CENG 322 - ASSIGNMENT 3

Can ÇİFTÇİ - 270201080

1 thread 1000 task

```
Thread 1        Task number : 56        Value:      203 is found
Thread 1        Task number : 57        Value:      208 is inserted
Item already exist in the list
Thread 1        Task number : 58        Value:      224 is not inserted
Thread 1        Task number : 59        Value:      108 is inserted
Thread 1        Task number : 60        Value:      394 is not deleted
Thread 1        Task number : 61        Value:      23 is found
Thread 1        Task number : 62        Value:      56 is not deleted
Thread 1        Task number : 63        Value:      278 is not deleted
Thread 1        Task number : 64        Value:      131 is found
Thread 1        Task number : 65        Value:      276 is found
Thread 1        Task number : 66        Value:      437 is not deleted
Thread 1        Task number : 67        Value:      308 is not deleted
Thread 1        Task number : 68        Value:      106 is found
Thread 1        Task number : 69        Value:      395 is not deleted
Thread 1        Task number : 70        Value:      68 is inserted
Thread 1        Task number : 71        Value:      232 is not deleted
Thread 1        Task number : 72        Value:      372 is not deleted
Thread 1        Task number : 73        Value:      85 is inserted
Thread 1        Task number : 74        Value:      268 is found
Thread 1        Task number : 75        Value:      151 is not deleted
Thread 1        Task number : 76        Value:      13 is found
Thread 1        Task number : 77        Value:      190 is inserted
Thread 1        Task number : 78        Value:      84 is not deleted
Thread 1        Task number : 79        Value:      224 is deleted
Thread 1        Task number : 80        Value:      389 is inserted
Thread 1        Task number : 81        Value:      134 is inserted
Thread 1        Task number : 82        Value:      478 is not deleted
Thread 1        Task number : 83        Value:      268 is inserted
Thread 1        Task number : 84        Value:      330 is not deleted
Thread 1        Task number : 85        Value:      490 is found
Thread 1        Task number : 86        Value:      473 is found
Thread 1        Task number : 87        Value:      372 is not deleted
Thread 1        Task number : 88        Value:      364 is found
Thread 1        Task number : 89        Value:      494 is found
Thread 1        Task number : 90        Value:      499 is not deleted
Thread 1        Task number : 91        Value:      496 is found
Thread 1        Task number : 92        Value:      169 is inserted
Thread 1        Task number : 93        Value:      432 is inserted
Thread 1        Task number : 94        Value:      3 is found
Thread 1        Task number : 95        Value:      171 is inserted
Thread 1        Task number : 96        Value:      6 is inserted
Item already exist in the list
Thread 1        Task number : 97        Value:      68 is not inserted
Thread 1        Task number : 98        Value:      96 is inserted
Thread 1        Task number : 99        Value:      418 is inserted
Thread 1        Task number : 100       Value:      201 is inserted
Item already exist in the list
Thread 0        Task number : 15        Value:      18 is not inserted

---------------------------FINAL LIST----------------------------
6, 18, 41, 65, 68, 73, 85, 96, 108, 134, 169, 171, 185, 189, 190, 201, 208, 225, 230, 268, 304, 305, 326, 345, 346, 450,

[INFO] Elapsed time in seconds: 0.002132
berserkr@thinkpad:~/Desktop/CENG/ceng322/hw3$
```

2 thread 1000 task

4 thread 1000 task

8 thread 1000 task

```
Thread 2      Task number : 967      Value:    173 is not deleted
Thread 2      Task number : 968      Value:    487 is found
Thread 2      Task number : 969      Value:    94 is not deleted
Thread 2      Task number : 970      Value:    426 is inserted
Thread 2      Task number : 971      Value:    90 is deleted
Thread 2      Task number : 972      Value:    425 is inserted
Thread 2      Task number : 973      Value:    106 is found
Thread 2      Task number : 974      Value:    129 is not found
Item already exist in the list
Thread 2      Task number : 975      Value:    211 is not inserted
Thread 2      Task number : 976      Value:    173 is not deleted
Thread 2      Task number : 977      Value:    485 is inserted
Item already exist in the list
Thread 2      Task number : 978      Value:    56 is not inserted
Thread 2      Task number : 979      Value:    422 is inserted
Item already exist in the list
Thread 2      Task number : 980      Value:    85 is not inserted
Thread 2      Task number : 981      Value:    69 is not found
Thread 2      Task number : 982      Value:    120 is inserted
Thread 2      Task number : 983      Value:    8 is found
Thread 2      Task number : 984      Value:    269 is not deleted
Thread 2      Task number : 985      Value:    167 is inserted
Thread 2      Task number : 986      Value:    34 is inserted
Item already exist in the list
Thread 2      Task number : 987      Value:    247 is not inserted
Thread 2      Task number : 988      Value:    222 is inserted
Thread 2      Task number : 989      Value:    36 is not deleted
Thread 2      Task number : 990      Value:    256 is not deleted
Thread 2      Task number : 991      Value:    426 is found
Thread 2      Task number : 992      Value:    463 is not deleted
Thread 2      Task number : 993      Value:    65 is not deleted
Thread 2      Task number : 994      Value:    401 is found
Thread 2      Task number : 995      Value:    66 is inserted
Thread 2      Task number : 996      Value:    195 is found
Thread 2      Task number : 997      Value:    344 is not deleted
Thread 2      Task number : 998      Value:    376 is not deleted
Thread 2      Task number : 999      Value:    271 is found
Thread 2      Task number : 1000     Value:    8 is found
Thread 4      Task number : 513      Value:    334 is deleted
Thread 6      Task number : 251      Value:    227 is inserted
Item already exist in the list
Thread 1      Task number : 474      Value:    120 is not inserted
Thread 3      Task number : 792      Value:    63 is not deleted
Thread 0      Task number : 751      Value:    382 is not found
Thread 5      Task number : 612      Value:    114 is not deleted
Thread 7      Task number : 399      Value:    32 is deleted

-----------------------------FINAL LIST--------------------------------
1, 6, 7, 9, 14, 16, 18, 20, 24, 25, 26, 28, 34, 35, 39, 40, 42, 44, 45, 48, 52, 55, 56, 58, 64, 66, 69, 70, 74, 77, 78, 84, 85, 87, 88, 91, 92, 97, 100, 101, 102, 103, 110, 111, 115, 116, 119, 120, 123,
124, 128, 129, 132, 134, 135, 137, 140, 141, 142, 143, 146, 147, 151, 153, 156, 160, 161, 162, 164, 166, 167, 169, 174, 175, 185, 186, 187, 188, 190, 192, 194, 196, 197, 200, 202, 203, 210, 211, 212, 215
, 222, 223, 224, 227, 229, 231, 232, 233, 234, 245, 247, 253, 258, 261, 263, 264, 266, 268, 270, 273, 276, 288, 289, 291, 293, 297, 298, 299, 304, 312, 317, 318, 319, 323, 324, 330, 332, 333, 336, 337, 3
39, 340, 347, 350, 351, 352, 354, 358, 361, 362, 363, 364, 365, 366, 367, 378, 379, 381, 382, 385, 386, 388, 392, 394, 396, 402, 403, 405, 406, 411,

[INFO] Elapsed time in seconds: 0.028652
berserkr@thinkpad:~/Desktop/CENG/ceng322/hw3$
```

