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ASSIGNMENT 3 PART B

APPLICATION 1

Readings:

Metric	Spark Core	GraphX
Tasks	1251	2351
Shuffle Read	15.8 GB	16.5 GB
Shuffle Write	11.8 GB	8.4 GB
Total IO Read	2.0 MB	2.1 MB
Total IO Write	12.38 MB	7.7 MB
Total Network Receive	22.23 GB	17.47 GB
Total Network Send	11.32 MB	7.7 MB
Time	438 secs	246 secs

PageRank on GraphX performs 1.78X better than Spark core.

Reasons:
GraphX spawns more tasks leading to better parallelism and hence, faster completion time. Also, GraphX's default partitioning is better than Spark Core and hence, Shuffle Write, IO Writes and Network IO are better in GraphX than Spark Core.

Resources allocated to Spark Core and GraphX:

Driver memory	4GB
Executor memory	4GB
Executor cores	4
Task cpus	1

APPLICATION 2

Q 1 WORD COMPARE APP

Ans :

***Number of Edges where the number of words in the source vertex is strictly larger than the number of words in destination vertex :1577

Q 2 MOST POPULAR VERTEX APP

Ans :

***Popular Vertex Number : 65

Q 3 AVERAGE WORD COUNT APP

Ans :

****Average Number of Words in Neighborhood of Vertex 100 is 5.2222223
****Average Number of Words in Neighborhood of Vertex 160 is 5.4
****Average Number of Words in Neighborhood of Vertex 120 is 7.3703704
****Average Number of Words in Neighborhood of Vertex 150 is 8.111111
****Average Number of Words in Neighborhood of Vertex 180 is 7.2916665
****Average Number of Words in Neighborhood of Vertex 130 is 6.3958335
****Average Number of Words in Neighborhood of Vertex 80 is 6.3958335
****Average Number of Words in Neighborhood of Vertex 220 is 9.0
****Average Number of Words in Neighborhood of Vertex 0 is 6.1458335
****Average Number of Words in Neighborhood of Vertex 110 is 4.0
****Average Number of Words in Neighborhood of Vertex 210 is 8.0
****Average Number of Words in Neighborhood of Vertex 140 is 5.0
****Average Number of Words in Neighborhood of Vertex 40 is 4.0
****Average Number of Words in Neighborhood of Vertex 90 is 6.785714
****Average Number of Words in Neighborhood of Vertex 190 is 7.0333333
****Average Number of Words in Neighborhood of Vertex 20 is 5.826087
****Average Number of Words in Neighborhood of Vertex 60 is 6.2222223
****Average Number of Words in Neighborhood of Vertex 10 is 6.8965516
****Average Number of Words in Neighborhood of Vertex 41 is 6.152174
****Average Number of Words in Neighborhood of Vertex 61 is 7.25
****Average Number of Words in Neighborhood of Vertex 101 is 7.71875
****Average Number of Words in Neighborhood of Vertex 81 is 6.321429
****Average Number of Words in Neighborhood of Vertex 21 is 5.826087
****Average Number of Words in Neighborhood of Vertex 151 is 5.8636365
****Average Number of Words in Neighborhood of Vertex 71 is 8.333333
****Average Number of Words in Neighborhood of Vertex 131 is 7.6285715
****Average Number of Words in Neighborhood of Vertex 11 is 9.0
****Average Number of Words in Neighborhood of Vertex 191 is 5.2727275
****Average Number of Words in Neighborhood of Vertex 161 is 6.85
****Average Number of Words in Neighborhood of Vertex 111 is 6.047619
****Average Number of Words in Neighborhood of Vertex 51 is 7.5789475
****Average Number of Words in Neighborhood of Vertex 181 is 6.3541665
****Average Number of Words in Neighborhood of Vertex 201 is 8.0
****Average Number of Words in Neighborhood of Vertex 1 is 6.8636365
****Average Number of Words in Neighborhood of Vertex 141 is 8.0
****Average Number of Words in Neighborhood of Vertex 221 is 9.4
****Average Number of Words in Neighborhood of Vertex 91 is 6.5
****Average Number of Words in Neighborhood of Vertex 211 is 5.3333335
****Average Number of Words in Neighborhood of Vertex 31 is 5.818182
****Average Number of Words in Neighborhood of Vertex 192 is 7.8125
****Average Number of Words in Neighborhood of Vertex 122 is 6.3333335
****Average Number of Words in Neighborhood of Vertex 52 is 7.7
****Average Number of Words in Neighborhood of Vertex 112 is 5.0
****Average Number of Words in Neighborhood of Vertex 22 is 7.92
****Average Number of Words in Neighborhood of Vertex 182 is 6.5
****Average Number of Words in Neighborhood of Vertex 222 is 6.152174

