

NETWORK DATA STREAMING

VASU NEGI

8495-3933

PROJECT-1

In order to run these programs on *nix based/MAC system, follow the instructions below:

- Go to project directory in terminal
- Type the command in the following way:

python file_name parameter1 parameter2 parameter3 parameter4

(number of parameters depend on the algorithm that you will run)

Multi-hashing Table:

Run: python Multihashing.py 1000 1000 3

Where the parameters are:

number of table entries, number of flows, number of hashes

Following is the output result for:

number of table entries = 1000, number of flows = 1000, number of hashes = 3

Number of Entries: 810

```
(base) vasus-MacBook-Pro:Assignment 1 vasunegi$ python Multihashing.py 1000 1000 3
Number of entries -> 810
list of table entries -> 13084, 757, None, 1775, 3008, 9185, 754, 2749, 1764, 6749, 6750, 5087, 6744, 6561, 6824, 5635, 4700, 5997, 2614, 6743, 5730, 785, 6586, None, 2572, 7597, 4684, 7751, 4984, 3795, 2570, 7595, 5980, None, 2566, 8983,
6536, 6883, 7586, 6801, 9988, 7049, 558, 4687, 5728, 2585, 5954, None, 4948, 3597, 5946, 4679, 314, 315, 9858, 4523, 1748, 4957, 8716, 7567, 9808, None, None, 4515, 4692, 5709, 6638, 4543, 4688, 2833, 1282, 6635, 3694, 8021, 292, 1215, 2
680, 5545, 7034, 4761, 1334, None, None, 9031, None, 2673, None, 3283, 1326, 181, 542, 3687, None, 5561, None, 8003, 4508, None, None, None, 6680, 1545, 8010, 265, 2652, 9181, None, 1543, 2464, 8873, 4498, 6595, 4688, 1565, 380, 8871, 550
4, 6517, None, 611, 148, 2485, 3654, None, 1160, 6099, 6610, None, None, 9981, 9982, None, 3672, 2491, 7618, 3491, 7956, 3245, 3518, 1639, 3664, 4593, None, 2435, 4556, 5685, 1662, 1663, None, 9913, 9914, 2459, 7468, 3469, 9854, None, 644
8, None, 8858, 3227, 4316, 1183, 6524, 5623, 592, 9845, 8859, None, 2532, 9861, 2198, None, 1680, 3481, 3482, 6939, 2476, 6429, 5286, 7479, 6426, 188, 6426, 6427, None, None, 1182, 9879, 88, 4385, 7434, 7435, None, 3557, 2510, None, 3168,
2585, 7426, 2187, 4580, 405, 70, None, 8984, 7531, 5418, 2499, 4364, 493, 8982, 495, 8976, 9977, 1058, None, 5436, 4517, 2150, 5439, 9948, 5433, 2514, 7355, 4388, None, 7588, 2351, 6472, 595, 3522, None, 8972, 5389, 8758, None, 6464, 151
3, 9922, None, 1508, 2365, None, None, 4456, None, 8738, None, None, 7615, 9942, None, 7496, None, 6482, 5483, 4220, 8757, 7494, 7608, 472, 1521, 2314, None, 468, 9765, 5486, 4471, None, None, 9482, None, 8788, 2333, None, 7511, 7584, 839
3, 4426, 2107, 7340, 7341, 7342, None, 4416, 9385, 4418, None, 2892, 2413, 4446, 7335, 7328, None, 9738, 7331, 4164, 7357, 6278, None, None, 6273, 8354, 6275, None, 8885, 7254, 2079, 264, 8361, 9784, None, 4268, 5469, 1486, 9761, 8336, 88
25, None, 2081, 6300, 6253, 4285, 207, 3424, 5137, 9834, 5459, 9598, None, 6612, 2051, 448, 3449, 7322, 1407, 8772, 1285, 7318, None, 8516, 8769, 4680, 8331, 389, 8797, None, 4231, 352, 4595, 2386, None, 3396, 8789, 382, 6639, 376, 4249,
8786, None, 3428, 3533, 4246, None, 8624, 7417, 370, 9795, 9636, 333, 5254, 2527, None, 7489, 1378, None, None, 5581, 1422, 3247, 7348, 5589, 7378, 323, 1394, None, 1828, 189, 8288, 3233, 3490, 5267, None, 7181, 180, None, 7384, None, 454
4, 8595, 4308, 2205, 3254, 9487, 1138, 5345, 6170, 5347, 164, 7199, 9630, None, 3208, 5369, None, None, 2284, 6157, 9622, None, None, 6153, 4314, 5555, 6148, 357, 2454, 3231, 7224, None, 178, 9243, 5316, None, 4142, None, None, 8649, 138,