GRAPH FOR 1000 TASK

Graph Title

time vs thread — line1
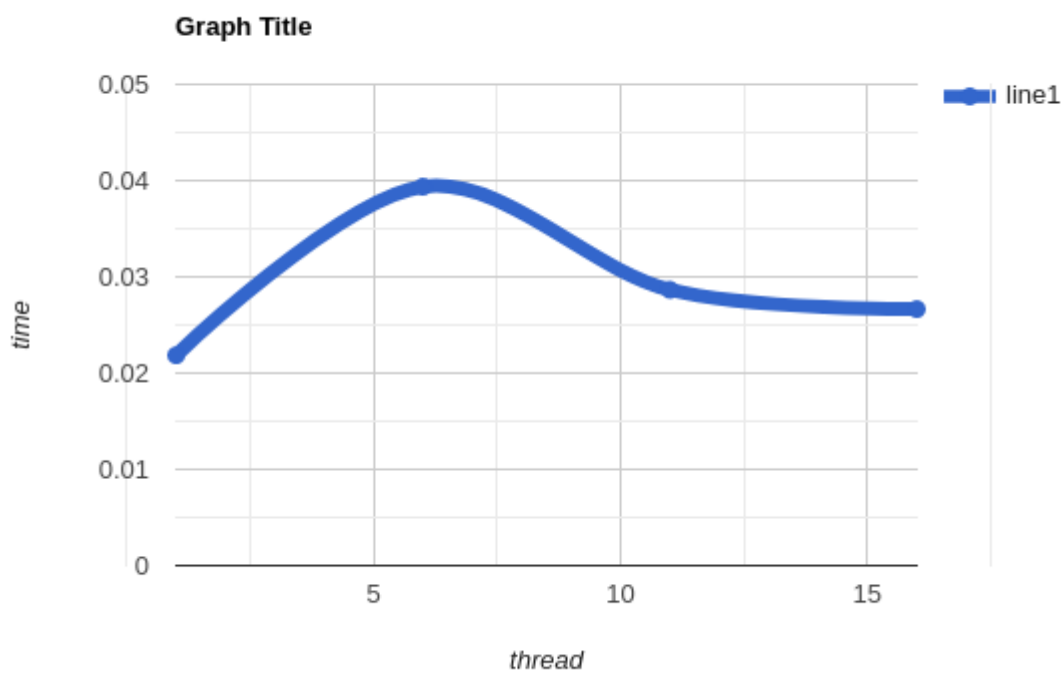
1 thread 10000 task

```
Thread 0        Task number : 975       Value:      262 is inserted
Item already exist in the list
Thread 0        Task number : 976       Value:      165 is not inserted
Thread 0        Task number : 977       Value:      435 is inserted
Thread 0        Task number : 978       Value:      491 is found
Thread 0        Task number : 979       Value:      208 is found
Thread 0        Task number : 980       Value:      36 is inserted
Thread 0        Task number : 981       Value:      107 is not deleted
Thread 0        Task number : 982       Value:      404 is not deleted
Thread 0        Task number : 983       Value:      416 is found
Thread 0        Task number : 984       Value:      11 is found
Thread 0        Task number : 985       Value:      83 is inserted
Thread 0        Task number : 986       Value:      2 is found
Thread 0        Task number : 987       Value:      482 is found
Thread 0        Task number : 988       Value:      233 is deleted
Item already exist in the list
Thread 0        Task number : 989       Value:      94 is not inserted
Thread 0        Task number : 990       Value:      4 is inserted
Thread 0        Task number : 991       Value:      147 is found
Thread 0        Task number : 992       Value:      170 is not deleted
Thread 0        Task number : 993       Value:      374 is found
Thread 0        Task number : 994       Value:      289 is not deleted
Item already exist in the list
Thread 0        Task number : 995       Value:      217 is not inserted
Thread 0        Task number : 996       Value:      155 is not found
Thread 0        Task number : 997       Value:      393 is not deleted
Thread 0        Task number : 998       Value:      205 is inserted
Thread 0        Task number : 999       Value:      325 is found
Thread 8        Task number : 187       Value:      361 is not found
Thread 9        Task number : 124       Value:      316 is not deleted
Thread 1        Task number : 125       Value:      132 is found
Thread 7        Task number : 106       Value:      467 is deleted
Thread 15       Task number : 144       Value:      476 is found
Thread 6        Task number : 15        Value:      417 is deleted
Item already exist in the list
Thread 10       Task number : 222       Value:      172 is not inserted
Item already exist in the list
Thread 4        Task number : 795       Value:      260 is not inserted
Thread 3        Task number : 968       Value:      160 is not deleted
Thread 2        Task number : 115       Value:      106 is deleted
Thread 11       Task number : 762       Value:      256 is found
Item already exist in the list
Thread 13       Task number : 800       Value:      228 is not inserted
Item already exist in the list
Thread 12       Task number : 452       Value:      391 is not inserted

----------------------------FINAL LIST---------------------------------
1, 4, 8, 15, 16, 20, 25, 28, 29, 32, 34, 35, 36, 39, 43, 44, 49, 50, 53, 54, 56, 59, 60, 65, 66, 67, 69, 70, 72, 74, 77, 82, 83, 90, 94, 103, 108, 109, 110, 112, 113, 114, 118, 119, 120, 122, 127, 129, 1
35, 138, 141, 144, 148, 153, 155, 158, 159, 163, 165, 166, 167, 169, 172, 173, 174, 176, 177, 178, 179, 181, 182, 184, 186, 188, 189, 190, 191, 194, 195, 198, 199, 201, 202, 205, 209, 210, 211, 217, 220,
226, 228, 232, 234, 236, 238, 241, 242, 247, 249, 252, 253, 260, 261, 262, 263, 264, 267, 271, 272, 273, 276, 278, 281, 282, 283, 285, 287, 288, 294, 297, 299, 302, 304, 308, 311, 314, 317, 319, 320, 32
2, 324, 326, 327, 329, 330, 331, 333, 335, 337, 340, 343, 350, 351, 352, 354, 356, 359, 361, 362, 363, 365, 367, 368, 377, 382, 389, 391, 394, 395, 398, 411, 420, 422, 423, 426, 428, 435, 437, 438, 441,
446, 447, 449, 452, 453, 460, 461, 462, 463, 468, 469, 471,

[INFO] Elapsed time in seconds: 0.026651
berserkr@thinkpad:~/Desktop/CENG/ceng322/hw3$
```

