Claims

1. A computer-implemented system comprising:

one or more memory devices storing instructions;

one or more processors configured to execute the instructions to perform operations comprising:

receiving, from a user device, a request for generating demand forecasting data associated with an item;

retrieving data from a database, wherein the data represent sales history associated with the item during a predefined time period;

modifying the retrieved data by removing outliers;

generating demand forecasting data associated with the item by performing a wavelet transform on the modified data based on a wavelet base, wherein performing a wavelet transform comprises:

decomposing the modified data into a first level layer based on a wavelet base, wherein the first level layer comprises a low frequency component and a high frequency component;

decomposing the low frequency component into a next level layer, wherein the next level layer comprises a low frequency component and a high frequency component;

repeatedly decomposing a latest low frequency component until a predefined target layer is reached; and

combining low frequency components and a latest high frequency component; and

generating one or more purchase orders of the item to one or more suppliers based on the generated demand forecasting data.

2. The computer-implemented system of claim 1, wherein combining low frequency components and a latest high frequency component comprises:

retrieving a range of layers to filter low frequency components from the database;

filtering low frequency components associated the received range of layers from all low frequency components; and

combining the filtered low frequency components with a latest high frequency component.

3. The computer-implemented system of claim 1, wherein the predefined target layer is two.

4. The computer-implemented system of claim 1, wherein the generated demand forecasting data associated with the item predict weekly or daily demand of the item.

5. The computer-implemented system of claim 1, wherein the generated demand forecasting data associated with the item predict regional or national demand of the item.

6. The computer-implemented system of claim 1, wherein the predefined time period is between 90 days to 120 days.

7. The computer-implemented system of claim 1, wherein the wavelet base is a Haar base.

8. The computer-implemented system of claim 1, wherein the wavelet base is a Daubechies base.

9. The computer-implemented system of claim 1, wherein the wavelet base is a Symlet base.

10. A method comprising:

receiving, from a user device, a request for generating demand forecasting data associated with an item;

retrieving data from a database, wherein the data represent sales history associated with the item during a predefined time period;

modifying the retrieved data by removing outliers;

generating demand forecasting data associated with the at least one item by performing a wavelet transform on the modified data based on a wavelet base, wherein performing a wavelet transform comprises:

decomposing the modified data into a first level layer based on a wavelet base, wherein the first level layer comprises a low frequency component and a high frequency component;

decomposing the low frequency component into a next level layer, wherein the next level layer comprises a low frequency component and a high frequency component;

repeating decomposing a latest low frequency component until a predefined target layer is reached; and

combining low frequency components and a latest high frequency component; and

generating one or more purchase orders of the item to one or more suppliers based on the generated demand forecasting data.

11. The method of claim 10, wherein combining low frequency components and a latest high frequency component comprises:

retrieving a range of layers to filter low frequency components from the database;

filtering low frequency components associated the received range of layers from all low frequency components; and

combining the filtered low frequency components with a latest high frequency component.

12. The method of claim 10, wherein the predefined target layer is two.

13. The method of claim 10, wherein the generated demand forecasting data associated with the item predict weekly or daily demand of the item.

14. The method of claim 10, wherein the generated demand forecasting data associated with the item predict regional or national demand of the item.

15. The method of claim 10, wherein the predefined time period is between 90 days to 120 days.

16. The method of claim 10, wherein the wavelet base is a Haar base or a Symlet base.

17. The method of claim 10, wherein the wavelet base is Daubechies base.

18. A computer-implemented system comprising:

one or more memory devices storing instructions;

one or more processors configured to execute the instructions to perform operations comprising:

receiving, from a user device, a request for generating demand forecasting data associated with an item;

retrieving data from a database, wherein the data represent sales history associated with the item during a predefined time period;

modifying the retrieved data by removing sporadic out of stock days;

generating demand forecasting data associated with the item by performing a wavelet transform on the modified data based on a wavelet base, wherein performing a wavelet transform comprises:

decomposing the modified data into a first level layer based on a wavelet base, wherein the first level layer comprises a low frequency component and a high frequency component;

decomposing the low frequency component into a next level layer, wherein the next level layer comprises a low frequency component and a high frequency component;

repeatedly decomposing a latest low frequency component until a predefined target layer is reached; and

combining low frequency components and a latest high frequency component;

generating one or more purchase orders of the item based on the generated demand forecasting data, the purchase orders include a quantity of the item required to fulfill customer orders and a supplier; and

transmitting the generated purchaser orders to the supplier.