8235, 6548, 3809, 134, 4135, 4128, 2179, None, 1355, 6252, 7173, 2284, 159, 8216, 9713, 8218, 3299, 3324, 3325, 2422, 2423, 144, 5529, None, 3209, 6268, 2269, 9702, None, 7184, None, None, 5155, 7276, 8663, 3278, 6213, None, None, None,
None, 8708, None, 8510, 7271, None, None, 8566, 251, 5508, 2389, 1265, 2391, 9512, None, 9514, 4579, 4284, 285, 2110, 3383, 3280, 1249, None, 283, 2100, 6565, 4189, 199, None, 5145, 4174, 9531, 9524, 6383, 8670, 5143, 3104, 9649, 7082, 31
87, None, 4213, 214, 229, None, 9457, 1226, 3371, 2364, 3125, 46, 8599, 1266, 2873, 2874, 5219, 2868, 9645, 3358, 3887, 4160, 5449, 1256, 1243, 9492, None, None, 9495, None, 3891, 4186, None, 7318, 2149, 8126, 2151, None, 4177, 9576, 7043
, 1040, 3093, 14, 1735, 3874, 6379, 9570, 8115, 2164, 6421, 8388, None, 7418, None, None, 8075, 7492, 3863, None, 3175, 7144, 729, 6586, 8603, None, 21, 1038, 711, 6056, 5041, 2802, 2803, 9572, 8365, 3844, 8887, 1824, 5001, None, 5003, 95
64, 3885, 2916, 7159, 7480, 7153, 2786, 9563, 5876, 9557, 3142, 2909, 2984, 1841, 6474, None, 3164, 3165, None, 7111, 8368, 1129, 114, None, 5100, 1669, None, 3807, 7128, 7441, 8178, 6459, None, None, 5894, 6047, 7448, 2993, 1146, 2995, 5
115, None, 94, None, None, 6553, 9394, 2955, 8516, 6935, 5118, 8343, 4824, 8153, 8154, 3913, 2998, None, 942, 8151, 6112, 4817, None, 651, 1116, 6141, 5862, 8423, None, 6481, 2962, None, 6924, 1109, 958, None, None, 5882, 3971, 7916
, None, 4894, 6983, 8322, 7993, 5874, 4883, 8396, 3849, None, 911, 3984, 7985, 4818, 8395, None, None, 6934, 8861, 4894, None, 7946, 9467, None, 8413, 3686, 6183, 9455, 1965, 9344, 8049, 8622, 9421, 4894, 7815, 1928, 9417, None, 579, 9462
, 1085, None, 4783, 4872, None, 5922, 1571, None, 4869, None, 5951, 1576, 8041, 4754, 5947, 2668, 1021, 9444, 2671, 4832, 4889, 4834, None, 8932, 8245, 6982, 4887, 544, 1009, None, 9259, 972, 4973, 2822, None, 2016, 9921, None, None, 7078
, None, None, 8125, 8008, 9011, 3882, 6995, None, 989, 9412, 2831, 9264, 2033, 8922, 2827, 8828, 8213, 1998, None, 7816, 977, None, 979, 9228, 8980, 3894, 5991, 4936, None, 2842, 3683, 8292, 1013, None, 6815, 2592, 801, 8290, 5961, 2924,
5959, 9238, 7847, 824, None, 8898, 7843, 5964, 5865, 7070, 1839, 2576, 9321, 5784, 2579, 780, None, 9084, 7843, 6888, 6889, 773, 9215, 7828, 4093, None, 4095, 4768, 3945, 778, 3609, 9232, 1973, None, 2575, 2888, 905, None, None, 3964, 775
7, None, None, None, 2881, 9298, 545, 3956, 9285, 6910, 6911, 5632, 6746, 9826, None, 7748, 6725, 9838, 1581, None, 4737, 4738, 2899, 8828, None, 9814, 2735, None, 6857, 1548, 4763, 7932, 5773, None, None, None, 4753, 1898, 6705, 6876, 84
5, 7926, 7927, 3920, None, 2746, None, 7808, 837, 918, 6127, 5184, 3675, 5106, 4835, 1988, 9117, None, 2783, 4856, 7873, None, 4003, 1868, None, 7902, 6695, 1658, None, 7898, None, None, None, 4814, None, 7888, 8777, 5858, 7891, 1884, 377
5, 9198, None, None, 1881, 7222, 675, 6668, 7717, 6670, 6671, 696, None, 3714, 699, 3740, 4821, 5838, 7743, 8168, 2961, 5834, None, 7732, 877, 9734, 6055, 648, 1697, 7738, 4651, None, 9157, None, 3823, 3816, None, 3818, 9155, None, None,
None, None, None, 665, None, 5345, None, 651, 4662, 8711, 1722, 2753, None, 6707, 7780, 5837, 2782, 5671, 9080, 5665, None, None, 1692, 3789, 3798, 2775, None, 5689, 6026, 1691, 6064, 9213, 766, 7119, 3776, 761, 7760, 6083]
```

