Sequences of given length where every element is more than or equal to twice of previous

1st Sumit Kumar Sahu (IIT2019069)
B.Tech Information Technology
IIIT Allahabad

2nd Given Name Surname
dept. name of organization (of Aff.)
name of organization (of Aff.)
City, Country
email address or ORCID

3rd Given Name Surname
dept. name of organization (of Aff.)
name of organization (of Aff.)
City, Country
email address or ORCID

***Abstract*—This document is a model and instructions for LaTeX. Please observe the conference page limits.**

***Index Terms*—component, formatting, style, styling, insert**

I. Introduction

This document is a model and instructions for LaTeX. Please observe the conference page limits.

II. ALGORITHM 1

A. ALGORITHM DESIGN

This document is a model and instructions for LaTeX. Please observe the conference page limits.

B. ALGORITHM

Input: N(length of sequence) and M(upper bound on sequence elements)

Output: Number of possible sequences of length n such that each of the next element is greater than or equal to twice of the previous element but less than or equal to m.

Method:

1) call the solve function with parameters as n and m: solve(n,m);
2) if $m <= 0$ return 0
3) if $n == 1$ return m
4) Declare and Initialise ret with 0.
5) Loop the current element(i) of the sequence from 1 to m.
6) call the solve function with parameters n-1 and i/2. Add the returned value to ret
7) return ret;

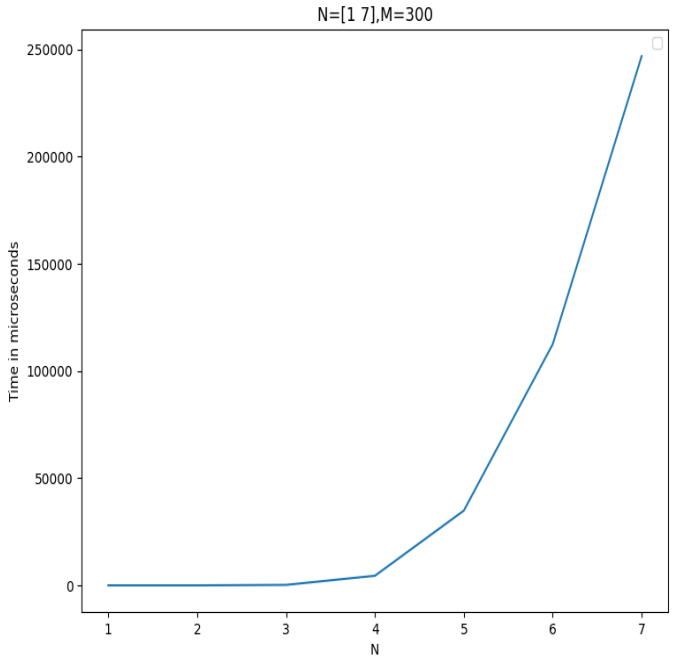
C. APRIORI ANALYSIS

This document is a model and instructions for LaTeX. Please observe the conference page limits.

D. APOSTERIORI ANALYSIS

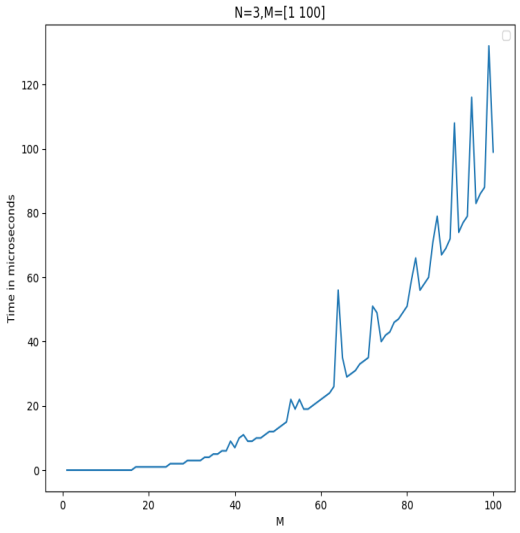
First we Fix M=300 and vary N from 1 to 7

N	Time
1	0
2	3
3	224
4	4493
5	34892
6	112558
7	246904



Now we Fix n=4 and vary M from 1 to 100

N	Time
1	0
16	0
30	3
40	7
50	13
60	22
100	99



III. ALGORITHM 2

A. ALGORITHM DESIGN

This document is a model and instructions for LaTeX. Please observe the conference page limits.

