

Lecture 11.4

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In the frequent items problem, an ϵ -frequent item in a stream σ is an item j such that $F_\sigma[j] > \epsilon m$. In other words, an ϵ -frequent item makes up more than $\frac{1}{\epsilon}$ of the stream. The frequent items problem asks to compute the set $I_\epsilon(\sigma) = \{j \mid j \text{ is } \epsilon\text{-frequent}\}$.

A streaming algorithm exists which reports a set I with less than $\frac{1}{\epsilon}$ items such that $I_\epsilon(\sigma) \subseteq I$. Note that the number of ϵ -frequent items can be at most $\frac{1}{\epsilon}$ (by construction).