2 thread 10000 task

```
Thread 0        Task number : 9916      Value:      85 is deleted
Thread 0        Task number : 9917      Value:      270 is inserted
Thread 0        Task number : 9918      Value:      294 is deleted
Thread 0        Task number : 9919      Value:      408 is not found
Thread 0        Task number : 9920      Value:      277 is found
Thread 0        Task number : 9921      Value:      102 is inserted
Thread 0        Task number : 9922      Value:      500 is not deleted
Thread 0        Task number : 9923      Value:      456 is inserted
Thread 0        Task number : 9924      Value:      392 is deleted
Thread 0        Task number : 9925      Value:      19 is found
Thread 0        Task number : 9926      Value:      208 is found
Thread 0        Task number : 9927      Value:      197 is not deleted
Thread 0        Task number : 9928      Value:      299 is found
Thread 0        Task number : 9929      Value:      197 is inserted
Thread 0        Task number : 9930      Value:      66 is deleted
Thread 0        Task number : 9931      Value:      46 is not deleted
Thread 0        Task number : 9932      Value:      363 is found
Item already exist in the list
Thread 0        Task number : 9933      Value:      255 is not inserted
Item already exist in the list
Thread 0        Task number : 9934      Value:      396 is not inserted
Thread 0        Task number : 9935      Value:      340 is not deleted
Thread 0        Task number : 9936      Value:      322 is inserted
Thread 0        Task number : 9937      Value:      9 is found
Thread 0        Task number : 9938      Value:      95 is not deleted
Thread 0        Task number : 9939      Value:      345 is not deleted
Thread 0        Task number : 9940      Value:      336 is not found
Thread 0        Task number : 9941      Value:      226 is not found
Thread 0        Task number : 9942      Value:      136 is inserted
Item already exist in the list
Thread 0        Task number : 9943      Value:      305 is not inserted
Thread 0        Task number : 9944      Value:      393 is found
Thread 0        Task number : 9945      Value:      161 is inserted
Thread 0        Task number : 9946      Value:      224 is deleted
Thread 0        Task number : 9947      Value:      313 is deleted
Item already exist in the list
Thread 0        Task number : 9948      Value:      225 is not inserted
Thread 0        Task number : 9949      Value:      94 is not deleted
Thread 0        Task number : 9950      Value:      80 is not found
Thread 0        Task number : 9951      Value:      292 is inserted
Thread 0        Task number : 9952      Value:      225 is deleted
Thread 0        Task number : 9953      Value:      426 is not found
Thread 0        Task number : 9954      Value:      468 is inserted
Thread 0        Task number : 9955      Value:      8 is deleted

----------------------------FINAL LIST---------------------------------
1, 2, 3, 5, 15, 18, 20, 21, 23, 25, 29, 32, 34, 35, 37, 45, 49, 51, 52, 53, 54, 56, 57, 60, 65, 67, 73, 77, 78, 80, 82, 83, 86, 90, 92, 93, 96, 99, 100, 102, 103, 105, 107, 108, 109, 112, 115, 118, 120,
121, 123, 124, 126, 127, 128, 129, 130, 131, 132, 134, 135, 136, 137, 141, 142, 143, 146, 147, 148, 149, 150, 152, 156, 158, 160, 161, 166, 172, 173, 174, 175, 178, 180, 181, 182, 185, 186, 187, 188, 189
, 190, 193, 196, 197, 199, 202, 203, 205, 210, 213, 215, 217, 220, 221, 222, 223, 226, 227, 229, 232, 233, 234, 235, 239, 241, 243, 244, 246, 248, 249, 252, 253, 254, 255, 258, 259, 260, 265, 266, 267, 2
69, 270, 271, 272, 273, 274, 275, 276, 278, 279, 281, 283, 286, 289, 290, 292, 293, 295, 296, 297, 298, 301, 303, 304, 305, 306, 310, 315, 316, 319, 320, 321, 322, 323, 324, 329, 330, 332, 334, 335, 336,
337, 339, 341, 342, 346, 348, 350, 352, 353, 354, 356, 359, 364, 367, 370, 371, 372, 374, 376, 377, 380, 383, 385, 388, 389, 391, 396, 397, 398, 399, 402, 404, 405, 407, 408, 410, 414, 417, 422, 424, 42
6, 427, 430, 431, 432, 434, 435, 437, 439, 441, 443, 444, 446, 447, 448, 449, 451, 454, 456, 457, 458, 460, 462, 463, 465, 467, 469,

[INFO] Elapsed time in seconds: 0.107023
berserkr@thinkpad:~/Desktop/CENG/ceng322/hw3$
```

