prof. balzano mentioned that anti-aligned vectors also cause problems with image reconstruction. trying to look into why that is.

suppose we have highly clustered sets of rows $\beta_1, ..., \beta_k$, where by "highly clustered" we mean that the vectors in each β_i are very close to one another w.r.t. orientation. Let's reorder U such that $U = \begin{bmatrix} U_{\beta_1} \\ ... \\ U_{\beta_k} \end{bmatrix}$. This shuffles the rows of UW, which should not change completability, so we're fine here.

the idea is that we can separate UW into columns which have good alignment.

so basically we have $UW = \begin{bmatrix} 1\ 0...\ 0 \\ 0\ 1...\ 0 \\ ..... \\ 0\ 0...\ 1 \end{bmatrix}$

so basically we're saying that