

training unit 221, and the simulation unit 222 are implemented by the CPU 223 and the memory 224. Data transmission and reception via the network 203 in the cloud server 204 is implemented by communication control performed by the communication control unit 225 via the data bus 227 and the network I/F 226. The extracted human flow data transmitted from the edge server 202 is stored in the extracted human flow data DB 217. The extracted human flow data stored in the extracted human flow data DB 217 is extracted as the touring data by the touring data extraction unit 219 and stored in the touring data DB 218. The touring data stored in the touring data DB 218 and the tenant attribute stored in the tenant attribute DB 215 are converted into training input data by the training input data generation unit 220, and a trained model is generated as a training result in the model training unit 221 based on the input and stored in the trained model DB 216.

[0017]

The administrator terminal 205 includes a simulation condition input unit 228, ~~an image result~~ screen output unit 229, a user interface processing unit 230, a CPU 231, a memory 232, a communication control unit 233, a network I/F 234, and a data bus 235. The user interface processing unit 230 is implemented by the CPU 231 and the memory 232. In the administrator terminal 205, data transmission and reception

extraction unit 219 described later can be performed with the original human flow data. Further, in the touring data extraction processing according to the present embodiment, it is assumed that the human flow data extraction processing is performed as batch processing after the original human flow data corresponding to a predetermined period or data volume is accumulated in the original human flow data storage unit 206, but timings of the human flow data extraction processing (step S404) and the storage in the extracted human flow data storage unit 206~~7~~ (step S405) are not necessarily limited to the batch processing, and the human flow data extraction processing (step S404) and the storage in the extracted human flow data storage unit 206~~7~~ (step S405) may be sequentially performed after the original human flow data acquisition processing (step S402) and the storage in the original human flow data storage unit (step S403). After step S405 is performed, in a case where the extracted human flow data corresponding to a predetermined period or data volume is stored in the extracted human flow data storage unit 207, the processing proceeds to step S406.

[0022]

In step S406, the extracted human flow data stored in the extracted human flow data storage unit 207 is stored in the extracted human flow data DB 217 via the data bus 208, the network I/F 214, the network 203, the network I/F 226,

area size. In this case, for example, it is sufficient if a weight for the touring data in a case where the distance from the touring source is long is larger than that in a case where the distance from the touring source is short. In addition, it is sufficient if the weight for the touring data in a case where the store area size is small is larger than that in a case where the store area size is large. A regression equation of a touring rate Y of a permanent tenant, which is an objective variable obtained as a result of the correlation analysis, is expressed as Equation 1 by using a plurality of qualitative explanatory variables $X_1, \dots, X_n$ for n tenant attributes, partial regression coefficients $b_1, \dots, b_n$ corresponding to the respective tenant attributes, and bias b_0 , for example, in a case of using Quantification I. Once the correlation ~~training~~-model training ends, the processing proceeds to subsequent step S604. In step S604, the obtained correlation model is stored in the trained model DB 216. Once the correlation model is stored in the trained model DB 216, the processing of creating the correlation model for the touring and the tenant attribute is completed (step S605).

[0026]

[Equation 1]

read, the processing proceeds to step S1404. Here, the model creation condition represents a constraint condition at the time of creating the correlation model, a calculation convergence condition, and the like, and is described in a header file read in advance at the time of model training. In step S1404, correlation model training is performed by a model training unit 221 using the training data set as an input. The correlation model training performed by the model training unit 221 creates a model by applying statistical analysis processing using a neural network such as multivariate analysis such as regression analysis or machine learning to a combination of the POS data difference input as the training data set and the tenant attribute similarly input as the training data set. A regression equation of the POS data difference Y , which is an objective variable obtained as a result of the correlation analysis, is expressed as Equation 1 by using a plurality of qualitative explanatory variables $X_1, \dots, X_n$ for n tenant attributes, partial regression coefficients $b_1, \dots, b_n$ corresponding to the respective tenant attributes, and bias b_0 , for example, in a case of using Quantification I. That is, the regression equation is expressed by the same equation as that in the first embodiment only with a difference in input for training. Once the correlation ~~training~~-model training ends, the processing proceeds to subsequent step S1405. In step S1405,

CLAIMS

[Claim 1]

An optimization system comprising:

a customer touring acquisition unit that is configured to be able to acquire touring of stores by a customer;

a store attribute information acquisition unit that is configured to be able to acquire one or more items of store attribute information for classifying features of the stores;

a model training unit that creates a correlation model for the touring by the customer and the store attribute information by using the touring of the stores by the customer and the store attribute information as inputs;

a trained model storage unit that stores the created model; and

an output unit that presents information regarding one or more stores to be opened in such a way as to increase the touring of the stores by the customer based on the model.