4 thread 10000 task

```
Thread 1      Task number : 9956      Value:      263 is not inserted
Thread 1      Task number : 9957      Value:      48 is not deleted
Thread 1      Task number : 9958      Value:      385 is deleted
Thread 1      Task number : 9959      Value:      268 is not found
Thread 1      Task number : 9960      Value:      141 is inserted
Thread 1      Task number : 9961      Value:      452 is inserted
Thread 1      Task number : 9962      Value:      312 is found
Thread 1      Task number : 9963      Value:      288 is not found
Thread 1      Task number : 9964      Value:      216 is not found
Thread 1      Task number : 9965      Value:      477 is found
Thread 1      Task number : 9966      Value:      436 is not deleted
Thread 1      Task number : 9967      Value:      460 is found
Thread 1      Task number : 9968      Value:      10 is found
Thread 1      Task number : 9969      Value:      142 is inserted
Thread 1      Task number : 9970      Value:      277 is deleted
Item already exist in the list
Thread 1      Task number : 9971      Value:      415 is not inserted
Thread 1      Task number : 9972      Value:      442 is not found
Thread 1      Task number : 9973      Value:      452 is found
Item already exist in the list
Thread 1      Task number : 9974      Value:      118 is not inserted
Thread 1      Task number : 9975      Value:      29 is not deleted
Thread 1      Task number : 9976      Value:      293 is found
Item already exist in the list
Thread 1      Task number : 9977      Value:      405 is not inserted
Thread 1      Task number : 9978      Value:      60 is not deleted
Thread 1      Task number : 9979      Value:      138 is deleted
Thread 1      Task number : 9980      Value:      482 is found
Thread 1      Task number : 9981      Value:      444 is found
Thread 1      Task number : 9982      Value:      27 is found
Thread 1      Task number : 9983      Value:      426 is found
Thread 1      Task number : 9984      Value:      17 is not found
Thread 1      Task number : 9985      Value:      216 is deleted
Thread 1      Task number : 9986      Value:      423 is deleted
Thread 1      Task number : 9987      Value:      184 is inserted
Thread 1      Task number : 9988      Value:      443 is found
Thread 1      Task number : 9989      Value:      393 is found
Thread 1      Task number : 9990      Value:      57 is deleted
Thread 1      Task number : 9991      Value:      21 is not found
Thread 1      Task number : 9992      Value:      253 is found
Thread 1      Task number : 9993      Value:      304 is not found
Thread 1      Task number : 9994      Value:      173 is found
Thread 1      Task number : 9995      Value:      440 is found
Thread 0      Task number : 8724      Value:      337 is not deleted
--------------------------------FINAL LIST--------------------------------
2, 6, 8, 11, 12, 13, 14, 17, 18, 21, 22, 24, 25, 28, 31, 32, 34, 36, 37, 40, 43, 45, 47, 50, 51, 52, 54, 55, 56, 58, 59, 63, 66, 68, 71, 72, 74, 75, 79, 81, 82, 83, 87, 88, 89, 93, 94, 97, 98, 103, 105,
106, 107, 111, 112, 118, 119, 121, 124, 128, 129, 134, 135, 136, 137, 141, 142, 143, 144, 147, 149, 150, 152, 153, 155, 158, 159, 164, 168, 169, 175, 179, 182, 184, 186, 187, 190, 192, 193, 194, 196, 197
, 198, 200, 202, 203, 205, 208, 209, 210, 212, 215, 218, 219, 220, 221, 222, 225, 226, 227, 230, 234, 236, 237, 240, 242, 243, 244, 248, 249, 251, 252, 255, 258, 262, 263, 265, 266, 268, 269, 270, 271, 2
73, 278, 281, 282, 283, 284, 285, 287, 288, 294, 298, 300, 304, 307, 309, 313, 318, 321, 324, 325, 328, 329, 331, 333, 334, 335, 336, 342, 343, 344, 346, 348, 349, 352, 353, 355, 357, 358, 361, 365, 369,
370, 371, 373, 374, 375, 376, 378, 380, 382, 386, 388, 389, 391, 392, 394, 395, 397, 404, 405, 407, 408, 411, 414, 415, 416, 417, 419, 420, 421, 425, 427, 430, 431, 432, 433, 437, 442,

[INFO] Elapsed time in seconds: 0.107033
berserkr@thinkpad:~/Desktop/CENG/ceng322/hw3$
```