****Average Number of Words in Neighborhood of Vertex 142 is 5.964286
****Average Number of Words in Neighborhood of Vertex 152 is 8.08
****Average Number of Words in Neighborhood of Vertex 172 is 6.5
****Average Number of Words in Neighborhood of Vertex 42 is 5.5
****Average Number of Words in Neighborhood of Vertex 102 is 6.1
****Average Number of Words in Neighborhood of Vertex 202 is 6.0
****Average Number of Words in Neighborhood of Vertex 212 is 5.5
****Average Number of Words in Neighborhood of Vertex 132 is 6.6
****Average Number of Words in Neighborhood of Vertex 72 is 5.4545455
****Average Number of Words in Neighborhood of Vertex 12 is 7.6086955
****Average Number of Words in Neighborhood of Vertex 162 is 6.34375
****Average Number of Words in Neighborhood of Vertex 2 is 9.5
****Average Number of Words in Neighborhood of Vertex 13 is 6.6896553
****Average Number of Words in Neighborhood of Vertex 153 is 5.7391305
****Average Number of Words in Neighborhood of Vertex 193 is 5.7272725
****Average Number of Words in Neighborhood of Vertex 53 is 6.0
****Average Number of Words in Neighborhood of Vertex 213 is 8.111111
****Average Number of Words in Neighborhood of Vertex 93 is 6.0
****Average Number of Words in Neighborhood of Vertex 33 is 6.0
****Average Number of Words in Neighborhood of Vertex 133 is 9.0
****Average Number of Words in Neighborhood of Vertex 113 is 5.869565
****Average Number of Words in Neighborhood of Vertex 23 is 6.1
****Average Number of Words in Neighborhood of Vertex 63 is 2.0
****Average Number of Words in Neighborhood of Vertex 83 is 4.5
****Average Number of Words in Neighborhood of Vertex 143 is 7.1904764
****Average Number of Words in Neighborhood of Vertex 173 is 7.0555553
****Average Number of Words in Neighborhood of Vertex 163 is 5.3333335
****Average Number of Words in Neighborhood of Vertex 3 is 5.409091
****Average Number of Words in Neighborhood of Vertex 183 is 3.0
****Average Number of Words in Neighborhood of Vertex 223 is 6.4117646
****Average Number of Words in Neighborhood of Vertex 123 is 7.259259
****Average Number of Words in Neighborhood of Vertex 203 is 7.0
****Average Number of Words in Neighborhood of Vertex 84 is 6.3958335
****Average Number of Words in Neighborhood of Vertex 224 is 6.047619
****Average Number of Words in Neighborhood of Vertex 4 is 5.0
****Average Number of Words in Neighborhood of Vertex 134 is 7.3703704
****Average Number of Words in Neighborhood of Vertex 184 is 6.5
****Average Number of Words in Neighborhood of Vertex 54 is 6.0
****Average Number of Words in Neighborhood of Vertex 104 is 7.4
****Average Number of Words in Neighborhood of Vertex 24 is 5.8333335
****Average Number of Words in Neighborhood of Vertex 64 is 8.0
****Average Number of Words in Neighborhood of Vertex 194 is 7.3703704
****Average Number of Words in Neighborhood of Vertex 214 is 6.023256
****Average Number of Words in Neighborhood of Vertex 124 is 7.7
****Average Number of Words in Neighborhood of Vertex 154 is 5.7391305
****Average Number of Words in Neighborhood of Vertex 164 is 7.769231
****Average Number of Words in Neighborhood of Vertex 74 is 4.6666665
****Average Number of Words in Neighborhood of Vertex 204 is 6.5
****Average Number of Words in Neighborhood of Vertex 174 is 7.8
****Average Number of Words in Neighborhood of Vertex 44 is 5.5

