

International Institute of Information Technology, Bangalore.
CS 511 Algorithms.
Programming Test 1, 6 October 2018.

Let $F(0) = 1$ and for $n > 0$,

$$F(n) = F(n-1) * F(n-1) + 5 * F(n-1) + 6 \mod m$$

Implement an efficient algorithm to compute $F(n)$, given n and m .
 n is 10000 digit number, use *input3* file in lms as sample n and show output for about 20 various values of m , $10 < m < 10^6$.

1. Time of Submission:
2. Does your code compile ?
3. Does your programmed give segmentation fault or core dump or goes to infinite loop or takes too much time ?
4. Does your algorithm work for large input ($n = 10^{10000}$) ?
5. What is the complexity of your algorithm ?
6. Briefly describe the data structure and algorithm.