8 thread 10000 task

```
Item already exist in the list
Thread 1      Task number : 9966      Value:      335 is not inserted
Item already exist in the list
Thread 1      Task number : 9967      Value:      472 is not inserted
Thread 1      Task number : 9968      Value:      421 is deleted
Thread 1      Task number : 9969      Value:      13 is found
Item already exist in the list
Thread 1      Task number : 9970      Value:      322 is not inserted
Thread 1      Task number : 9971      Value:      267 is not found
Thread 1      Task number : 9972      Value:      122 is found
Item already exist in the list
Thread 1      Task number : 9973      Value:      66 is not inserted
Thread 1      Task number : 9974      Value:      434 is not found
Thread 1      Task number : 9975      Value:      172 is inserted
Thread 1      Task number : 9976      Value:      56 is found
Thread 1      Task number : 9977      Value:      62 is inserted
Thread 1      Task number : 9978      Value:      428 is not found
Thread 1      Task number : 9979      Value:      448 is not deleted
Thread 1      Task number : 9980      Value:      479 is found
Thread 1      Task number : 9981      Value:      471 is found
Item already exist in the list
Thread 1      Task number : 9982      Value:      108 is not inserted
Thread 1      Task number : 9983      Value:      315 is found
Thread 1      Task number : 9984      Value:      172 is not found
Thread 1      Task number : 9985      Value:      104 is found
Item already exist in the list
Thread 1      Task number : 9986      Value:      137 is not inserted
Item already exist in the list
Thread 1      Task number : 9987      Value:      250 is not inserted
Item already exist in the list
Thread 1      Task number : 9988      Value:      324 is not inserted
Item already exist in the list
Thread 1      Task number : 9989      Value:      368 is not inserted
Item already exist in the list
Thread 1      Task number : 9990      Value:      111 is not inserted
Thread 1      Task number : 9991      Value:      348 is deleted
Thread 1      Task number : 9992      Value:      335 is deleted
Thread 1      Task number : 9993      Value:      231 is inserted
Item already exist in the list
Thread 1      Task number : 9994      Value:      367 is not inserted
Item already exist in the list
Thread 0      Task number : 9476      Value:      320 is not inserted
Thread 3      Task number : 8646      Value:      136 is deleted
Thread 2      Task number : 7704      Value:      1 is not deleted
--------------------------------FINAL LIST--------------------------------
4, 5, 7, 11, 12, 14, 15, 17, 20, 21, 23, 24, 25, 27, 32, 35, 36, 37, 39, 44, 48, 53, 54, 55, 58, 62, 63, 64, 66, 68, 69, 71, 72, 73, 74, 77, 83, 88, 89, 91, 92, 95, 97, 99, 102, 103, 106, 108, 109, 110,
111, 117, 118, 120, 123, 126, 129, 130, 131, 134, 135, 137, 138, 140, 141, 146, 152, 155, 156, 158, 159, 160, 165, 169, 170, 172, 176, 177, 178, 179, 180, 182, 183, 186, 187, 188, 189, 191
, 192, 199, 200, 201, 202, 203, 205, 208, 212, 215, 217, 222, 223, 224, 225, 226, 227, 229, 230, 231, 235, 236, 237, 238, 239, 240, 242, 243, 247, 249, 250, 252, 253, 255, 257, 259, 260, 263, 265, 266, 2
67, 272, 274, 275, 276, 280, 283, 284, 289, 290, 291, 292, 294, 296, 297, 300, 303, 307, 308, 309, 311, 313, 314, 320, 321, 322, 323, 324, 325, 327, 328, 329, 330, 331, 334, 339, 340, 342, 343, 345, 346,
347, 350, 355, 358, 359, 360, 361, 363, 365, 367, 368, 372, 374, 380, 381, 386, 387, 388, 389, 392, 395, 401, 410, 411, 412, 413, 416, 418, 420, 422, 425, 426, 428, 430, 431, 432, 433, 434, 435, 44
3, 444, 445, 447, 450, 451, 452, 453, 457, 458, 459, 460, 461, 468, 472,

[INFO] Elapsed time in seconds: 0.136311
berserkr@thinkpad:~/Desktop/CENG/ceng322/hw3$
```
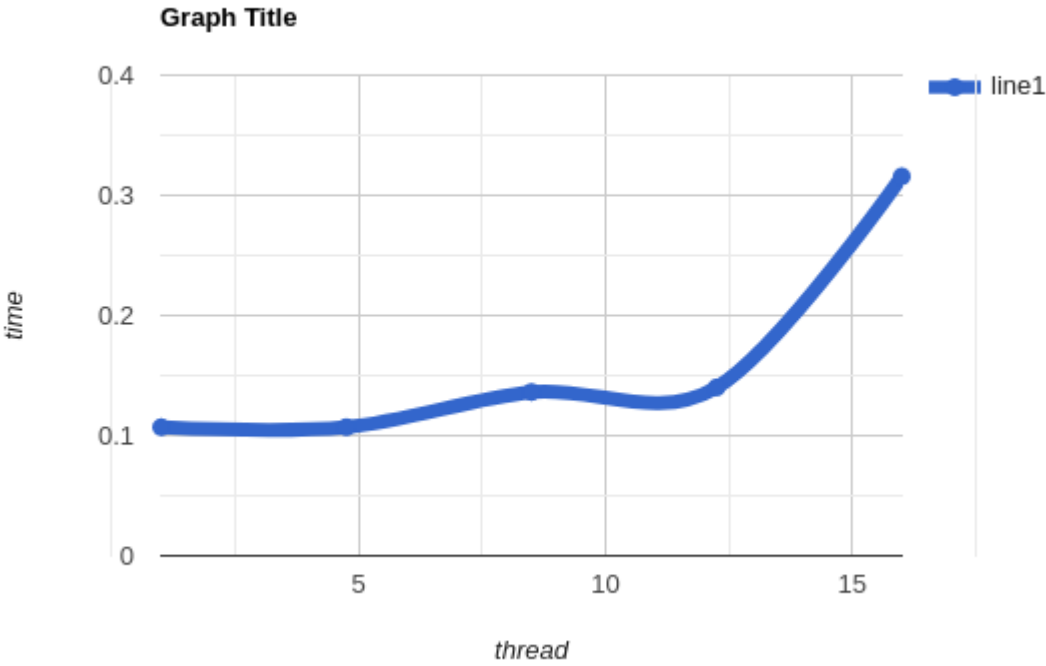
16 thread 10000 task

```
Thread 1       Task number : 9940      Value:      128 is inserted
Thread 1       Task number : 9941      Value:      126 is found
Thread 4       Task number : 9942      Value:      280 is found
Thread 4       Task number : 9943      Value:      56 is found
Thread 4       Task number : 9944      Value:      146 is inserted
Thread 4       Task number : 9945      Value:      99 is found
Thread 4       Task number : 9946      Value:      310 is found
Thread 4       Task number : 9947      Value:      379 is found
Item already exist in the list
Thread 4       Task number : 9948      Value:      2 is not inserted
Thread 4       Task number : 9949      Value:      129 is not found
Thread 4       Task number : 9950      Value:      429 is found
Thread 4       Task number : 9951      Value:      274 is not deleted
Thread 4       Task number : 9952      Value:      309 is not deleted
Thread 4       Task number : 9953      Value:      26 is deleted
Thread 5       Task number : 9954      Value:      16 is inserted
Thread 5       Task number : 9955      Value:      450 is inserted
Thread 5       Task number : 9956      Value:      313 is inserted
Thread 5       Task number : 9957      Value:      141 is deleted
Thread 5       Task number : 9958      Value:      397 is found
Thread 5       Task number : 9959      Value:      361 is not deleted
Thread 5       Task number : 9960      Value:      272 is found
Thread 5       Task number : 9961      Value:      457 is inserted
Thread 5       Task number : 9962      Value:      288 is found
Thread 5       Task number : 9963      Value:      236 is not deleted
Thread 5       Task number : 9964      Value:      410 is inserted
Thread 5       Task number : 9965      Value:      302 is inserted
Thread 5       Task number : 9966      Value:      496 is not deleted
Thread 5       Task number : 9967      Value:      486 is found
Thread 5       Task number : 9968      Value:      261 is not deleted
Thread 5       Task number : 9969      Value:      220 is found
Item already exist in the list
Thread 5       Task number : 9970      Value:      149 is not inserted
Thread 5       Task number : 9971      Value:      271 is not deleted
Thread 5       Task number : 9972      Value:      96 is deleted
Thread 5       Task number : 9973      Value:      256 is not deleted
Thread 5       Task number : 9974      Value:      458 is not deleted
Thread 5       Task number : 9975      Value:      91 is inserted
Thread 5       Task number : 9976      Value:      279 is found
Thread 5       Task number : 9977      Value:      310 is inserted
Thread 2       Task number : 9076      Value:      33 is deleted
Thread 7       Task number : 9838      Value:      422 is inserted
Thread 6       Task number : 9814      Value:      315 is found
Thread 4       Task number : 9953      Value:      26 is not deleted
Thread 3       Task number : 9733      Value:      139 is found
Thread 1       Task number : 9941      Value:      126 is found
Thread 0       Task number : 9631      Value:      73 is found
--------------------------------FINAL LIST--------------------------------
1, 2, 7, 8, 12, 14, 16, 17, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 31, 32, 38, 39, 40, 43, 44, 47, 48, 51, 52, 53, 54, 58, 59, 62, 63, 64, 65, 66, 67, 68, 70, 71, 75, 77, 80, 81, 82, 85, 88, 89, 90,
 91, 92, 95, 97, 101, 102, 104, 105, 107, 108, 109, 112, 115, 122, 124, 125, 128, 129, 130, 134, 136, 137, 140, 142, 144, 145, 146, 148, 149, 151, 154, 158, 159, 160, 164, 167, 168, 169, 171, 176, 177, 1
81, 182, 183, 185, 187, 190, 192, 193, 194, 196, 204,

[INFO] Elapsed time in seconds: 0.140139
berserkr@thinkpad:~/Desktop/CENG/ceng322/hw3$
```

