Claims

1. A system, comprising:

a data collector configured to collect a historical proposed rate, a historical accepted rate, a historical product characteristic, and a historical customer characteristic;

a data cleaner configured to:

receive the historical proposed rate, the historical accepted rate, the historical product characteristic, and the historical customer characteristic from the data collector;

convert the historical proposed rate and the historical accepted rate to a current currency value;

remove outliers from a converted historical proposed rate and a converted historical accepted rate;

assign the converted historical proposed rate and the converted historical accepted rate to a clean numeric variable;

assign a historical product characteristic and a historical customer characteristic to characteristic variables;

generate calculated variables;

generate a numerical rate for characteristic variables based on new calculated variables, characteristic variables, and numerical variables;

divide the numerical rate into a first data group, a second data group, and a third data group;

perform a training on the first data group;

perform a validation on the second data group; and

perform a testing on the third data group;

model builder configured to build a prediction model based on the training, validation, and testing;

rate predictor configured to:

receive the prediction model;

receive inputs from a user about a channel characteristic, a property characteristic, and a season;

input the channel characteristic, the property characteristic, and the season into the prediction model;

generate a prediction from the prediction model; and

output the prediction to the user.

2. The system of claim 1, further comprising a negotiation assistant that receives a bid rate from a third-party.

3. The system of claim 2, wherein the negotiation assistant compares the bid rate to the prediction.

4. The system of claim 3, wherein the negotiation assistant outputs a suggested counter offer if the bid rate is greater than the prediction.

5. The system of claim 3, wherein the negotiation assistant provides a probability of acceptance based on a proposed rate provided by the user.

6. The system of claim 1, wherein an accepted rate is input into the data collector by a user.

7. The system of claim 1, wherein an accepted rate is used to determine the historical accepted rate.

8. The system of claim 1, wherein the historical product characteristic is a hotel amenity.

9. The system of claim 1, wherein the historical product characteristic is a room type.

10. A method comprising:

collecting a historical proposed rate, a historical accepted rate, a historical product characteristic, and a historical customer characteristic;

converting the historical proposed rate and the historical accepted rate to a current currency value;

removing outliers from a converted historical proposed rate and a converted historical accepted rate;

assigning the converted historical proposed rate and the converted historical accepted rate to a clean numeric variable;

assigning the historical product characteristic and a historical customer characteristic to characteristic variables;

generating calculated variables;

generating a numerical rate for characteristic variables based on new calculated variables, characteristic variables, and numerical variables;

dividing the numerical rate into a first data group, a second data group, and a third data group;

performing a training on the first data group;

performing a validation on the second data group;

performing a testing on the third data group;

building a prediction model based on the training, validation, and testing;

receiving the prediction model;

receiving inputs from a user about a channel characteristic, a property characteristic, and a season;

inputting the channel characteristic, the property characteristic, and the season into the prediction model;

generating a prediction from the prediction model; and

outputting the prediction to the user.

11. The method of claim 10, wherein the prediction is a range of rates.

12. The method of claim 10, further comprising:

receiving edited characteristic values; and

generating a second prediction from the prediction model.

13. The method of claim 10, further comprising:

generating a confidence metric based on the validation of the second group.

14. The method of claim 13, further comprising:

providing the confidence metric to the user with the prediction.

15. The method of claim 13, further comprising:

providing a warning to the user when the confidence metric is below a threshold.

16. The method of claim 10, further comprising:

receiving an accepted rate from the user;

updating at least one of the first data group, the second data group, or the third data group based on the accepted rate, the channel characteristic, the property characteristic, and the season.

17. A computer-readable storage medium storing instructions which, when executed by a computing device, causes the computing device to perform a method comprising:

determining a property characteristic about a property;

assigning the property characteristic a numerical property value using a pricing model;

determining a channel characteristic about a channel;

assigning the channel characteristic a numerical channel value using the pricing model;

determining a negotiation characteristic about a negotiation;

assigning the negotiation characteristic a numerical negotiation value using the pricing model;

determining a season characteristic about a season;

assigning the season characteristic a numerical season value using the pricing model;

determining a term characteristic about a term;

assigning the term characteristic a numerical term value using the pricing model;

receiving a paid price from a user device;

assigning the price paid to the property characteristic, the channel characteristic, the negotiation characteristic, the season characteristic, and the term characteristic;

removing outliers from the property characteristic, the channel characteristic, the negotiation characteristic, the season characteristic, and the term characteristic;

dividing the property characteristic, the channel characteristic, the negotiation characteristic, the season characteristic, and the term characteristic into a first group, a second group, and a third group;

performing training on the first group;

performing validation on the second group;

performing testing on the third group;

updating the pricing model based on the training, validation and testing.

18. The computer-readable storage medium of claim 17, further storing instructions which, when executed by a computing device, causes the computing device to perform a method, wherein:

the season characteristic is based on a demand for the property.

19. The computer-readable storage medium of claim 17, further storing instructions which, when executed by a computing device, causes the computing device to perform a method, wherein

the channel is based on a customer.

20. The computer-readable storage medium of claim 17, further storing instructions which, when executed by a computing device, causes the computing device to perform a method further comprising:

setting a flag when the testing outputs a confidence level that is under a threshold degree of certainty.