

## Setup(DB)

1.  $K \xleftarrow{\$} \{0, 1\}^\lambda$  allocate list  $L$
2. For each  $w \in W$ :  
     $K_1 \leftarrow F(K, 1\|w)$ ,  $K_2 \leftarrow F(K, 2\|w)$   
    Initialize counter  $c \leftarrow 0$   
    For each  $\text{id} \in \text{DB}(w)$  :  
         $\ell \leftarrow F(K_1, c)$ ;  $d \leftarrow \text{Enc}(K_2, \text{id})$ ;  $c++$   
        Add  $(\ell, d)$  to the list  $L$  (in lex order)  
    Set  $\gamma \leftarrow \text{Create}(L)$
3. Output the client key  $K$  and  $\text{EDB} = \gamma$ .

## Search

- Client:* On input  $(K, w)$ ,  
     $K_1 \leftarrow F(K, 1\|w)$ ,  $K_2 \leftarrow F(K, 2\|w)$   
    Send  $(K_1, K_2)$  to the server.
- Server:* For  $c = 0$  until Get returns  $\perp$ ,  
     $d \leftarrow \text{Get}(\gamma, F(K_1, c))$ ;  $m \leftarrow \text{Dec}(K_2, d)$   
    Parse and output id in each  $m$