Cuckoo Hash Table:

Run: python CuckooHashing.py 1000 1000 3 2

Where the parameters are:

number of table entries, number of flows, number of hashes, number of Cuckoo steps

Following is the output result for:

number of table entries = 1000, number of flows = 1000, number of hashes = 3, number of Cuckoo steps = 2

Number of Entries: 939

```
(base) vusun-MacBook-Pro:Assignment 1 vusunegil$ python CuckooHashing.py 1000 1000 3 2
Number of entries -> 939
list of table entries -> [7093, 3884, 4323, 893, 9945, 2731, 9727, 9946, 1878, 1871, 9715, 830, 3817, 8283, 2896, 2350, 9134, 3812, 8127, 6222, 2341, 274, 4343, 7874, 6586, 2360, 8943, 2362, None, 8936, 9296, 785, 805, 4996, 4291, 4846, 9
977, 8716, 9979, 802, 7245, 8704, None, 3933, 8897, 9968, 8711, 7302, 782, 4188, 7323, 9778, 3389, 9968, 1835, 2310, 9957, 9736, 4183, 7314, 969, 6016, 6035, 5817, 6798, 6799, 967, 6338, 4169, 7280, 4171, 6826, 2085, 6068, 4071, 9878, 727
3, 5288, 351, 1398, 2401, 5284, 339, 7270, 9865, 4404, 9867, None, 5197, 4212, 6151, 4981, 6145, 6364, 3883, 6050, 2845, 9916, 988, None, 2137, None, 4984, 7857, 4966, 3972, 2868, None, 445, 5963, 9216, 4961, 7173, 6188, 7004, 5238, 997
7, None, 7648, 9942, 393, 2020, 4139, 8786, 2113, 7224, None, 9890, 4613, 988, 4111, 9830, 4898, 6568, None, 898, 4878, 9084, None, 1458, 3145, 1936, 3824, 7218, 4878, 9876, 7287, 1934, 89, 9072, 8808, 9074, 3197, 8615, 6343, 5134, 2842, 214
4, 939, 4430, 8841, 927, 8843, 78, 73, 6392, 75, 4130, 9913, 584, 8444, 6399, 7429, 7428, 4896, 1438, 3513, 8172, 2848, 7468, 1938, 8568, 4832, 4833, 8438, 9463, 6523, 8974, 8949, None, 9871, 7418, 1893, 188, 5924, 7414, 9861, 6923, 80, 3
49, 4293, 4292, 2103, 9882, 7962, None, 3883, 1929, 5333, 3488, 6287, 4358, 6469, 9876, 9995, 4346, 6489, 1132, 23, 7326, 8949, 9964, 9368, 4338, 8374, 4332, 6956, 1957, 5313, 8908, 4331, 1582, 6325, 3552, 1092, 6093, 9346, 1492, 2259, 5
870, 6134, 1584, 3804, 3110, 98, 6312, 6128, 1097, 4245, 6388, 6359, 3294, 49, 1548, 3575, 7518, 2513, 9928, 1031, 7594, 6581, 628, None, 2622, 37, 5520, 9215, 3157, 3629, 6488, 3527, 3638, 7166, None, 223, 2286, 2, 7612, 639, 2282, 9197,
712, 4279, 4564, 6587, 8523, 4275, None, 7150, 7568, 52, 6526, 3146, 8563, 7589, 9186, 4569, 5831, 7583, 6518, 1241, None, 6824, 5185, 5161, 5308, 8164, 6986, 9546, 2184, 9544, 6586, 7569, 8976, 247, 6877, None, 7572, 243, 1614, 1221, 44
28, 4431, 4615, 5217, 6424, 7539, 6425, 8894, 2372, 4691, 5478, 225, 7891, 1855, 9802, 9881, 8871, None, 698, None, 6780, 5687, 7678, 4449, 2212, 3263, 2626, 5234, 7668, 7451, 3258, 7445, 3252, 2651, 2398, 2653, 4716, 3251, 2394, 4785, 11
88, 8124, None, 2385, None, 5217, 6445, 4388, 7431, 7261, 4377, 3232, 7427, 7718, 8494, 8111, 5148, 4189, 4369, 235, 7483, 1678, 9285, 4364, 1276, 7478, 2749, None, 6619, 3418, 2421, 8671, 2423, 7698, 5757, None, 8664, 162, 3397, 46
96, 2415, 2414, 1201, 2708, 2288, 6682, 2689, 6175, 4148, 2698, 6757, 6592, 7643, 4137, 333, 5388, 4399, None, 9698, 179, 331, 2718, 3318, 4319, None, 3438, 4314, 2788, 323, 3313, None, 2316, 4324, 1778, 7781, 7788, 6635, 1362, 5881, 7175
