

CLAIMS

1. An apparatus comprising
a memory;
at least one processor to:
generate an index in the memory, the index comprising a hierarchy of interlinked data structures and a hash table such that an entry in the hash table comprises an association between a date and a first data structure in the hierarchy of interlinked data structures;
receive a search request from a remote device, the search request comprising a plurality of search parameters including the date;
search the hash table, using the date, for a memory address of the first data structure in the hierarchy of interlinked data structures;
determine a plan for traversing the hierarchy of interlinked data structures based on the search parameters;
begin a search for data sought after by the search request at the first data structure in accordance with the traversal plan; and
return results of the search to the remote device.
2. The apparatus of claim 1, wherein, to determine the traversal plan, the at least one processor is further configured to determine a depth at which to traverse the hierarchy in order to obtain the data sought after by the search request.
3. The apparatus of claim 1, wherein the first data structure is at a first level in the hierarchy of interlinked data structures.
4. The apparatus of claim 3, wherein the first data structure is a first binary tree data structure.
5. The apparatus of claim 4, wherein the at least one processor is further configured to generate, in each node of the first binary tree data structure, a pointer to a second data structure belonging to a second level in the hierarchy.

6. The apparatus of claim 5, wherein the second data structure is a vector data structure.

7. The apparatus of claim 5, wherein the second data structure is a second binary tree data structure.

8. The apparatus of claim 7, wherein the at least one processor is further configured to generate, in each node of the second binary tree data structure, a pointer to a third data structure belonging to a third level in the hierarchy.

9. A method comprising

generating, by at least one processor, an index in a memory, the index comprising a hierarchy of interlinked data structures and a hash table such that an entry in the hash table comprises an association between a date and a first data structure in the hierarchy of interlinked data structures;

receiving, by the at least one processor, a search request from a remote device, the search request comprising a plurality of search parameters including the date;

searching, by the at least one processor, the hash table, using the date, for a memory address of the first data structure in the hierarchy of interlinked data structures;

determining, by the at least one processor, a plan for traversing the hierarchy of interlinked data structures based on the search parameters;

beginning, by the at least one processor, a search for data sought after by the search request at the first data structure in accordance with the traversal plan; and

returning, by the at least one processor, results of the search to the remote device.

10. The method of claim 9, wherein determining the traversal plan comprises determining, by the at least one processor, a depth at which to traverse the hierarchy in order to obtain the data sought after by the search request.

11. The method of claim 9, wherein the first data structure is at a first level in the hierarchy of interlinked data structures.

12. The method of claim 11, wherein the first data structure is a first binary tree data structure.

13. The method of claim 12, further comprising generating, by the at least one processor, in each node of the first binary tree data structure, a pointer to a second data structure belonging to a second level in the hierarchy.

14. The method of claim 12, wherein the second data structure is a vector data structure.

15. The method of claim 14, wherein the second data structure is a second binary tree data structure.

16. The method of claim 15, further comprising generating, by the at least one processor, in each node of the second binary tree data structure, a pointer to a third data structure belonging to a third level in the hierarchy.

17. An apparatus comprising

a memory;

a display device;

at least one processor to:

render a graphical user interface on the display device;

transmit a search request to a remote server;

receive a plurality of records in response to the search request,

wherein a format of each received record matches a format of each memory space allocated for each record;

copy each received record to a respective allocated memory space;

add each allocated memory space to a linked list of memory spaces

such that an order of the linked list reflects the order in which the plurality of records are received; and

periodically render currently received records on the graphical user interface until all data records responsive to the search request are received.

18. The apparatus of claim 17, wherein the at least one processor is configured to render the currently received records whenever a predetermined period of time expires.

19. The apparatus of claim 17, wherein the at least one processor is further configured to:

detect a selection of a given field displayed on the graphical user interface;
and

render another graphical user interface containing aggregate data corresponding to the given field, in response to the selection.

