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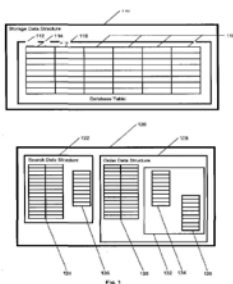
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(57) Abstract :

A method of using synchronized search and order data structures to access a collection of data stored on a non transitory computer readable medium comprising organizing the search data structure by encrypted key value wherein the search data structure contains only references to elements in the collection and their associated encrypted keys organizing the order data structure by unencrypted key value wherein the order data structure contains only references to elements in the collection and their associated encrypted keys exposing a maximum of two pieces of clear text data during operations on the collection engaging in insert or delete operations by searching and updating the search data structure and the order data structure to insert or delete associated elements of the collection engaging in update operations by searching the search data structure for the desired elements of the collection and updating their associated values; engaging in search operations by searching the search data structure according to a search key engaging in sort operations by searching the order data structure to locate a range of values and then traversing the order data structure in a desired direction engaging in merge operations by traversing and selecting entries from two or more order data structures and reporting the results of those operations to the user.



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