Quantizer 
$$\mathcal{Q}: \mathcal{X} \mapsto \mathcal{C}$$
  $\mathbf{x}_i = \mathbf{y}_k$  Encoder Decoder  $\mathbf{x}_i \in \mathbb{R}^D \mid i = 1, 2, \dots, N \}$ 

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