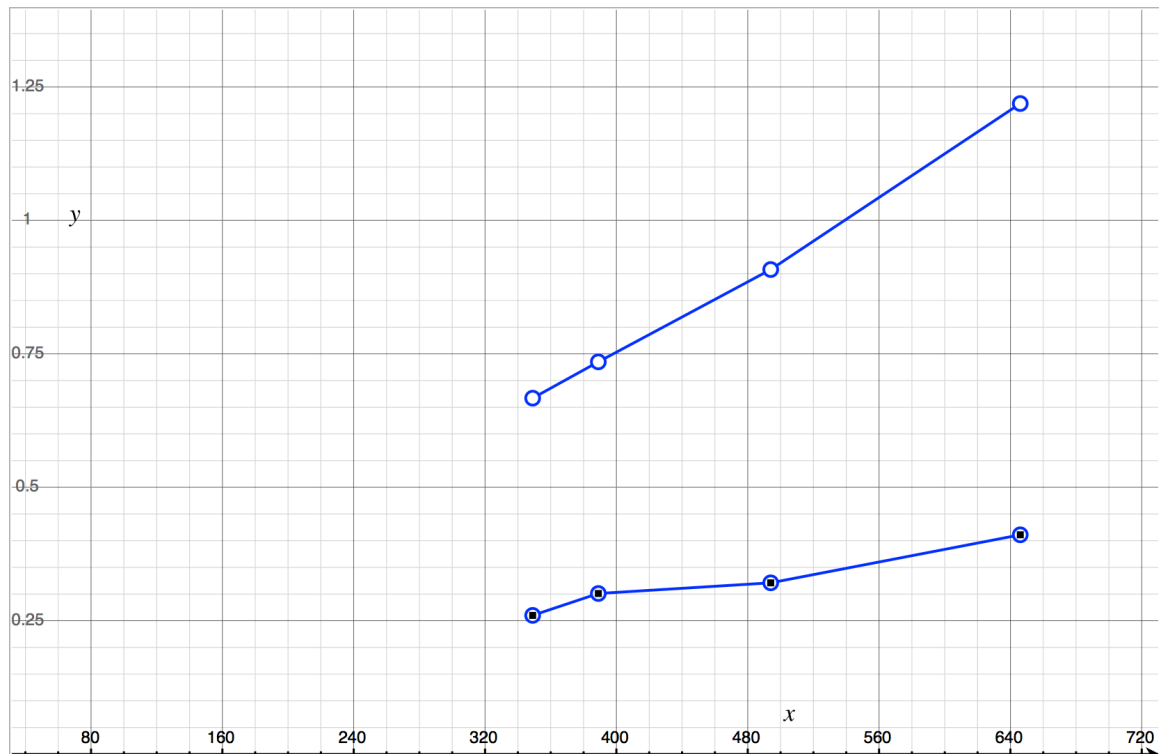


## Katrina Zhu Analysis Markov Assignment



The y axis represents time in seconds, and the x axis represents the number of keys on this graph. The upper line represents TreeMap data, and the lower line represents HashMap data. It's clear here that HashMap is consistently faster than TreeMap; also, the time it takes for TreeMap increases more rapidly as the number of keys increases in comparison to HashMap. This makes sense because TreeMap uses the CompareTo method to sort its items in order; thus, it has an order of  $O(\log(n))$ . Therefore, it takes more time to execute as opposed to HashMap, whose elements are not ordered and has an order of  $O(1)$ .