large.

[0014]

Embodiments of the present invention have been made in view of the above-described circumstances, and seek to provide a graph generating device, a graph generating method and a graph generating program capable of, when content of graph structure data is updated, easily generating a graph for which data has been updated and performing layout so as to have the same positional relationship of common nodes as that of a graph before data has been updated.

Means of Solving the Problems

[0015]

A graph generating device according to a first aspect of the present invention is a graph generating device which generates a graph including a plurality of nodes and a plurality of edges connecting the nodes based on graph structure data including data indicating a shape and a size of each node and data indicating connection relationship to the nodes for each edge, and displays the graph on a screen of a display unit, and the graph generating device includes a storage unit in which the graph structure data corresponding to the generated graph is stored as first graph structure data and layout original data including data relating to a layout position of each node described in the first graph structure data is stored, the layout original data being generated when processing according to a predetermined

graph layout algorithm is executed based on the first graph structure data for generating the graph, a data updating and registering unit that, when a user gives an instruction to update content of the first graph structure data corresponding to the generated graph using an input unit, stores and registers the new graph structure data reflecting content of the instructed updating in the storage unit as second graph structure data with respect to the first graph structure data, a layout position calculating unit that specifies nodes described common to the second graph structure data registered by the data updating and registering unit and the first graph structure data with respect to the second graph structure data as common nodes and calculates a layout position of each node described in the second graph structure data by executing processing according to the graph layout algorithm based on the second graph structure data under the conditions that concerning each of the specified common nodes, relative positional relationship defined by the layout original data including data relating to the layout position of each node described in the first graph structure data is maintained, a layout original data generating unit that generates the layout original data including data relating to the layout position of each node described in the second graph structure data, the layout position of each node being calculated by the layout position calculating unit, and stores the generated layout original data in the storage unit as layout original data after updating with respect to the second graph structure data, and

for which the layout has been changed differs from the graph structure data corresponding to the graph before the layout has been changed, because the layout changing unit can automatically generate the graph structure data corresponding to the latest graph after the layout has been changed, the user does not have to update the content of the graph structure data.

[0020]

A graph generating method according to a second aspect of the present invention is a graph generating method for generating a graph including a plurality of nodes and a plurality of edges connecting the nodes based on graph structure data including data indicating a shape and a size of each node and data indicating connection relationship to the nodes for each edge by utilizing a computer, and displaying the graph on a screen of a display unit of the computer, when the computer includes a storage unit in which the graph structure data corresponding to the generated graph is stored as first graph structure data and layout original data including data relating to a layout position of each node described in the first graph structure data is stored, the layout original data being generated when processing according to a predetermined graph layout algorithm is executed based on the first graph structure data for generating the graph, and a control unit that performs processing for generating the graph, the graph generating method including a data updating and registering step of, when a user gives

the calculated result. By this means, the user can easily obtain a graph reflecting the change of the layout applied in the past in addition to the change of the layout this time.

[0024]

Further, it is preferable that in the graph generating method according to the present invention, in the layout changing step, when the control unit judges that as a result of generating the graph for which the layout has been changed according to the instruction of the change from the user, the graph structure data corresponding to the graph for which the layout has been changed differs from the graph structure data corresponding to the graph before the layout has been changed, the control unit newly generates the graph structure data corresponding to the graph for which the layout has been changed and stores the newly generated graph structure data in the storage unit as the first graph structure data. By this means, when the layout is changed, if the graph structure data corresponding to the graph for which the layout has been changed differs from the graph structure data corresponding to the graph before the layout has been changed, because the control unit can automatically generate the graph structure data corresponding to the latest graph after the layout has been changed, the user does not have to update the content of the graph structure data.

[0025]

A graph generating program according to a third aspect of the present invention is a graph