

How to Construct Sketching Matrices?

- We want to construct a sketching matrix S such that for all x

- S_x can be used to compute what we want to know about x

- *S* can be stored efficiently

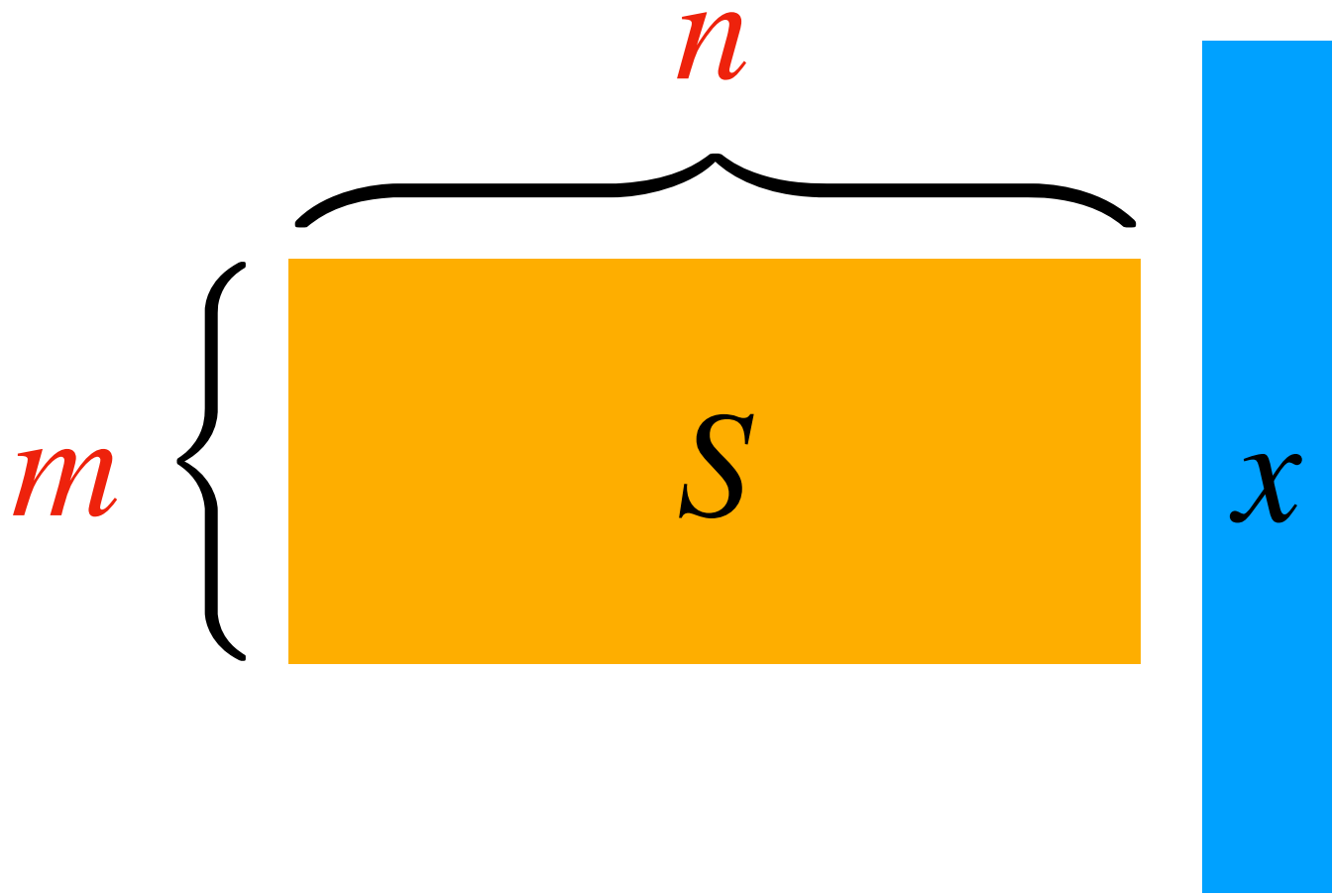
- S_{*j} can be generated on-demand

- If each S_{*j} is independently sampled from a distribution

• **Analysis is easier**

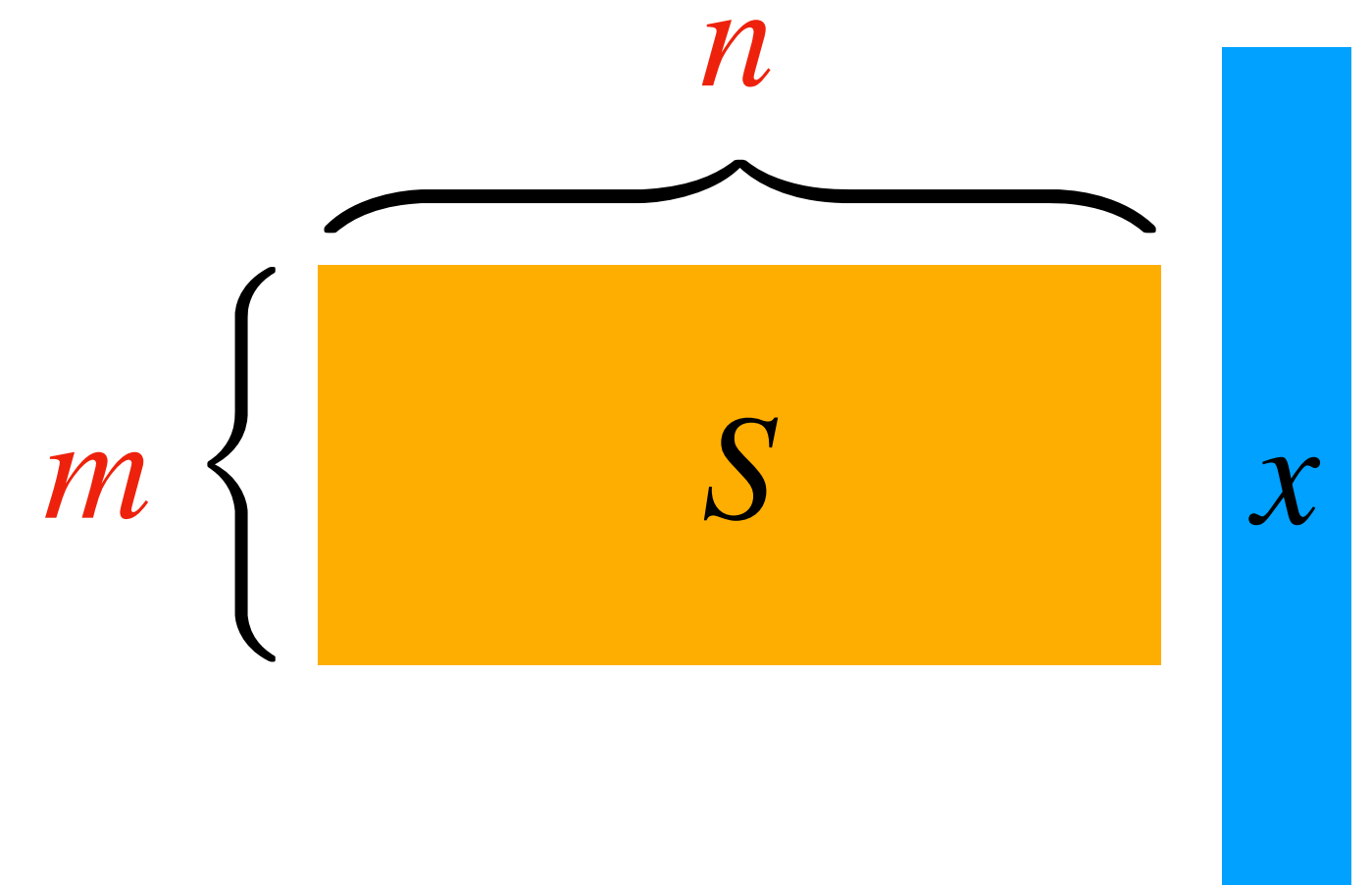
• $\Omega(n)$ space to store S





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- We want to construct a sketching matrix S such that for all x
 - Sx can be used to compute what we want to know about x
 - S can be stored efficiently
 - S_{*i} can be generated **on-demand**
- If each S_{*i} is independently sampled from a distribution
 - Analysis is easier
 - $\Omega(n)$ space to store S



Our Techniques