****Average Number of Words in Neighborhood of Vertex 114 is 7.5555553
****Average Number of Words in Neighborhood of Vertex 144 is 5.0
****Average Number of Words in Neighborhood of Vertex 94 is 6.047619
****Average Number of Words in Neighborhood of Vertex 155 is 6.0
****Average Number of Words in Neighborhood of Vertex 115 is 6.1538463
****Average Number of Words in Neighborhood of Vertex 15 is 6.571429
****Average Number of Words in Neighborhood of Vertex 55 is 7.2
****Average Number of Words in Neighborhood of Vertex 25 is 5.625
****Average Number of Words in Neighborhood of Vertex 95 is 5.4
****Average Number of Words in Neighborhood of Vertex 125 is 6.5
****Average Number of Words in Neighborhood of Vertex 65 is 6.532258
****Average Number of Words in Neighborhood of Vertex 75 is 6.785714
****Average Number of Words in Neighborhood of Vertex 175 is 5.4
****Average Number of Words in Neighborhood of Vertex 185 is 5.0
****Average Number of Words in Neighborhood of Vertex 205 is 6.172414
****Average Number of Words in Neighborhood of Vertex 45 is 5.4545455
****Average Number of Words in Neighborhood of Vertex 195 is 5.5
****Average Number of Words in Neighborhood of Vertex 215 is 6.5
****Average Number of Words in Neighborhood of Vertex 135 is 6.4411764
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****Average Number of Words in Neighborhood of Vertex 165 is 6.6585364
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****Average Number of Words in Neighborhood of Vertex 116 is 6.071429
****Average Number of Words in Neighborhood of Vertex 166 is 7.3703704
****Average Number of Words in Neighborhood of Vertex 46 is 3.0
****Average Number of Words in Neighborhood of Vertex 36 is 7.7
****Average Number of Words in Neighborhood of Vertex 146 is 5.964286
****Average Number of Words in Neighborhood of Vertex 126 is 6.0
****Average Number of Words in Neighborhood of Vertex 106 is 6.047619
****Average Number of Words in Neighborhood of Vertex 206 is 6.4791665
****Average Number of Words in Neighborhood of Vertex 226 is 6.75
****Average Number of Words in Neighborhood of Vertex 186 is 6.0384617
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****Average Number of Words in Neighborhood of Vertex 86 is 6.0666666
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****Average Number of Words in Neighborhood of Vertex 176 is 6.047619
****Average Number of Words in Neighborhood of Vertex 196 is 6.5
****Average Number of Words in Neighborhood of Vertex 177 is 6.5
****Average Number of Words in Neighborhood of Vertex 187 is 7.6666665
****Average Number of Words in Neighborhood of Vertex 137 is 6.0
****Average Number of Words in Neighborhood of Vertex 217 is 6.25
****Average Number of Words in Neighborhood of Vertex 77 is 7.0
****Average Number of Words in Neighborhood of Vertex 97 is 6.638889

****Average Number of Words in Neighborhood of Vertex 107 is 5.5
****Average Number of Words in Neighborhood of Vertex 207 is 7.6
****Average Number of Words in Neighborhood of Vertex 117 is 5.3333335
****Average Number of Words in Neighborhood of Vertex 157 is 6.6666665
****Average Number of Words in Neighborhood of Vertex 127 is 6.3714285
****Average Number of Words in Neighborhood of Vertex 27 is 6.0
****Average Number of Words in Neighborhood of Vertex 57 is 6.5
****Average Number of Words in Neighborhood of Vertex 37 is 7.71875
****Average Number of Words in Neighborhood of Vertex 17 is 7.756098
****Average Number of Words in Neighborhood of Vertex 87 is 6.4
****Average Number of Words in Neighborhood of Vertex 167 is 6.714286
****Average Number of Words in Neighborhood of Vertex 147 is 6.0
****Average Number of Words in Neighborhood of Vertex 158 is 5.7391305
****Average Number of Words in Neighborhood of Vertex 28 is 7.888889
****Average Number of Words in Neighborhood of Vertex 48 is 5.4
****Average Number of Words in Neighborhood of Vertex 98 is 5.142857
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****Average Number of Words in Neighborhood of Vertex 8 is 6.071429
****Average Number of Words in Neighborhood of Vertex 18 is 7.8125
****Average Number of Words in Neighborhood of Vertex 38 is 7.2727275
****Average Number of Words in Neighborhood of Vertex 58 is 7.0
****Average Number of Words in Neighborhood of Vertex 198 is 5.638889
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****Average Number of Words in Neighborhood of Vertex 218 is 5.55
****Average Number of Words in Neighborhood of Vertex 108 is 7.4347825
****Average Number of Words in Neighborhood of Vertex 178 is 7.888889
****Average Number of Words in Neighborhood of Vertex 148 is 7.6666665
****Average Number of Words in Neighborhood of Vertex 168 is 7.3333335
****Average Number of Words in Neighborhood of Vertex 159 is 6.111111
****Average Number of Words in Neighborhood of Vertex 39 is 10.5
****Average Number of Words in Neighborhood of Vertex 189 is 8.153846
****Average Number of Words in Neighborhood of Vertex 119 is 6.3958335
****Average Number of Words in Neighborhood of Vertex 139 is 6.6153846
****Average Number of Words in Neighborhood of Vertex 169 is 2.0
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****Average Number of Words in Neighborhood of Vertex 79 is 7.02439
****Average Number of Words in Neighborhood of Vertex 59 is 3.0
****Average Number of Words in Neighborhood of Vertex 179 is 6.3333335
****Average Number of Words in Neighborhood of Vertex 149 is 6.0
****Average Number of Words in Neighborhood of Vertex 219 is 7.6666665
****Average Number of Words in Neighborhood of Vertex 89 is 6.6829267
****Average Number of Words in Neighborhood of Vertex 69 is 8.0
****Average Number of Words in Neighborhood of Vertex 49 is 6.0454545
****Average Number of Words in Neighborhood of Vertex 209 is 6.5
****Average Number of Words in Neighborhood of Vertex 109 is 6.0
****Average Number of Words in Neighborhood of Vertex 99 is 6.3958335

****Average Number of Words in Neighborhood of Vertex 129 is 8.2

****Average Number of Words in Neighborhood of Vertex 129 is 8.2