5423, 4566, 2385, 2384, 6727, 8242, 4657, 2183, 5795, 1358, 7665, 812, 7667, 6758, 4549, 5596, 6551, 8685, 7757, 7756, 6547, 7658, 9269, None, 4763, 9278, None, 1195, 6352, 1758, 9261, 3388, 9263, 5582, 5362, 6828, 1387, 2233, 8636, 658
8, 8389, 4596, 1377, 8627, 8395, 8394, 4833, 8639, 6583, None, 773, 9683, 5371, 3378, 9429, 1359, 4859, 6357, 6569, 1355, 2587, 3342, 389, 5564, 1298, 2858, 7489, 384, 348, 1586, 381, 380, 3543, 5858, 2853, 6548, 4515, 9410, 1382, 5235, N
one, 4882, 5529, 8228, 288, 6886, 2825, 3872, 2543, 4826, 3521, 4536, None, 257, 8241, 3580, 1327, 7834, 2426, 4828, 9451, 886, 4525, 2848, 2443, 6782, 6777, 387, 459, 7481, 9373, 6564, 7759, 7914, 2449, None, 4515, 3562, 8381, 1904, 6767
4421, 1489, 7988, 288, None, 1485, 7383, 2439, 5558, 4426, 2331, 4919, 2434, 6685, 2492, 4687, 1478, 6681, 4467, 8363, 7794, 8357, 5944, 7348, 5946, 8293, 9827, 5951, 1538, 2477, 3359, 8543, 9398, 5713, 1323, 5715, 6666, 4881, 404, 6663
3518, 9325, 7704, 483, 8318, 8525, 2343, 9315, 8526, 4713, 6712, 4975, 6714, 2645, 7511, 588, 5758, 981, 6475, 2643, 1473, 9329, 3391, 5484, 4357, None, 5483, 2512, 1481, 3929, 9288, 3679, 6694, 9545, 7988, 4983, 6521, 8557, 5984, 4939,
None, 5988, 4483, 7991, 7497, 8926, 4888, None, 7949, 4932, 8928, 1586, 9589, 4888, 1819, 486, 6885, 2644, 4384, 2845, 3824, 7988, 7983, 4946, 3785, None, 8424, 8446, 4453, 2535, 8639, 4818, None, 854, 5432, 2868, 7888, 7824, 8827,
9925, 7829, 7888, 2967, 2678, 6893, 8935, 7879, 8346, 1617, 5852, 2839, 7874, 6885, 3612, 6979, 9486, 6458, 8496, 3999, 3998, 5598, 599, 3687, 1986, 3601, 4595, 2432, 9358, 7917, 9632, 615, 614, 689, 8488, 2611, 1658, 3686, 6796, 88083, 8
882, 4869, 5848, 2087, 577, 6789, 1623, 4855, 3461, 7833, 4892, 7879, 1878, 4881, 524, 8819, 526, 13, 8396, 6843, 6593, 517, 7828, 3, 8646, 813, None, 4847, 6846, 573, 6832, 612, 2898, 9681, 568, 3619, 3618, 1833, 2786, 5107, None, 1545,
6124, 8867, 5866, 557, 2812, 2187, 5862, 553, 1536, 6024, 7882, 8873, 9724, 5791, 1388, 4538, 6992, 9723, 1594, 7845, 8584, None, 122, 4793, 2792, 731, 1586, 4526, 7138, None, 9705, 4523, 3835, 6978, 5565, None, 7163, 1122, 8461, 98
78, 715, 3826, 488, 2671, 8451, 3882, 3817, 9624, 2787, None, 8885, 551, 767, 3874, None, 2155, 95, 9887, 9878, 2692, None, 9482, 1181, 8188, 1739, 8626, 9473, 4948, 5744, 3693, 4937, 172, 2175, None, 151, 2575, 4732, 8614, None, 4928, 9
659, 9582, None, 4988, 4991, 4122, 1777, 6928, 8575, 4126, 6177, 4112, 9647, 9578, 181, 8156, 2616, 713, 5121, 2699, 655, 6974, 649, 5124, 2143, 8778, 2981, 5735, 8775, 9594, 3753, 2132, 4963, None, 2893, 3647, 6887, None, 7205, 4282, 168
3, 1682, 1677, 4884, 8823, 4621, 1165, 5992, 3167, 4882, 4662, 6168, 3927, 7998, 1157, 8888, 239, 9794, 3917, 5916, 4163, 226, 673, 667, 5915, 3914, 1717, 1168, 7119, 6677, 5237, 7968, 4648, 2922, 9166, 5980, 8159, 8158, 5897, 9832, 8155,
2914, 2845, 4988, 7788, 2846, 7786, 6248, 2287, 8146, 6678, 4988, 4983, 2797, 8785, 9782, 2835, 1665, 5885, 5948, 1676, 2838, 3834, 3936, 8763, 5882, 2821, 5932, 5879, 2822, 7293, 5843, 3231, 6713, 2927, 9111, 9735, 878, 2873, None, None
2874, 5861, 7248, 4568, 2298, 4229, 3388, None, 1914, 8894, 9895, 8927, 8568, None, 792, 6584, 3842, 3981, None, 5111, 6894, 4576, 1324, 6572, 8916, 6329, 7245, 1595, 3725, None, None, 7699, 1518]
```

