CLAIMS

1. A similarity detecting apparatus which detects similar data from search object data based on an optional similarity criterion, comprising:

means for retaining a table related to random number data generated based on a parameter for setting the similarity criterion;

means for registering and managing the search object data on the table; and

means for carrying out a similarity detection by using the table based on the criterion of similarity in response to a nearest neighbor search request from an optional reference point, and outputting data detected to be a nearest neighborhood.

2. The similarity detecting apparatus according to claim 1, further comprising:

means for setting a plurality of said different similarity criteria;

means for retaining a plurality of said tables which are respectively related to said plurality of different similarity criteria; and

means for managing the search object data by the plurality of tables in parallel.

3. The similarity detecting apparatus according to claim 1 or 2, further comprising:

means for making a set of a combination of a direction of interest and an importance parameter to the direction set the a similarity criterion.

4. The similarity detecting apparatus according to any of claims 1 to 3, further comprising:

means for setting data in which a distance between optional two points is defined as a distance on the Euclidean space, as the search object data.

5. The similarity detecting apparatus according to any of claims 1 to 4, further comprising:

means for inputting a search similarity criterion with a search center, and determining the nearest neighborhood to be outputted by using a nearest neighborhood detection result in the plurality of tables and a relation between a parameter of the similarity criterion specified in each of the plurality of tables and the search similarity criterion.

6. The similarity detecting apparatus according to any of claims 1 to 5, further comprising:

means for using data having a statically fixed value and data having a dynamically updated value as the search object data; and

means for updating a registration state in the table in response to an update of the value of the data used as the search object data.

7. The similarity detecting apparatus according to any of claims 1 to 6, further comprising:

means for grouping data similar in a state change by using the similarity detection result using the table.

8. The similarity detecting apparatus according to any of claims 1 to 7, further comprising:

means for configuring the table from the combination of a key and a value, calculating the key for data to be registered by using the random number data in registration of optional data, and managing the data by additionally registering in data list for a corresponding value.

9. The similarity detecting apparatus according to any of claims 1 to 8, further comprising:

means for determining that data having same keys or slightly different keys have a high similarity.

10. A method of detecting a directional nearest neighbor which is executed by a similarity detecting apparatus and which detects similar data from search object data based on an optional similarity criterion, comprising:

retaining a table related to random number data generated based on a parameter for setting the similarity criterion;

registering and managing search object data on the table; and

carrying out a similarity detection based on the set similarity criterion by using the table in response to a nearest neighbor search request to output data which is determined to be in the nearest neighborhood.

Claims:

1. A similarity detecting apparatus which detects similar data from search object data based on an optional similarity criterion, comprising:

means for retaining a table related to random number data generated based on a parameter for setting the similarity criterion;

means for registering and managing the search object data on the table; and

means for carrying out a similarity detection by using the table based on the criterion of similarity in response to a nearest neighbor search request from an optional reference point, and outputting data detected to be a nearest neighborhood.

2. The similarity detecting apparatus according to claim 1, further comprising:

means for setting a plurality of said different similarity criteria;

means for retaining a plurality of said tables which are respectively related to said plurality of different similarity criteria; and

means for managing the search object data by the plurality of tables in parallel.

3. The similarity detecting apparatus according to claim 1, further comprising:

means for making a set of a combination of a direction of interest and an importance parameter to the direction set the a similarity criterion.

4. The similarity detecting apparatus according to claim 1, further comprising:

means for setting data in which a distance between optional two points is defined as a distance on the Euclidean

space, as the search object data.

5. The similarity detecting apparatus according to any of claims 1 to 4, further comprising:

means for inputting a search similarity criterion with a search center, and determining the nearest neighborhood to be outputted by using a nearest neighborhood detection result in the plurality of tables and a relation between a parameter of the similarity criterion specified in each of the plurality of tables and the search similarity criterion.

6. The similarity detecting apparatus according to any of claims 1 to 4, further comprising:

means for using data having a statically fixed value and data having a dynamically updated value as the search object data; and

means for updating a registration state in the table in response to an update of the value of the data used as the search object data.

7. The similarity detecting apparatus according to any of claims 1 to 4, further comprising:

means for grouping data similar in a state change by using the similarity detection result using the table.

8. The similarity detecting apparatus according to any of claims 1 to 4, further comprising:

means for configuring the table from the combination of a key and a value, calculating the key for data to be registered by using the random number data in registration of optional data, and managing the data by additionally registering in data list for a corresponding value.

9. The similarity detecting apparatus according to any of claims 1 to 4, further comprising:

means for determining that data having same keys or slightly different keys have a high similarity.

10. A method of detecting a directional nearest neighbor which is executed by a similarity detecting apparatus and which detects similar data from search object data based on an optional similarity criterion, comprising:

retaining a table related to random number data generated based on a parameter for setting the similarity criterion;

registering and managing search object data on the table; and

carrying out a similarity detection based on the set similarity criterion by using the table in response to a nearest neighbor search request to output data which is determined to be in the nearest neighborhood.