GRAPH FOR 10000 TASK

1 thread 100000 task

```
Thread 2        Task number : 9967        Value:      198 is not deleted
Thread 2        Task number : 9968        Value:      341 is deleted
Item already exist in the list
Thread 2        Task number : 9969        Value:      196 is not inserted
Item already exist in the list
Thread 2        Task number : 9970        Value:      369 is not inserted
Thread 2        Task number : 9971        Value:      167 is deleted
Thread 2        Task number : 9972        Value:      341 is inserted
Thread 2        Task number : 9973        Value:      235 is not deleted
Thread 2        Task number : 9974        Value:      187 is not deleted
Thread 2        Task number : 9975        Value:      482 is found
Thread 2        Task number : 9976        Value:      465 is found
Thread 2        Task number : 9977        Value:      379 is not found
Thread 2        Task number : 9978        Value:      452 is not deleted
Thread 2        Task number : 9979        Value:      482 is found
Thread 2        Task number : 9980        Value:      10 is inserted
Thread 2        Task number : 9981        Value:      116 is found
Thread 2        Task number : 9982        Value:      314 is not deleted
Item already exist in the list
Thread 2        Task number : 9983        Value:      7 is not inserted
Thread 2        Task number : 9984        Value:      343 is found
Thread 2        Task number : 9985        Value:      106 is inserted
Thread 2        Task number : 9986        Value:      279 is found
Thread 2        Task number : 9987        Value:      370 is found
Thread 2        Task number : 9988        Value:      420 is found
Thread 7        Task number : 6692        Value:      23 is not deleted
Thread 8        Task number : 7261        Value:      20 is not deleted
Thread 9        Task number : 8974        Value:      406 is deleted
Thread 12       Task number : 6991        Value:      15 is deleted
Thread 6        Task number : 9317        Value:      35 is deleted
Thread 11       Task number : 6797        Value:      445 is found
Item already exist in the list
Thread 1        Task number : 4846        Value:      164 is not inserted
Thread 3        Task number : 9012        Value:      499 is found
Thread 15       Task number : 9457        Value:      317 is not found
Item already exist in the list
Thread 0        Task number : 6735        Value:      33 is not inserted
Thread 5        Task number : 5724        Value:      63 is not found
Thread 10       Task number : 9173        Value:      177 is not deleted
Item already exist in the list
Thread 13       Task number : 6968        Value:      132 is not inserted
Item already exist in the list
Thread 4        Task number : 6970        Value:      63 is not inserted
Thread 14       Task number : 9175        Value:      461 is not deleted

----------------------------FINAL LIST-----------------------------
2, 3, 4, 5, 7, 8, 9, 10, 12, 13, 14, 16, 17, 18, 25, 26, 29, 33, 36, 37, 38, 39, 40, 42, 43, 44, 45, 46, 47, 48, 49, 51, 52, 53, 54, 55, 58, 60, 62, 63, 64, 66, 67, 68, 70, 71, 72, 74, 75, 76, 77, 78, 82
, 83, 84, 88, 92, 93, 95, 96, 97, 98, 99, 103, 105, 106, 107, 110, 111, 112, 113, 118, 119, 120, 121, 125, 126, 129, 130, 131, 132, 137, 138, 140, 141, 142, 143, 146, 147, 148, 149, 151, 156, 159, 164, 1
65, 172, 176, 180, 183, 185, 188, 190, 191, 195, 196, 197, 201, 203, 204, 205, 207, 211, 213, 216, 218, 219, 220, 224, 226, 228, 229, 232, 234, 239, 242, 243, 244, 245, 246, 247, 248, 250, 251, 252, 253,
255, 258, 260, 262, 263, 265, 267, 269, 270, 276, 278, 280, 281, 283, 285, 286, 287, 288, 291, 294, 296, 298, 301, 303, 305, 306, 309, 313, 315, 316, 317, 319, 320, 321, 322, 325, 326, 330, 331, 333, 33
8, 340, 341, 342, 344, 345, 346, 347, 348, 351, 353, 354, 355, 356, 365, 369, 373, 374, 376, 377, 379, 385, 386, 388, 389, 390, 393, 396, 398, 400, 402, 403, 404, 408, 411, 412, 413, 414, 422, 426, 427,
429, 432, 433, 434, 435, 437, 440, 447, 448, 449, 453, 454, 467,

[INFO] Elapsed time in seconds: 0.315771
berserkr@thinkpad:~/Desktop/CENG/ceng322/hw3$
```

2 thread 100000 task

```
Item already exist in the list
Thread 1        Task number : 99846       Value:      125 is not inserted
Thread 1        Task number : 99847       Value:      421 is inserted
Item already exist in the list
Thread 1        Task number : 99848       Value:      9 is not inserted
Thread 1        Task number : 99849       Value:      166 is not deleted
Thread 1        Task number : 99850       Value:      454 is found
Thread 1        Task number : 99851       Value:      310 is found
Thread 1        Task number : 99852       Value:      369 is not deleted
Thread 1        Task number : 99853       Value:      155 is not found
Thread 1        Task number : 99854       Value:      399 is inserted
Thread 1        Task number : 99855       Value:      28 is deleted
Thread 1        Task number : 99856       Value:      185 is inserted
Thread 1        Task number : 99857       Value:      281 is not deleted
Thread 1        Task number : 99858       Value:      414 is inserted
Thread 1        Task number : 99859       Value:      446 is inserted
Thread 1        Task number : 99860       Value:      487 is found
Thread 1        Task number : 99861       Value:      84 is inserted
Thread 1        Task number : 99862       Value:      184 is found
Thread 1        Task number : 99863       Value:      331 is inserted
Thread 1        Task number : 99864       Value:      468 is not deleted
Thread 1        Task number : 99865       Value:      461 is not deleted
Thread 1        Task number : 99866       Value:      441 is not deleted
Thread 1        Task number : 99867       Value:      274 is found
Thread 1        Task number : 99868       Value:      221 is not deleted
Item already exist in the list
Thread 1        Task number : 99869       Value:      143 is not inserted
Thread 1        Task number : 99870       Value:      288 is found
Thread 1        Task number : 99871       Value:      377 is inserted
Thread 1        Task number : 99872       Value:      422 is found
Thread 1        Task number : 99873       Value:      417 is not deleted
Thread 1        Task number : 99874       Value:      464 is inserted
Thread 1        Task number : 99875       Value:      41 is not found
Thread 1        Task number : 99876       Value:      276 is inserted
Thread 1        Task number : 99877       Value:      265 is inserted
Thread 1        Task number : 99878       Value:      128 is inserted
Thread 1        Task number : 99879       Value:      286 is inserted
Thread 1        Task number : 99880       Value:      295 is inserted
Thread 1        Task number : 99881       Value:      220 is inserted
Item already exist in the list
Thread 1        Task number : 99882       Value:      139 is not inserted
Thread 1        Task number : 99883       Value:      248 is not deleted
Thread 1        Task number : 99884       Value:      478 is inserted
Thread 1        Task number : 99885       Value:      183 is not found
Thread 1        Task number : 99886       Value:      265 is not deleted
Thread 1        Task number : 99887       Value:      440 is found
Thread 0        Task number : 98421       Value:      181 is found

----------------------------FINAL LIST-----------------------------
1, 4, 9, 13, 14, 15, 16, 17, 18, 20, 25, 32, 34, 35, 39, 40, 41, 43, 44, 46, 48, 49, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 63, 64, 65, 66, 69, 70, 72, 73, 74, 76, 77, 82, 83, 84, 86, 87, 89, 91, 93, 94
, 96, 97, 101, 105, 106, 108, 109, 110, 111, 115, 117, 118, 119, 120, 123, 125, 126, 128, 131, 134, 136, 137, 138, 139, 143, 145, 147, 148, 150, 152, 153, 154, 155, 156, 159, 160, 164, 168, 170, 171, 172
, 176, 177, 178, 180, 183, 185, 188, 189, 191, 194, 196, 197, 202,

[INFO] Elapsed time in seconds: 1.119241
berserkr@thinkpad:~/Desktop/CENG/ceng322/hw3$
```

