| h & w | 50 | 100 | 200 | 500 |
| 5 | 14.513394 | 7.901443 | 7.646908 | 9.317523 |
| 10 | 14.544285 | 8.228102 | 8.340169 | 9.460121 |
| 20 | 14.583573 | 8.366170 | 8.851219 | 10.458427 |
| 50 | 14.533650 | 8.292621 | 9.636630 | 11.369465 |

*Table 2: time taken with varying number of histogram and worker threads with buffer of 50 bytes*

As you can see from two tables above, the time taken significantly decreases as the number of worker thread increases while the change in number of histograms does not have an influence on the time taken. The cutoff point is around 200 worker threads because 500 threads take a bit longer to complete. Maybe the cutoff point is somewhere from 200 to 500.

Demo with bonus:

https://youtu.be/16r4Wfjbem0