[0004] In some cases, sufficient historical data needed to generate an accurate preference model is not available. To address this insufficiency of data, the preference model is generated based on historical data for a given listing in combination with historical data for other listings in the same region.

[0005] The features and advantages described in this summary and the following detailed description are not all-inclusive. Many additional features and advantages will be apparent to one of ordinary skill in the art in view of the drawings, specification, and claims.

[0005A] According to a first aspect, there is provided a computer implemented method, comprising: identifying a plurality of listings having at least one common attribute, each listing associated with a host; determining a set of reservation requests received for the plurality of listings, each reservation request for a listing having previously been accepted or rejected by the host associated with the listing; determining a cluster preference value for a request feature based on a number of the set of reservation requests that were accepted and a number of the set of reservation requests that possess the request feature; for a first listing in the plurality of listings, determining based on the cluster preference value a listing-specific preference value for the request feature; generating, using a computing device, a preference model based on the listing-specific preference value, the preference model identifying a relationship between the request feature and a reservation request for the first listing being accepted or rejected by a first host associated with the first listing; and applying the preference model to a prospective reservation request for the first listing to compute a probability that the prospective reservation request will be accepted by the first host.

[0005B] According to a second aspect, there is provided a computer implemented method, comprising: determining a set of reservation requests received for a listing, each reservation request for the listing having previously been accepted or rejected by a host associated with the listing; determining a preference value for a request feature based on a number of the set of reservation requests that were accepted and a number of the set of reservation requests that possess the request feature; and generating, using a computing device, a preference model based on the preference value, the preference model identifying a relationship between the request feature and a reservation request for the first listing being accepted or rejected by a first host associated with the first listing.

[0005C] According to a third aspect, there is provided a non-transitory computer readable medium storing instructions, the instructions when executed cause the processor to: identify a plurality of listings having at least one common attribute, each listing associated with a host; determine a set of reservation requests received for the plurality of listings, each reservation

request for a listing having previously been accepted or rejected by the host associated with the listing; determine a cluster preference value for a request feature based on a number of the set of reservation requests that were accepted and a number of the set of reservation requests that possess the request feature; for a first listing in the plurality of listings, determine based on the cluster preference value a listing-specific preference value for the request feature; generate, using a computing device, a preference model based on the listing-specific preference value, the preference model identifying a relationship between the request feature and a reservation request for the first listing being accepted or rejected by a first host associated with the first listing; and apply the preference model to a prospective reservation request for the first listing to compute a probability that the prospective reservation request will be accepted by the first host.

[0005D] According to a fourth aspect, there is provided a computer system comprising: a processor; and a memory storing instructions that, when executed by the processor, cause the processor to: identify a plurality of listings having at least one common attribute, each listing associated with a host; determine a set of reservation requests received for the plurality of listings, each reservation request for a listing having previously been accepted or rejected by the host associated with the listing; determine a cluster preference value for a request feature based on a number of the set of reservation requests that were accepted and a number of the set of reservation requests that possess the request feature; for a first listing in the plurality of listings, determine based on the cluster preference value a listing-specific preference value for the request feature; generate, using a computing device, a preference model based on the listing-specific preference value, the preference model identifying a relationship between the request feature and a reservation request for the first listing being accepted or rejected by a first host associated with the first listing; and apply the preference model to a prospective reservation request for the first listing to compute a probability that the prospective reservation request will be accepted by the first host.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 is a system diagram of the online booking system in accordance with one embodiment.

[0007] FIG. 2 is a block diagram illustrating the different modules and stores included in the online booking system in accordance with one embodiment.

[0008] FIG. 3 is an illustration of the class diagram of the online booking system in accordance with one embodiment.

[0009] FIG. 4 is a detailed illustration of the host preference module 229 configured to generate a listing-specific preference model based on regional data in accordance with one embodiment.

[0010] FIG. 5 is a flowchart of an exemplary method for generating a listing-specific reservation request preference model based on regional data in accordance with one embodiment.

[0011] FIG. 6A is a flowchart of an exemplary method for generating a local preference model for a listing based on data associated with the listing in accordance with one embodiment.

[0012] FIG. 6B is a flowchart of an exemplary method for generating a global preference model based on global data in accordance with one embodiment.

[0013] FIG. 7 is a flowchart of an exemplary method for generating search results for a search query based on preference models in accordance with one embodiment.

[0014] The figures depict various embodiments of the present invention for purposes of illustration only. One skilled in the art will readily recognize from the following discussion that alternative embodiments of the structures and methods illustrated herein may be employed without departing from the principles of the invention described herein.