4 thread 100000 task

```
Thread 0      Task number : 99893      Value:      328 is found
Thread 0      Task number : 99894      Value:      189 is deleted
Thread 0      Task number : 99895      Value:      279 is not deleted
Thread 0      Task number : 99896      Value:      223 is deleted
Thread 0      Task number : 99897      Value:      414 is found
Thread 0      Task number : 99898      Value:      2 is not deleted
Thread 0      Task number : 99899      Value:      215 is deleted
Thread 0      Task number : 99900      Value:      423 is inserted
Item already exist in the list
Thread 0      Task number : 99901      Value:      213 is not inserted
Thread 0      Task number : 99902      Value:      359 is inserted
Thread 0      Task number : 99903      Value:      345 is inserted
Thread 0      Task number : 99904      Value:      188 is not deleted
Item already exist in the list
Thread 0      Task number : 99905      Value:      93 is not inserted
Thread 0      Task number : 99906      Value:      436 is not deleted
Thread 0      Task number : 99907      Value:      131 is not found
Item already exist in the list
Thread 0      Task number : 99908      Value:      131 is not inserted
Thread 0      Task number : 99909      Value:      293 is inserted
Thread 0      Task number : 99910      Value:      72 is not deleted
Thread 0      Task number : 99911      Value:      42 is not found
Item already exist in the list
Thread 0      Task number : 99912      Value:      131 is not inserted
Thread 0      Task number : 99913      Value:      432 is not deleted
Thread 0      Task number : 99914      Value:      7 is not found
Thread 0      Task number : 99915      Value:      301 is found
Thread 0      Task number : 99916      Value:      110 is not found
Thread 0      Task number : 99917      Value:      384 is found
Thread 0      Task number : 99918      Value:      369 is inserted
Thread 0      Task number : 99919      Value:      322 is inserted
Thread 0      Task number : 99920      Value:      267 is found
Thread 0      Task number : 99921      Value:      199 is found
Item already exist in the list
Thread 0      Task number : 99922      Value:      92 is not inserted
Thread 0      Task number : 99923      Value:      75 is inserted
Thread 0      Task number : 99924      Value:      490 is found
Thread 0      Task number : 99925      Value:      244 is inserted
Thread 0      Task number : 99926      Value:      143 is inserted
Item already exist in the list
Thread 0      Task number : 99927      Value:      60 is not inserted
Thread 0      Task number : 99928      Value:      444 is found
Thread 0      Task number : 99929      Value:      108 is deleted
Thread 0      Task number : 99930      Value:      488 is found
Thread 0      Task number : 99931      Value:      83 is not found
Thread 0      Task number : 99932      Value:      125 is not deleted
Thread 0      Task number : 99933      Value:      416 is inserted
-----------------------------FINAL LIST-------------------------------
1, 3, 5, 6, 7, 8, 10, 12, 13, 16, 24, 26, 29, 31, 32, 35, 36, 40, 42, 43, 47, 53, 54, 57, 59, 60, 62, 64, 65, 67, 68, 69, 70, 73, 74, 75, 78, 81, 83, 84, 86, 87, 88, 89, 92, 93, 94, 95, 97, 98, 99, 100,
101, 102, 103, 104, 105, 110, 111, 113, 114, 115, 116, 118, 120, 122, 124, 126, 128, 129, 131, 134, 136, 137, 138, 141, 143, 144, 145, 146, 151, 158, 160, 161, 163, 165, 167, 168, 169, 170, 172, 173, 175
, 176, 177, 179, 181, 185, 186, 187, 190, 191, 193, 194, 195, 197, 201, 202, 203, 204, 206, 209, 210, 212, 213, 214, 221, 222, 231,

[INFO] Elapsed time in seconds: 1.377615
berserkr@thinkpad:~/Desktop/CENG/ceng322/hw3$
```