20. The apparatus of claim 17, wherein the predetermined period of time is approximately one second.

CLAIMS

1. An apparatus comprising
at least one processor;
a memory to store instructions that are configured to instruct the at least one processor to:
 - generate an index in the memory, the index comprising a hierarchy of interlinked data structures and a hash table such that an entry in the hash table comprises an association between a date and a first data structure in the hierarchy of interlinked data structures;
 - receive a search request from a remote device, the search request comprising a plurality of search parameters including the date;
 - search the hash table, using the date, for a memory address of the first data structure in the hierarchy of interlinked data structures;
 - determine a plan for traversing the hierarchy of interlinked data structures based on the search parameters;
 - begin a search for data sought after by the search request at the first data structure in accordance with the traversal plan; and
 - return results of the search to the remote device.
2. The apparatus of claim 1, wherein, to determine the traversal plan, the at least one processor is further configured to determine a depth at which to traverse the hierarchy in order to obtain the data sought after by the search request.
3. The apparatus of claim 1, wherein the first data structure is at a first level in the hierarchy of interlinked data structures.
4. The apparatus of claim 3, wherein the first data structure is a first binary tree data structure.

5. The apparatus of claim 4, wherein the at least one processor is further configured to generate, in each node of the first binary tree data structure, a pointer to a second data structure belonging to a second level in the hierarchy.
6. The apparatus of claim 5, wherein the second data structure is a vector data structure.
7. The apparatus of claim 5, wherein the second data structure is a second binary tree data structure.
8. The apparatus of claim 7, wherein the at least one processor is further configured to generate, in each node of the second binary tree data structure, a pointer to a third data structure belonging to a third level in the hierarchy.
9. A method comprising
 - generating, by at least one processor, an index in a memory, the index comprising a hierarchy of interlinked data structures and a hash table such that an entry in the hash table comprises an association between a date and a first data structure in the hierarchy of interlinked data structures;
 - receiving, by the at least one processor, a search request from a remote device, the search request comprising a plurality of search parameters including the date;
 - searching, by the at least one processor, the hash table, using the date, for a memory address of the first data structure in the hierarchy of interlinked data structures;
 - determining, by the at least one processor, a plan for traversing the hierarchy of interlinked data structures based on the search parameters;
 - beginning, by the at least one processor, a search for data sought after by the search request at the first data structure in accordance with the traversal plan; and
 - returning, by the at least one processor, results of the search to the remote device.

10. The method of claim 9, wherein determining the traversal plan comprises determining, by the at least one processor, a depth at which to traverse the hierarchy in order to obtain the data sought after by the search request.
11. The method of claim 9, wherein the first data structure is at a first level in the hierarchy of interlinked data structures.
12. The method of claim 11, wherein the first data structure is a first binary tree data structure.
13. The method of claim 12, further comprising generating, by the at least one processor, in each node of the first binary tree data structure, a pointer to a second data structure belonging to a second level in the hierarchy.
14. The method of claim 12, wherein the second data structure is a vector data structure.
15. The method of claim 12, wherein the second data structure is a second binary tree data structure.
16. The method of claim 15, further comprising generating, by the at least one processor, in each node of the second binary tree data structure, a pointer to a third data structure belonging to a third level in the hierarchy.
17. An apparatus comprising
 - at least one processor;
 - a display device;
 - a memory to store instructions that are configured to instruct the at least one processor to:
 - render a graphical user interface on the display device;
 - transmit a search request to a remote server;

receive a plurality of records in response to the search request, wherein a field format of each received record matches a field format of each memory space allocated for each record;

copy each received record to a respective allocated memory space;

add each allocated memory space to a linked list of memory spaces such that an order of the linked list reflects the order in which the plurality of records are received; and

periodically render currently received records on the graphical user interface until all data records responsive to the search request are received.

18. The apparatus of claim 17, wherein the at least one processor is configured to render the currently received records whenever a predetermined period of time expires.

19. The apparatus of claim 17, wherein the at least one processor is further configured to:

detect a selection of a given field displayed on the graphical user interface; and

render another graphical user interface containing aggregate data corresponding to the given field, in response to the selection.

20. The apparatus of claim 17, wherein the predetermined period of time is approximately one second.