RANDOM-LINEAR-CLASSIFIER$(\mathcal{D}_n, k, d)$

1   **for** $j = 1$ **to** k

2   randomly sample $\left(\theta^{(j)}, \theta_0^{(j)}\right)$ from $(\mathbb{R}^d, \mathbb{R})$

3   $j^* = \arg\min_{j \in \{1,\dots,k\}} \mathcal{E}_n\left(\theta^{(j)}, \theta_0^{(j)}\right)$

4   **return** $\left(\theta^{(j^*)}, \theta_0^{(j^*)}\right)$