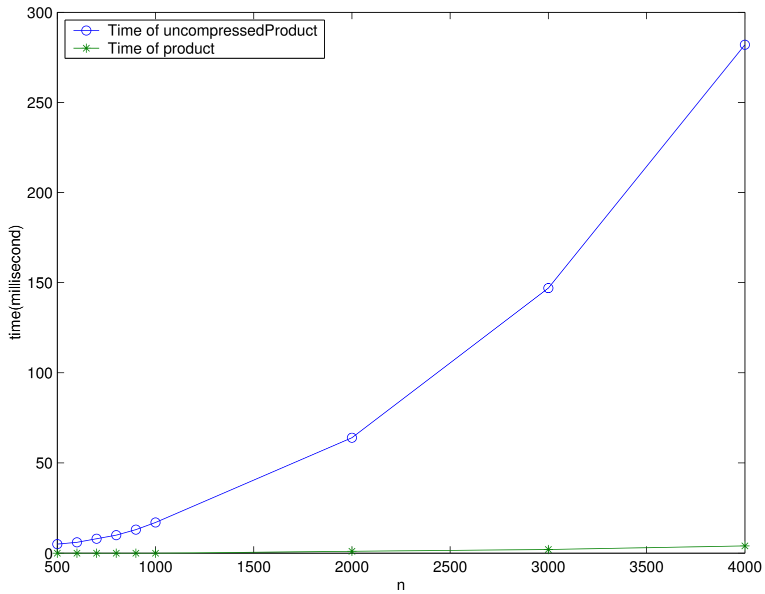
The probability p=0.01 for all the tests.
The following table shows the running times of `uncompressedProduct` and `product` for n = 500, 600, 700, 800, 900, 1000, 2000, 3000, 4000.

n	Running time of `uncompressedProduct` (milliseconds)	Running tme of `product` (milliseconds)	Running time of `uncompressedProduct`/ Running time of `product`
500	5	0	N/A
600	6	0	N/A
700	8	0	N/A
800	10	0	N/A
900	13	0	N/A
1000	17	0	N/A
2000	64	1	64
3000	147	2	74
4000	282	4	71

The following figure shows how the running times of `product` and `uncompressedProduct` change as n increases:



First the table shows that the time of `product` is almost 70 times faster than that of `uncompressedProduct`.
Based on the above figure and table we can see the running time of `uncompressedProduct` increases quadratically as n increases (O(n^2)). The running time of `product` is too small to tell the pattern. Theoretically, the time of `product` will also increase quadratically as n increases (O(pn^2)), while the slope of its increase is much smaller than that of `uncompressedProduct`.