

CLAIMS

What is claimed is:

1. A computer-implemented system for outbound forecasting, the system comprising:
 - a memory storing instructions; and
 - at least one processor configured to execute the instructions to:
 - receive, from a sales forecast system, a prediction of a regional sales forecast indicative of a customer demand for each stock keeping unit (SKU) in each region;
 - receive, from a SKU correlation system, a prediction of a correlation of one or more SKUs that will be combined in customer orders in each region;
 - receive, from an order size calculation system, a prediction of a size of customer orders in each region, wherein a customer order profile is simulated based on the predicted correlation and the predicted size;
 - receive an inventory stow model, wherein the inventory stow model is generated, via a machine learning algorithm, using at least one of open purchase orders or past customer orders;
 - predict a fulfillment center (FC), among a plurality of FCs, for managing outbound of each SKU based on the predicted regional sales forecast, the simulated customer order profile, and the inventory stow model; and
 - modify a database to assign the predicted FC to each corresponding SKU.

2. The system of claim 1, wherein open purchase orders comprise unfulfilled customer orders.
3. The system of claim 1, wherein the inventory stow model is used to predict a stowing time for each SKU.
4. The system of claim 1, wherein the at least one processor is further configured to execute the instructions to apply a FC priority filter to the simulated customer order profile.
5. The system of claim 4, wherein the FC priority filter varies based on each customer order.
6. The system of claim 1, wherein predicting the FC for managing outbound of each SKU further comprises selecting a FC, among the plurality of FCs, with a highest outbound capacity utilization value.
7. The system of claim 6, wherein the outbound capacity utilization value is a ratio of an outbound of the FC to an outbound capacity of the FC.
8. The system of claim 1, wherein receiving the prediction of the regional sales forecast further comprises receiving a national sales forecast and separating the national sales forecast into a plurality of regional sales forecasts.

9. The system of claim 1, wherein the at least one processor is further configured to execute the instructions to predict inventory at the predicted FC on a particular future date.
10. The system of claim 1, wherein:
 - each region is associated with a plurality of postal codes; and
 - the plurality of postal codes comprise a set of optimal postal codes that are mapped to each region using a genetic algorithm.
11. A computer-implemented method for outbound forecasting, the method comprising:
 - receiving, from a sales forecast system, a prediction of a regional sales forecast indicative of a customer demand for each stock keeping unit (SKU) in each region;
 - receiving, from a SKU correlation system, a prediction of a correlation of one or more SKUs that will be combined in customer orders in each region;
 - receiving, from an order size calculation system, a prediction of a size of customer orders in each region, wherein a customer order profile is simulated based on the predicted correlation and the predicted size;
 - receiving an inventory stow model, wherein the inventory stow model is generated, via a machine learning algorithm, using at least one of open purchase orders or past customer orders;

predicting a fulfillment center (FC), among a plurality of FCs, for managing outbound of each SKU based on the predicted regional sales forecast, the simulated customer order profile, and the inventory stow model; and modifying a database to assign the predicted FC to each corresponding SKU.

12. The method of claim 11, wherein open purchase orders comprise unfulfilled customer orders.
13. The method of claim 11, wherein the inventory stow model is used to predict a stowing time for each SKU.
14. The method of claim 11, further comprising applying a FC priority filter to the simulated customer order profile.
15. The method of claim 14, wherein the FC priority filter varies based on each customer order.
16. The method of claim 11, wherein predicting the FC for managing outbound of each SKU further comprises selecting a FC, among the plurality of FCs, with a highest outbound capacity utilization value.
17. The method of claim 16, wherein the outbound capacity utilization value is a ratio of an outbound of the FC to an outbound capacity of the FC.

18. The method of claim 11, wherein receiving the prediction of the regional sales forecast further comprises receiving a national sales forecast and separating the national sales forecast into a plurality of regional sales forecasts.
19. The method of claim 11, wherein:
each region is associated with a plurality of postal codes; and
the plurality of postal codes comprise a set of optimal postal codes that are mapped to each region using a genetic algorithm.
20. A computer-implemented system for outbound forecasting, the system comprising:
a memory storing instructions; and
at least one processor configured to execute the instructions to:
receive, from a sales forecast system, a prediction of a regional sales forecast indicative of a customer demand for each stock keeping unit (SKU) in each region, wherein each region is associated with a set of optimal postal codes that are mapped to each region using a genetic algorithm;
receive, from a SKU correlation system, a prediction of a correlation of one or more SKUs that will be combined in customer orders in each region;
receive, from an order size calculation system, a prediction of a size of customer orders in each region, wherein a customer order

profile is simulated based on the predicted correlation and the predicted size;

receive an inventory stow model, wherein the inventory stow model is generated, via a machine learning algorithm, using at least one of open purchase orders or past customer orders, and wherein the inventory stow model is used to predict a stowing time for each SKU;

predict a fulfillment center (FC), among a plurality of FCs, for managing outbound of each SKU based on the predicted regional sales forecast, the simulated customer order profile, and the inventory stow model; and

modify a database to assign the predicted FC to each corresponding SKU.