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CSCI 2110

Lab 2

September 24, 2015

Results

**Exercise 1:**

|  |  |  |  |
| --- | --- | --- | --- |
| Degree of polynomial | Value of x | Result | Evaluation time  (millisecs) |
| 4 | 2 | 31 | 0 |
| 10 | 4 | 1398101 | 0 |
| 30000 | 200 | 2572864321607740209 | 163 |
| 666666 | 225 | 6597731607300228197 | 318 |

Info for graph 1:

|  |  |  |  |
| --- | --- | --- | --- |
| Degree of polynomial | Value of x | Result | Evaluation time  (millisecs) |
| 10000 | 10 | 1111111111111101129 | 7 |
| 20000 | 10 | 1111111111111091129 | 13 |
| 30000 | 10 | 1111111111111081129 | 20 |
| 40000 | 10 | 1111111111111071129 | 26 |

Info for graph 2:

|  |  |  |  |
| --- | --- | --- | --- |
| Degree of polynomial | Value of x | Result | Evaluation time  (millisecs) |
| 50000 | 600 | 46733889816310607 | 34 |
| 50000 | 700 | 117817310443440707 | 36 |
| 50000 | 800 | 262472090112590807 | 35 |
| 50000 | 900 | 532032146829760907 | 35 |

**Exercise 2:**

|  |  |
| --- | --- |
| Size of matrix (n) | Execution time (ms) |
| 100 | 9 |
| 200 | 52 |
| 300 | 93 |
| 400 | 257 |
| 500 | 359 |
| 600 | 759 |
| 700 | 1423 |
| 800 | 6547 |
| 900 | 10441 |
| 1000 | 14828 |
| 1500 | 67726 |
| 2000 | 175502 |

No “java.lang.OutOfMemoryError: Java heap space” errors were encountered.

**Exercise 3:**

|  |  |
| --- | --- |
| Value of n | Execution Time to generate 2^n binary numbers (millisecs) |
| 10 | 2 |
| 12 | 3 |
| 14 | 10 |
| 16 | 53 |
| 18 | 60 |
| 20 | 77 |
| 22 | 238 |

**Exercise 4:**

|  |  |  |
| --- | --- | --- |
| Value of p | Mersenne primes found | Execution Time (millisecs) |
| p<=4 | 2,3 | 1 |
| p<=8 | 2,3,5,7 | 1 |
| p<=16 | 2,3,5,7,13 | 1 |
| p<=32 | 2,3,5,7,13,17,19,31 | 3 |
| p<=64 | 2,3,5,7,13,17,19,31,61 | 16163 |