d-left Hash Table:

Run: python Dlefthashing.py 1000 1000 4

Where the parameters are:

number of table entries, number of flows, number of segments

Following is the output result for:

number of table entries = 1000, number of flows = 1000, number of segments = 4

Number of Entries: 880

```
(base) vusun-MacBook-Pro:Assignment 1 vusunegil$ python Dlefthashing.py 1000 1000 4
Number of entries -> 880
list of table entries -> [8610, 6825, 7892, 6887, 8352, 8853, 5118, 1281, 8148, 2985, 2224, 8859, 1914, 6355, 3916, 1289, 9552, 2731, 7488, 4233, 9556, 7673, 7412, 9919, 8512, 5549, 6368, None, 8376, 7419, 4586, 885, 886, 3673, 2126, 6877
628, 5861, 8264, 2631, 6382, 6383, 5884, 2897, 6648, 2899, 6870, 5449, 4524, 7811, 2984, 5453, 4766, 9237, 6396, 1867, 5196, 8881, 8546, 6535, 5708, 7585, 8886, 3965, 2156, 8889, 3786, 4741, 3842, 7331, 34, 535, 2426, 37, 5714, 9863, 59
78, 9485, 2670, 8805, 9226, 6295, 6836, 2195, 1224, 5225, 4678, 51, 6882, 7613, 554, 2317, 7232, 819, 4186, 5497, 5736, 8457, 2324, 3873, 6576, 1241, 3376, 5243, 4458, 9251, 8966, 7883, 4462, 8649, 6464, 4465, 1252, 6589, 5888, 5979, 7256
2843, 7844, 1259, 8894, 5633, 8228, 477, 978, 2351, 2078, 5981, 7768, 6843, 2894, 985, 7277, 2997, 2388, 989, 2838, 7277, 8236, 4183, 5152, 5415, 8844, 9789, 4188, 8585, 6238, 4611, 7874, 3789, 4376, 3291, 2616, 587, 4866, 9929, 1168, 8
785, 6260, 1933, 1672, 3881, 8936, 3383, 128, 2257, 3828, 8655, 7822, 1823, 9444, 8397, 5312, 7485, 6745, 8941, 7688, 9165, 7832, 8488, 448, 9455, 8988, 5585, 4918, 7459, 9722, 3841, 4652, 4891, 1464, 7783, 2646, 8419, 7586, 8921, 6688, 7
971, 4662, 2791, 5682, 2293, 1354, 6929, 4558, 4559, 3868, 9333, 3982, 5863, 4564, 9887, None, 6677, 6178, 179, 9624, 9363, 8358, 7231, 5874, 4313, 3234, 6949, None, 4679, 1616, 8325, 2692, 6193, 7742, 9877, 4824, 6135, 7374, 1887, 6788,
9383, 7878, 8837, 4832, 1393, 3394, 5883, 3518, 4599, 5258, 4821, 5182, 6341, 417, 3918, 169, 4162, 171, 178, 4417, 9598, 1467, 1674, 5679, 9882, None, 6188, 4215, 3228, 3685, 7684, 3687, None, 3963, 7228, 3941, 3682, 4467, 1448, 4727, 54
