$$\mathbf{X}_i \longrightarrow egin{array}{c} ext{Quantizer} \ \mathcal{Q}: \mathcal{X} \mapsto \mathcal{C} \end{array} \longrightarrow \mathbf{y}_k$$
 $\mathcal{X} = \{\mathbf{x}_i \in \mathbb{R}^D \mid i=1,2,\ldots,N\}$

 $\mathcal{C} = \{ \mathbf{y}_k \in \mathbb{R}^D \mid k = 1, 2, \dots K \}$

 \mathbf{y}_k

 \mathbf{x}_i