[Claim 2]

The optimization system according to claim 1, wherein the output unit presents an optimal combination of the stores to be opened in such a way as to increase the touring of the stores by the customer in a specific store.

[Claim 3]

The optimization system according to claim 1, wherein the information regarding the stores to be opened presented

by the output unit is a store name or store attribute information.

[Claim 4]

The optimization system according to any one of claims 1 to 3, wherein information acquired by the customer touring acquisition unit is store touring information acquired by analyzing data acquired using a sensor or an imaging device.

[Claim 5]

The optimization system according to claim 1, wherein the customer touring acquisition unit acquires point of sales (PoS) data of each of the stores by connecting the PoS data in chronological order.

[Claim 6]

The optimization system according to claim 1, wherein the store to be opened is a unit in which a space is partitioned by furniture.

[Claim 7]

The optimization system according to claim 1, wherein the model training unit performs modeling after weighting the store attribute information that facilitates the touring of the stores by the customer.

[Claim 8]

The optimization system according to claim 7, wherein the store attribute information includes information regarding a distance from a store touring source and/or a

store area size, and

the model training unit creates the correlation model for the touring by the customer and the store attribute information by using the information regarding the distance from the store touring source and/or the store area size as a weighting parameter.

[Claim 9]

An optimization system comprising:

a sales data acquisition unit that is configured to be able to acquire sales data of a permanent store when a store opens and sales data of the permanent store when the store does not open;

a sales data difference acquisition unit that is configured to be able to acquire a difference between sales data of the permanent store when a store that opens only for a limited period of time opens and sales data of the permanent store when the store does not open, based on the data of the sales data acquisition unit;

a store attribute information acquisition unit that is configured to be able to acquire one or more items of store attribute information for classifying feature of the store;

a model training unit that creates a correlation model for a sales data difference and the store attribute information by using the sales data difference and the store attribute information as inputs; and

a trained model storage unit that stores the created model,

wherein information regarding one or more store tenants is presented in such a way as to increase a sales difference based on the model.

[Claim 10]

The optimization system according to claim 1 or 9, wherein the model training unit performs training by regression analysis using Quantification I.

[Claim 11]

The optimization system according to claim 1 or 9, wherein the model training unit performs training by statistical processing using machine learning.

[Claim 12]

An optimization method for a store combination for presenting an optimal combination of stores to be opened, the optimization method comprising:

a first step of acquiring touring of stores by a customer;

a second step of acquiring one or more items of store attribute information for classifying features of the stores;

a third step of creating a correlation model for the touring by the customer and the store attribute information by using the touring of the stores by the customer and the store attribute information as inputs; and

a fourth step of presenting information regarding one or more stores to be opened in such a way as to increase the touring of the stores by the customer based on the model.

[Claim 13]

An optimization method for a store combination for presenting an optimal combination of stores to be opened, the optimization method comprising:

a first step of acquiring sales data of a permanent store when a store to be opened opens and sales data of the permanent store when the store to be opened does not open;

a second step of acquiring one or more items of store attribute information for classifying features of the stores;

a third step of creating a correlation model for a sales data difference between sales data of the permanent store when a store that opens only for a limited period of time

opens and sales data of the permanent store when the store does not open, and the store attribute information by using the sales data difference and the store attribute information as inputs; and

a fourth step of presenting information regarding one or more stores to be opened in such a way as to increase a sales difference based on the model.

[Claim 14]

The optimization method according to claim 12 or 13,

wherein the information regarding the stores to be opened presented in the fourth step is a store name or store attribute information.