B. ALGORITHM

Input: N(length of sequence) and M(upper bound on sequence elements)

Output: Number of possible sequences of length n such that each of the next element is greater than or equal to twice of the previous element but less than or equal to m.

Method of isZero(n,m)

1) if $n >= 60$ return false;
2) if $m < 2^{n-1}$ return false;

Method of solve(n,m)

1) Check if the answer is 0. If found 0 return.
2) if n==1 return m
3) if mem[n][m]!=-1 return mem[n][m]
4) Call solve for n,m-1 and n-1,m/2 and assign their sum in mem[n][m]

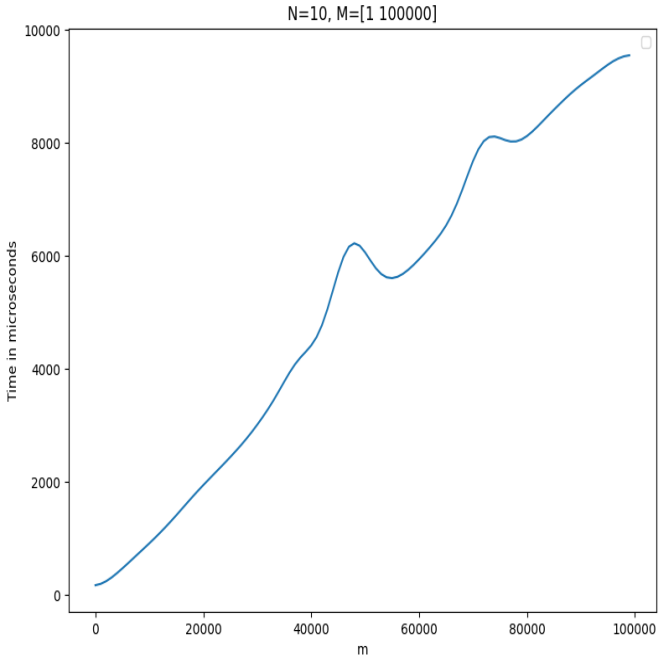
C. APRIORI ANALYSIS

This document is a model and instructions for LaTeX. Please observe the conference page limits.

D. APOSTERIORI ANALYSIS

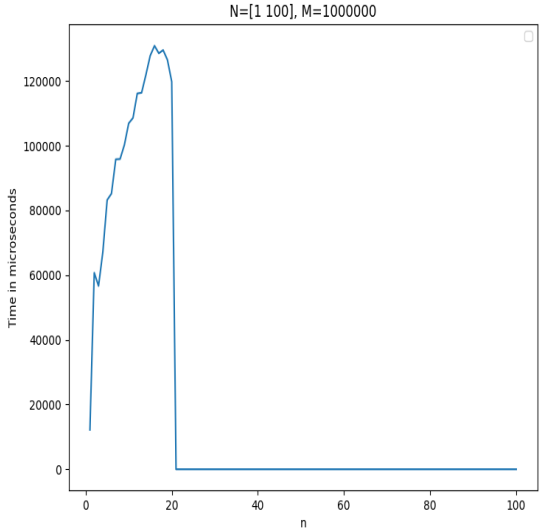
First we Fix N=10 and vary M from 1 to 100000

M	Time
1	0
2001	180
9001	224
43001	4282
78001	7857
88001	8701
99001	9704



Now we Fix m=1000000 and vary n from 1 to 100

N	Time
1	12205
16	130887
30	0
40	0
50	0
60	0
100	0



CONCLUSION

The preferred spelling of the word “acknowledgment” in America is without an “e” after the “g”. Avoid the stilted expression “one of us (R. B. G.) thanks . . .”. Instead, try “R. B. G. thanks. . .”. Put sponsor acknowledgments in the unnumbered footnote on the first page.

REFERENCES

[1] G. Eason, B. Noble, and I. N. Sneddon, “On certain integrals of Lipschitz-Hankel type involving products of Bessel functions,” Phil. Trans. Roy. Soc. London, vol. A247, pp. 529–551, April 1955.

[2] J. Clerk Maxwell, A Treatise on Electricity and Magnetism, 3rd ed., vol. 2. Oxford: Clarendon, 1892, pp.68–73.