44, 977, 4938, 3487, 5988, 8781, 9114, 5783, 6484, 3283, 468, 3987, 2212, 4451, 9348, 5493, 2498, 3449, 5784, 7997, 4252, 4255, 3254, 3457, 9882, 6221, 3258, 3721, 4518, 585, 1472, None, 3886, 3259, 7728, 2729, 486, 481, 3512, 9487, None,
5817, 2774, 5481, 2826, 4489, 2246, 7385, 5742, 1533, 1782, 7489, 4744, 1529, 3286, 9915, 4788, 1881, 6252, 1511, 7490, 1496, 1263, 6, 1745, 4846, None, 5988, 7785, 6584, None, 8896, 517, 9688, 1775, 7268, 3277, 5768, 6279, 1778, 3523, 4482, 8
167, 7276, 3777, 5926, 4779, 3318, 9947, 4828, 3865, 8858, None, 9926, 6537, 1828, 6321, 822, 9675, 9456, 4825, 3842, 5885, 2794, 6837, 298, 9465, None, 7851, 7558, 7553, 4552, 3813, 7554, 8217, 1348, 1343, 882, 8869, None, 6313, 6562, 87
33, 9484, 2561, 6574, 7359, 7358, 3897, 3346, 7233, 2474, 9493, None, 2571, 1328, None, 3354, 75, 1186, 335, 858, 6893, 1368, 3589, 4844, 5879, 6338, 1893, 3342, 9229, 4126, 8183, 2878, 9475, 7378, 8767, 2592, 2853, 9268, 5363, 6384, 7387
3848, 2391, 9984, 9739, 8494, 6119, 8158, 8999, 6112, 4367, 2858, 611, 8156, 2653, 2112, 4585, 5895, 2649, 615, 2651, 7164, 3371, 7594, 9047, 8128, 389, 3164, 4489, 4134, 4919, 2886, 8765, 1638, 1171, 5914, 5417, 8525, None, 3136, 9555,
4138, 2673, 654, 8567, 6532, 1683, 6684, 7483, 9288, 2157, 4938, 6941, 6488, 8819, 2152, 9797, 148, 1345, 9872, 441, 7448, 859, 1358, 4287, 9984, 4531, None, 91, 9352, 5591, 9398, 5589, None, 9395, 1148, 1893, 3218, 7187, 64, 79, 1642,
7961, 1124, 8321, 7148, 5875, 882, 2945, 1134, 2697, 8894, 8329, 5568, 1391, 1398, 5367, 8372, 6627, 7738, 1385, 2758, 9645, 4312, 6939, 864, None, None, 8377, 3884, 97, 8358, 4549, 7478, 4381, 6428, None, 9694, 367, 1938, 6105, 1928, 728
7, 4838, 6967, 5344, None, None, 5613, 4832, 157, 4348, 1783, 2464, 1281, 898, 3825, 412, 9157, 5484, None, 1718, None, 6282, 1953, 1786, None, 9163, 1964, 781, 1446, 397, 5398, 1443, None, 6435, 3322, 5385, 5678, 8651, 8818, 2253,
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