

## 1 | Problem

Suppose  $V$  is a real inner product space and  $v_1, \dots, v_m$  is a linearly independent list of vectors in  $V$ . Prove that there exist exactly  $2^m$  orthonormal lists  $e_1, \dots, e_m$  of vectors in  $V$  that preserve the prefix spans.

## 2 | Proof Sketch