8 thread 100000 task

```
Thread 4      Task number : 99941      Value:      311 is found
Thread 4      Task number : 99942      Value:      21 is found
Thread 4      Task number : 99943      Value:      269 is found
Thread 4      Task number : 99944      Value:      77 is not found
Thread 4      Task number : 99945      Value:      487 is not deleted
Thread 4      Task number : 99946      Value:      315 is not deleted
Thread 4      Task number : 99947      Value:      461 is inserted
Thread 4      Task number : 99948      Value:      5 is deleted
Thread 4      Task number : 99949      Value:      41 is found
Thread 4      Task number : 99950      Value:      118 is deleted
Thread 4      Task number : 99951      Value:      346 is inserted
Thread 4      Task number : 99952      Value:      361 is inserted
Thread 4      Task number : 99953      Value:      68 is found
Thread 4      Task number : 99954      Value:      82 is not found
Thread 4      Task number : 99955      Value:      314 is not deleted
Thread 4      Task number : 99956      Value:      238 is found
Thread 4      Task number : 99957      Value:      244 is inserted
Thread 4      Task number : 99958      Value:      88 is not deleted
Thread 4      Task number : 99959      Value:      430 is inserted
Thread 4      Task number : 99960      Value:      475 is found
Thread 4      Task number : 99961      Value:      287 is not deleted
Thread 4      Task number : 99962      Value:      401 is not deleted
Thread 4      Task number : 99963      Value:      169 is inserted
Thread 4      Task number : 99964      Value:      319 is not deleted
Thread 4      Task number : 99965      Value:      286 is inserted
Thread 4      Task number : 99966      Value:      1 is inserted
Thread 4      Task number : 99967      Value:      59 is inserted
Thread 7      Task number : 99968      Value:      182 is not deleted
Thread 7      Task number : 99969      Value:      5 is not deleted
Thread 7      Task number : 99970      Value:      472 is inserted
Thread 7      Task number : 99971      Value:      405 is found
Thread 7      Task number : 99972      Value:      146 is deleted
Thread 7      Task number : 99973      Value:      318 is inserted
Thread 7      Task number : 99974      Value:      12 is deleted
Thread 7      Task number : 99975      Value:      100 is not found
Thread 7      Task number : 99976      Value:      368 is inserted
Thread 7      Task number : 99977      Value:      480 is found
Thread 7      Task number : 99978      Value:      337 is inserted
Thread 7      Task number : 99979      Value:      24 is not deleted
Thread 7      Task number : 99980      Value:      357 is inserted
Thread 6      Task number : 99356      Value:      232 is found
Thread 0      Task number : 99918      Value:      153 is found
Item already exist in the list
Thread 4      Task number : 99967      Value:      59 is not inserted
Thread 2      Task number : 99912      Value:      422 is inserted
Thread 1      Task number : 97882      Value:      331 is not deleted
Thread 5      Task number : 99084      Value:      21 is not deleted
Thread 3      Task number : 97941      Value:      227 is inserted

-----------------------------FINAL LIST-------------------------------
1, 3, 6, 10, 16, 18, 19, 22, 25, 26, 27, 30, 36, 37, 40, 47, 53, 54, 56, 59, 60, 61, 63, 64, 65, 66, 69, 72, 73, 74, 76, 77, 78, 79, 80, 82, 84, 86, 89, 91, 93, 94, 96, 99, 100, 104, 109, 113, 114, 115,
116, 117, 119, 121, 123, 125, 126, 128, 129, 130, 132, 134, 136, 139, 143, 144, 145, 147, 149, 151, 154,

[INFO] Elapsed time in seconds: 1.143277
berserkr@thinkpad:~/Desktop/CENG/ceng322/hw3$
```

16 thread 100000 task

```
Thread 6        Task number : 99922      Value:      263 is inserted
Thread 6        Task number : 99923      Value:      236 is inserted
Thread 6        Task number : 99924      Value:      288 is inserted
Thread 6        Task number : 99925      Value:      270 is found
Thread 6        Task number : 99926      Value:      489 is not deleted
Thread 6        Task number : 99927      Value:      391 is not deleted
Thread 6        Task number : 99928      Value:      103 is deleted
Thread 6        Task number : 99929      Value:      461 is not deleted
Thread 6        Task number : 99930      Value:      149 is inserted
Thread 6        Task number : 99931      Value:      415 is not deleted
Thread 6        Task number : 99932      Value:      94 is not deleted
Thread 6        Task number : 99933      Value:      1 is not deleted
Thread 6        Task number : 99934      Value:      448 is not deleted
Thread 6        Task number : 99935      Value:      64 is deleted
Thread 6        Task number : 99936      Value:      158 is deleted
Thread 6        Task number : 99937      Value:      174 is inserted
Thread 6        Task number : 99938      Value:      127 is inserted
Thread 6        Task number : 99939      Value:      236 is not deleted
Thread 6        Task number : 99940      Value:      297 is not deleted
Item already exist in the list
Thread 6        Task number : 99941      Value:      22 is not inserted
Thread 6        Task number : 99942      Value:      179 is found
Thread 6        Task number : 99943      Value:      15 is not deleted
Thread 6        Task number : 99944      Value:      39 is inserted
Item already exist in the list
Thread 6        Task number : 99945      Value:      18 is not inserted
Thread 6        Task number : 99946      Value:      92 is not found
Thread 6        Task number : 99947      Value:      189 is not deleted
Thread 6        Task number : 99948      Value:      452 is inserted
Thread 6        Task number : 99949      Value:      219 is not deleted
Thread 6        Task number : 99950      Value:      499 is found
Item already exist in the list
Thread 7        Task number : 99951      Value:      170 is not inserted
Thread 5        Task number : 99819      Value:      86 is not found
Thread 0        Task number : 96527      Value:      87 is not deleted
Thread 8        Task number : 99861      Value:      12 is not deleted
Thread 9        Task number : 99656      Value:      367 is not deleted
Thread 15        Task number : 99718      Value:      206 is found
Thread 10        Task number : 99836      Value:      169 is found
Thread 1        Task number : 99882      Value:      140 is found
Thread 14        Task number : 98443      Value:      366 is not deleted
Thread 2        Task number : 99868      Value:      251 is not deleted
Thread 4        Task number : 98016      Value:      361 is not deleted
Thread 12        Task number : 99677      Value:      210 is not deleted
Thread 11        Task number : 99614      Value:      296 is not deleted
Thread 3        Task number : 98310      Value:      94 is not deleted
Thread 13        Task number : 97986      Value:      196 is not deleted

--------------------------------FINAL LIST--------------------------------
3, 5, 6, 8, 9, 10, 11, 13, 17, 18, 19, 20, 21, 22, 23, 26, 27, 28, 35, 36, 37, 38, 39, 40, 41, 47, 49, 50, 51, 54, 61, 62, 65, 69, 70, 71, 72, 73, 76, 79, 80, 83, 86, 88, 90, 92, 95, 98, 99, 101, 102, 10
8, 110, 111, 112, 113, 116, 119, 124, 125, 126, 127, 129, 130, 131, 132, 134, 135, 136, 137, 138, 143, 145, 146, 149, 150, 154, 156, 157, 159, 160, 161, 165, 170, 172, 174, 176, 178, 180, 181, 183, 184,
187, 188,

[INFO] Elapsed time in seconds: 1.606678
berserkr@thinkpad:~/Desktop/CENG/ceng322/hw3$
```

GRAPH FOR 100000 TASK