5. The method of claim 1, wherein the step of verifying the pattern candidate is a statistically significant pattern further comprises steps of,

calculating actual occurrence of the compound event in a data set;

calculating difference between the actual occurrence and the expected occurrence; and

determining whether or not the pattern candidate is a statistically significant pattern based upon the difference.

6. The method of claim 1, wherein the step of generating compound events of the primary events comprises step of:

generating combinations of the primary events by traversing from the virtual root to each of leaf nodes in the tree architecture.

7. The method of claim 1, wherein the data set is partitioned into a plurality of data slices and the data slices are stored in a distributed storage cluster.

8. The method of claim ~~8~~1, wherein the steps after the steps of growing the tree architecture are performed by distributed computing nodes, and each of the distributed computing nodes performs the steps after the steps of the growing the tree architecture for a set of primary events that belong to one parent.

9. A distributed processing system for searching large data space for a statistically significant pattern, comprising:

a plurality of storage nodes configured for storing data slices partitioned from a data set having a plurality of observations, collecting primary events having attributes from a data set having a plurality of observations and initializing a tree architecture by setting a virtual root and setting the primary events as nodes in a next level of the virtual root in a sorted order; and

a plurality of computing nodes configured for being allocated for a set of nodes of different attributes that belong to one parent and performing the following steps for the set of nodes: