Claims

1. A computer-implemented system comprising:

a memory storing instructions; and

at least one processor programmed to execute the instructions to perform a method for arranging hyperlinks on a graphical user-interface (GUI) of a computerized system, the method comprising:

receiving, via the GUI, a user selection to display a plurality of hyperlinks, the hyperlinks corresponding to one or more nodes of a first set;

determining, by a processor, a rank of each hyperlink in the plurality of hyperlinks, wherein determining a rank comprises:

constructing a first bipartite graph between the one or more nodes of the first set and one or more nodes of a second set, the first set and the second set being mutually exclusive, wherein edges of the first bipartite graph are weighted according to a first criterion;

constructing a second bipartite graph between the one or more nodes of the first set and the one or more nodes of the second set, wherein edges of the second bipartite graph are weighted according to a second criterion, different from the first criterion;

constructing a third bipartite graph between the one or more nodes of the first set and the one or more nodes of the second set, wherein edges of the third bipartite graph are weighted according to a third criterion, different from the first criterion and the second criterion;

aggregating the first bipartite graph, the second bipartite graph, and the third bipartite graph to form an aggregated bipartite graph; and

ranking the one or more hyperlinks ordinally according to an aggregate weight of the corresponding node in the aggregate bipartite graph;

automatically moving the first-ranked hyperlink to a first position on the GUI; and

automatically moving the second and subsequently ranked hyperlinks to second and subsequent positions, respectively, on the GUI.

2. The computer-implemented system of claim 1, wherein:

receiving a user selection to display a plurality of hyperlinks comprises receiving an input from a keyboard or pointing device.

3. The computer-implemented system of claim 1, wherein:

constructing a first bipartite graph between the one or more nodes of the first set and one or more nodes of a second set comprises constructing a first weighted adjacency matrix having elements corresponding to the weights of the edges in the first bipartite graph;

constructing a second bipartite graph between the one or more nodes of the first set and the one or more nodes of the second set comprises constructing a second weighted adjacency matrix having elements corresponding to the weights of the edges in the second bipartite graph.

4. The computer-implemented system of claim 1, wherein:

the one or more nodes of a first set correspond to sellers in an online marketplace;

the one or more nodes of a second set correspond to buyers in the online marketplace; and

the edges of the first bipartite graph are weighted according to a value of past transactions conducted between the respective buyer and seller.

5. The computer-implemented system of claim 4, wherein:

the edges of the second bipartite graph are weighted according to one of:

a duration of past transactions between the respective buyer and seller; and

a frequency of past transactions between a respective buyer and seller.

6. The computer-implemented system of claim 1, wherein:

the edges of the second bipartite graph are weighted according to a duration of past transactions between the respective buyer and seller; and

the edges of the third bipartite graph are weighted according to a value of past transactions conducted between the respective buyer and seller.

7. The computer-implemented system of claim 1, wherein:

aggregating the first bipartite graph and the second bipartite graph to form an aggregated bipartite graph comprises:

building a first weighted adjacency matrix corresponding to the first bipartite graph;

building a second weighted adjacency matrix corresponding to the second bipartite graph; and

taking an algebraic sum of the first weighted adjacency matrix and the second weighted adjacency matrix.

8. The computer-implemented system of claim 7, wherein:

taking the algebraic sum of the first weighted adjacency matrix and the second weighted adjacency matrix comprises multiplying the first weighted adjacency matrix and the second weighted adjacency matrix by different coefficients.

9. A computer-implemented method for arranging hyperlinks on a graphical user-interface (GUI) of a computerized system, the method comprising:

receiving, via the GUI, a user selection to display a plurality of hyperlinks, the hyperlinks corresponding to one or more nodes of a first set;

determining, by a processor, a rank of each hyperlink in the plurality of hyperlinks, wherein determining a rank comprises:

constructing a first bipartite graph between the one or more nodes of the first set and one or more nodes of a second set, the first set and the second set being mutually exclusive, wherein edges of the first bipartite graph are weighted according to a first criterion;

constructing a second bipartite graph between the one or more nodes of the first set and the one or more nodes of the second set, wherein edges of the second bipartite graph are

weighted according to a second criterion, different from the first criterion;

constructing a third bipartite graph between the one or more nodes of the first set and the one or more nodes of the second set, wherein edges of the third bipartite graph are weighted according to a third criterion, different from the first criterion and the second criterion;

aggregating the first bipartite graph, the second bipartite graph, and the third bipartite graph to form an aggregated bipartite graph; and

ranking the one or more hyperlinks ordinally according to an aggregate weight of the corresponding node in the aggregate bipartite graph;

automatically moving the first-ranked hyperlink to a first position on the GUI; and

automatically moving the second and subsequently ranked hyperlinks to second and subsequent positions, respectively, on the GUI.

10. The computer-implemented method of claim 9, wherein:

receiving a user selection to display a plurality of hyperlinks comprises receiving an input from a keyboard or pointing device.

11. The computer-implemented method of claim 9, wherein:

constructing a first bipartite graph between the one or more nodes of the first set and one or more nodes of a second set comprises constructing a first weighted adjacency matrix having elements corresponding to the weights of the edges in the first bipartite graph;

constructing a second bipartite graph between the one or more nodes of the first set and the one or more nodes of the second set comprises constructing a second weighted adjacency matrix having elements corresponding to the weights of the edges in the second bipartite graph.

12. The computer-implemented method of claim 9, wherein:

the one or more nodes of a first set correspond to sellers in an online marketplace;

the one or more nodes of a second set correspond to buyers in the online marketplace; and

the edges of the first bipartite graph are weighted according to a value of past transactions conducted between the respective buyer and seller.

13. The computer-implemented method of claim 12, wherein:

the edges of the second bipartite graph are weighted according to one of:

a duration of past transactions between the respective buyer and seller; and

a frequency of past transactions between a respective buyer and seller.

14. The computer-implemented method of claim 9, wherein:

the edges of the second bipartite graph are weighted according to a duration of past transactions between the respective buyer and seller; and

the edges of the third bipartite graph are weighted according to a value of past transactions conducted between the respective buyer and seller.

15. The computer-implemented method of claim 9, wherein:

aggregating the first bipartite graph and the second bipartite graph to form an aggregated bipartite graph comprises:

building a first weighted adjacency matrix corresponding to the first bipartite graph;

building a second weighted adjacency matrix corresponding to the second bipartite graph; and

taking the algebraic sum of the first weighted adjacency matrix and the second weighted adjacency matrix.

16. The computer-implemented method of claim 15, wherein:

taking the algebraic sum of the first weighted adjacency matrix and the second weighted adjacency matrix comprises multiplying the first weighted adjacency matrix and the second weighted adjacency matrix by different coefficients.

17. A non-transitory computer-readable storage medium that comprises instructions for arranging hyperlinks on a graphical user-interface (GUI) of a computerized system, which instructions, when executed by a processor, become operational to perform a method comprising:

receiving, via the GUI, a user selection to display a plurality of hyperlinks, the hyperlinks corresponding to one or more nodes of a first set;

determining, by a processor, a rank of each hyperlink in the plurality of hyperlinks, wherein determining a rank comprises:

constructing a first bipartite graph between the one or more nodes of the first set and one or more nodes of a second set, the first set and the second set being mutually exclusive, wherein edges of the first bipartite graph are weighted according to a first criterion;

constructing a second bipartite graph between the one or more nodes of the first set and the one or more nodes of the second set, wherein edges of the second bipartite graph are weighted according to a second criterion, different from the first criterion;

constructing a third bipartite graph between the one or more nodes of the first set and the one or more nodes of the second set, wherein edges of the third bipartite graph are weighted according to a third criterion, different from the first criterion and the second criterion;

aggregating the first bipartite graph, the second bipartite graph, and the third bipartite graph to form an aggregated bipartite graph; and

ranking the one or more hyperlinks ordinally according to an aggregate weight of the corresponding node in the aggregate bipartite graph;

automatically moving the first-ranked hyperlink to a first position on the GUI; and

automatically moving the second and subsequently ranked hyperlinks to second and subsequent positions, respectively, on the GUI.