**Proposition 1.** Given a natural number which is represented as $a_n 10^n + a_{n-1} 10^{n-1} + ... + a_1 10 + a_0$, this is a **caterinian number** if $\frac{\sum_{i=0}^{n} \sum_{k=0}^{n} |a_i - a_{n-k}|}{2} - n - 1 = a_n$.