500	4	676	3648	1986
500	5	677	3277	1752
1000	1	1246	6370	3388
1000	2	1247	6266	7892
1000	3	1246	6434	7998
1000	4	1246	6266	7892
1000	5	1247	6266	7892
1500	1	2051	10982	10552
1500	2	2049	10982	10552
1500	3	2047	11399	10815
1500	4	2047	10982	10552
1500	5	2046	10981	10552
2000	1	2639	14839	12670
2000	2	2639	14270	12311
2000	3	2639	13709	11957
2000	4	2639	13159	11610
2000	5	2639	13159	11610
2500	1	3506	18192	14470
2500	2	3505	18417	14612
2500	3	3504	18417	14612
2500	4	3504	18417	14612
2500	5	3504	18875	14901
3000	1	4379	23239	17339
3000	2	4378	24298	18007
3000	3	4378	23672	17612
3000	4	4378	23198	17313
3000	5	4379	23198	17313

IV. CONCLUSION

We have presented a new algorithmic approach for Collatz conjecture verification based on binary representation, multiplication, addition and division by 2, all done in binary domain. We observe that there are NO cycles in Collatz sequence and no element of the sequence exceeds in size 1.7 times the size of the given (starting) number. We have verified the results with all entries in binary form equal to 1, being the largest possible integer with that size. Due to limit in available computing resources, we verified the conjecture up to binary string of size 3000. Given, enough computing resources, our scheme can verify the conjecture for any given integer however big it may be.

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